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VOLUME 1, NUMBER 2, 2011

Editorial
Aviation Safety Training Section
Editor-in-Chief: Nicole Barrette-Sabourin
Tel: +1 (514) 954-6728
E-mail: safetytraining@ICAO.int

Content Development
Anthony Philbin Communications
Senior Editor: Anthony Philbin
Tel: +01 (514) 886-7746
E-mail: info@philbin.ca
Web Site: www.philbin.ca

Production and Design
Bang Marketing
Stéphanie Kennan
Tel: +01 (514) 849-2264
E-mail: info@bang-marketing.com
Web Site: www.bang-marketing.com

Advertising
FCM Communications Inc.
Yves Allard
Tel: +01 (450) 677-3535
Fax: +01 (450) 677-4445
E-mail: info@fcmcommunications.ca

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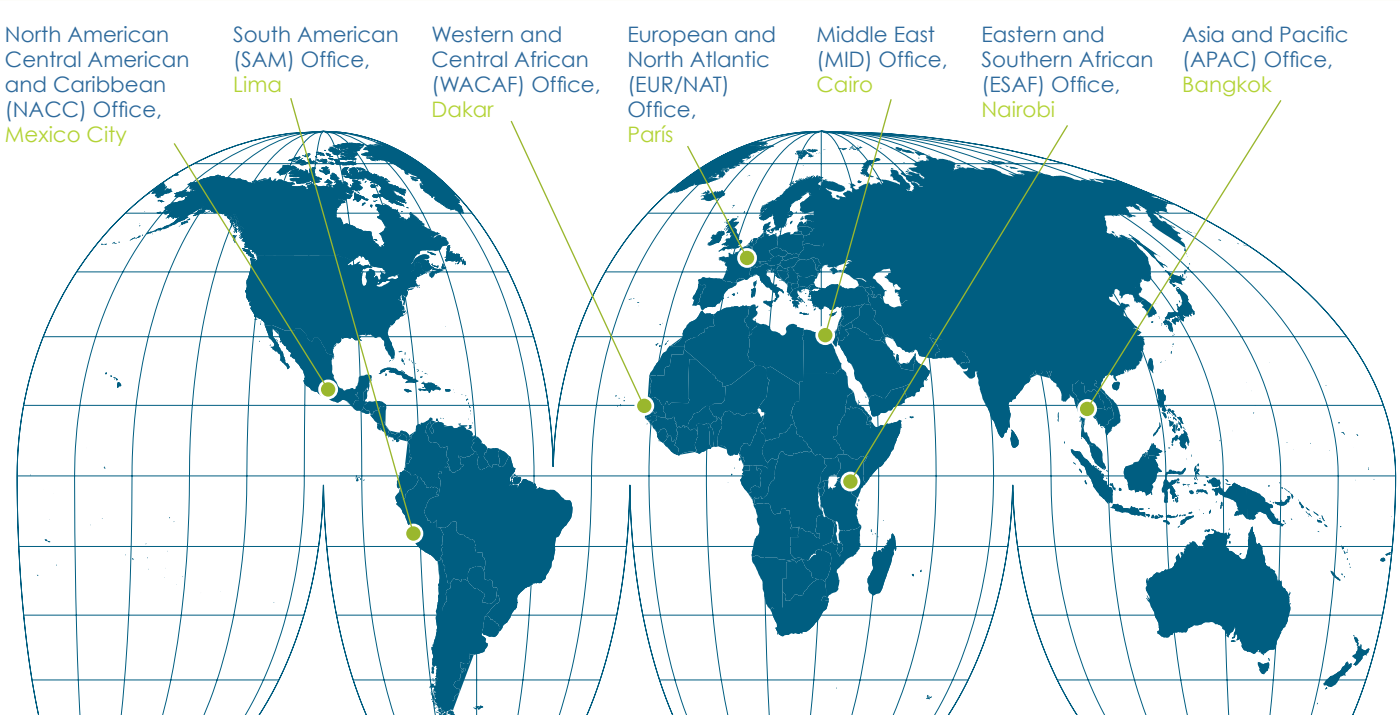


Stressing the Competency-based Approach: The New ICAO Training Policy

Complex air transport networks rely on the effectiveness of process-based organizations and require highly-qualified and competent personnel. Therefore, implementing a competency-based approach for recruitment, training and assessment of aviation personnel represents an appropriate and timely strategic approach, especially in light of the increasing complexity of most aviation jobs and organizations.

ICAO Doc 9868—*Procedures for Air Navigation Services, Training,* defines a competency as the combination of Knowledge, Skills and Attitudes (KSAs) required to perform a task at a prescribed standard. Competencies represent how a person should perform in order to achieve the objectives of their job.

The establishment of detailed competencies for each aviation function (and its related training requirements) is crucial to improving aviation safety and efficiency. This is what ICAO aims for when it develops competency frameworks and this is why the competency-based approach is now guiding the new ICAO Training Policy.

Why Competency-based Training?

The traditional training system is time-based and teacher-centred, with progress measured in time units. A competency-based training system is student-centred and progress is measured through a trainee's achievement of learning objectives.

The emphasis in competency-based training is therefore on 'performing', rather than just 'knowing'. The objectives to be achieved are clearly established so that: trainees know exactly what they have to be able to do; trainers know what skills and knowledge need to be provided; and organizations understand the competencies required of their personnel.

The characteristics of an effective implementation of a competency based training approach include:

- Careful identification, verification and publication of the competencies to be achieved.
- An explicit statement of the criteria and conditions under which a given competency will be assessed.
- Instructional programmes that cater to the learning styles and needs of their target audiences.
- Participants' progression through the instructional programme at their own rate; so long as they demonstrate effective attainment of the specified competencies.
- Satisfactory completion of training, based on achievement of all specified competencies.

Impact on Human Resources Development

A competency-based model needs to be 'embedded' in the human resources development framework of an organization. The model should drive processes such as selection, orientation, training and evaluation. The result is a systematic approach to human resources development: training is customized to the knowledge, skills and attitudes that are needed.

Using a competency-based model for recruitment will assist in identifying the right fit of an individual during selection. It will also better prepare incumbent staff for promotion into specific positions through development plans and training. In addition, guidance received through a performance review system will be based on the same competency model. This will make the entire process more objective, effective and successful, ensuring that the organization is clear regarding the competencies required for each responsibility.

Competency-based job descriptions define roles and key responsibilities, as well as requisite and preferred education, training, skills and experience. Detailing required behavioural competencies facilitates personnel selection, role comprehension and performance evaluation. Competency frameworks also assist in human resources development strategies by identifying effective learning paths for successful performance on the job.

ICAO's Mid-term Goal

Competency-based approaches in human resources development promote objectivity, transparency and common understanding of job expectations in aviation. It is a systemic approach to identify skill gaps and to progress towards expert performance.

Establishing competency-based training in aviation, however, is a mid-term goal that is dependent first and foremost on the establishment of detailed competency frameworks for specific aviation-related positions. This requires clearer descriptions for all jobs across the aviation industry, in addition to improved standardization of professional employment.

Competency frameworks are performance-based provisions rather than prescriptive benchmarks and should be employed in a constructive rather than restrictive manner. ■

Capt. Mostafa Hoummady
Chief, Aviation Safety Training Section
ICAO Air Navigation Bureau

Optimizing Maintenance Training: The Lufthansa Technical Training Approach

by Holger Beck, Chief Commercial Officer, Lufthansa Technical Training GmbH

When Lufthansa Technical Training (LTT) undertook to optimize the way it conducts maintenance training, it took us awhile to overcome some hurdles and get properly started on the design and implementation of our new approach. These hurdles weren't perceived as delays in our process, but rather as necessary considerations to ensure we were proceeding in a direction that truly synchronized our internal goals with the ever-changing external conditions in today's maintenance training environment.

Over the past four decades a great deal has changed in terms of how we provide and measure effective maintenance training programmes. Methodologies have evolved from classroom presentations via Computer-based Training (CBT) modules to on-site training with portable training media. This in turn has helped realize the 'virtual classroom' where even complex troubleshooting tasks can be simulated.

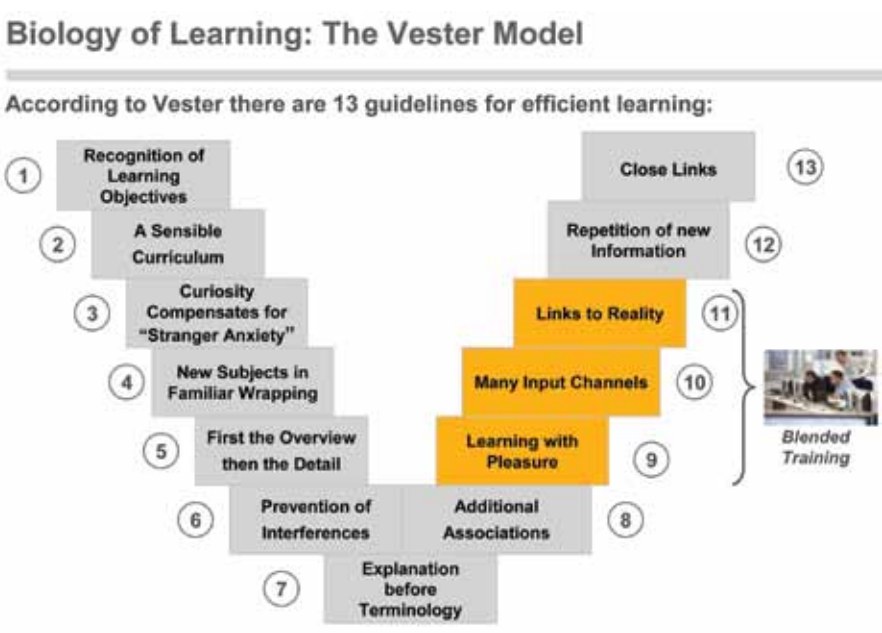
The role of professional training staff has also changed during this period, from the old-styled lecturer, to engaged instructor, to a personal coach of sorts, and more recently trainers have evolved into a type of 'media and information manager' facilitating the trainee learning progress through data access and advanced technologies.

Perhaps most importantly, our trainees themselves have also changed dramatically—especially in more recent decades. Those of us born before 1980 have been exposed to digital advances in recent times that have turned us into 'digital immigrants'. Our transition, however, has been only a minor one compared with those younger trainees born post-1980, the so-called 'digital natives' who have grown up in a more connected social and information context than anyone could have imagined just 20 short years ago.

From early childhood onward this new generation has been exposed to computer games, the internet, email, instant messaging... This massive interaction and constant presence of information lead to a different paradigm of information processing and retention. Digital Natives prefer direct access, graphics rather than written text, and they function most effectively not in a quiet office setting but as part of complex social networks.

There are some important differences in how digital immigrants and digital natives interact with the world and absorb information and learning. Digital immigrants, for instance often fail to comprehend how digital natives can

Figure 1



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learn while being exposed to other media or information input channels like listening to music or watching TV. This causes a lack of understanding in terms of using digital media and IT-applications and highlights why there is an urgent need to adjust how we train our maintenance technicians today. It should be noted that the first digital natives have now entered their 30s—the precise age when training would commence for an EASA Part 66 licensed B1/B2 engineer (or certifying staff, Line Maintenance Engineers, etc. based on applicable national regulations).

It's become a priority then for we digital immigrants to better understand how to train this new generation of digital natives. Recognition of learning objectives should always be the initial step in designing any effective learning program and for this purpose we still revert to the work of Prof. Dr. Frederic Vester for this purpose and his 'Biology of Learning', as shown in Figure 1 *(page 4).*

Holger Beck

With respect to the Vester Model, I would like to emphasize three of his key guidelines for effective learning in our present context: learning with pleasure; stimulating many Input Channels; and the links the training should have to the trainee's reality. These three learning elements (highlighted in yellow) were the key drivers for us as we developed our new 'Blended Training' concept at LTT in response to today's trainee challenges.

The three key elements of the Blended Training concept are a competency-based approach that is student-paced and instructor-guided, a fully-integrated use of the most state-of-the-art training and simulation media, and the availability of training notes available digitally and complemented by a quick-reference handbook that features high-quality system schematics and concise system descriptions.

With respect to a competency-based approach LTT focuses its training content on exactly what the trainees will need back on the line. These materials must be presented in as realistic a setting and manner as possible and the more students are able to interact with them the better their knowledge retention will be.

With respect to incorporating training media that are properly suited to today's digital natives, we make sure to: make the best possible use of graphics rather than extended text descriptions; offer various sources for required information to provide the trainees with more choices regarding how and when they can learn; and we have integrated not only a 2D-maintenance simulator and a virtual aircraft into our programme, but also CBT for fundamentals & type training topics and even an interactive location quiz.

Important components of this new concept include the trainee's laptop or tablet-PC, traditional book-based manuals but with their content adjusted to better suit digital natives, CBT learning modules and the Maintenance Training Device—a two-dimensional simulator.

The laptop is equipped with aircraft type-specific CBTs as well as 'Fundamentals' CBT sessions. The fundamentals topic allows the student to brush-up his basic knowledge right at the moment when he needs it. As an example: if a student cannot recall in detail how an Instrument Landing Systems (ILS) works, he can search for it and will find the information instantly in the programme.

In addition to annotatable-PDF documentation and manuals, the laptop also carries an interactive location quiz. The location quiz is intended for self study purposes and allows trainees to study component locations, search a specific component through a glossary (by selecting e.g. the oil tank, the oil tank location shows-up) and end each session with a quiz, querying functionalities, locations and system integration. The concept behind this quiz is a gaming-learning approach.

The laptop is complemented by the Quick-Reference-Handbook, which displays the system functionality in a schematic approach supported by brief descriptions. Two more hard-covered documents are included in the concept, namely a Panel Description Manual reflecting all cockpit panels and the description of each button or what triggers a warning light, and a helpful Abbreviation Handbook.

Our instructors better named 'course facilitators', use an integrated presentation approach. This allows them to make use of all available media without exiting the interactive presentation, including integrated support videos for selected schematics and brief instructor-guided CBT sessions.

Interaction is even more intense while the trainees are working on the Maintenance Training Device. It allows topics from previous sessions to be applied in realistic work tasks, such as investigating malfunctioning aircraft systems and printing a Post-Flight-Report. With this information and the use of the original maintenance documentation, the student can identify the corrective steps and perform them on the simulator, including the virtual replacement of components.

A Return-To-Service-Test will then demonstrate if the trainee successfully worked-around the malfunction.

The last step is the Release-To-Service stated in the Technical Logbook. At this point a trainee will have completed a full cycle of normal troubleshooting procedures, all in a protected learning environment, independent of aircraft availability. There

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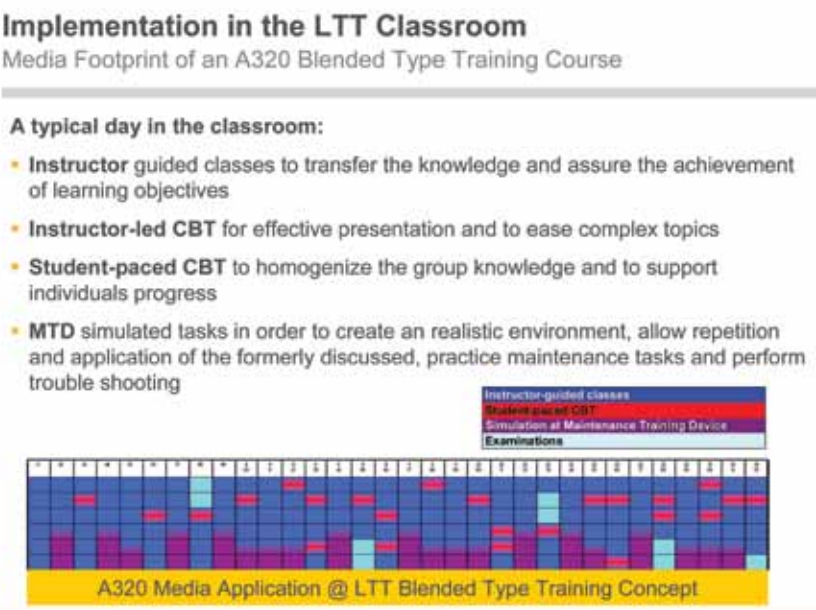
Figure 2



would have been no risk of any damage to an airplane, no fuel expended, and the lesson will have included 16 additional student participants. This translates into effective economies of scale for the training provider.

All these items are important, but what is perhaps most worthy of note is that the trainee will have practiced these procedures every single day throughout the course, making them competent enough to perform them on an aircraft on the apron immediately after course completion.

Next Steps

Technology-wise, LTT is now in the final stages of development on a trainee tablet-PC solution that is connected online to our Learning Management System. Via this server structure, we will be able to synchronize the latest documentation and software available for students at the beginning of each course period.

More importantly, the tablet approach will help nurture virtual learning groups—a social learning network—among the students. It will better present the course topics in a way the trainees—our digital natives—are used to.

For a successfully optimized maintenance type-training course, training providers have to clearly define the competencies the trainees should have developed by the end of the course. The memorizing of theoretical knowledge needs to be left behind in favour of a focus on operational needs and how our technicians shall do their job.

A simulator is not the remedy for all ills but embedding electronic media smartly in the programme will absolutely enhance the efficiency of the course.

It must also be kept in mind that the role of the instructor is changing. Training providers must invest more to develop instructor training skills and their methodical & didactical understanding.

Finally, we have to consider the changing generation of trainees, their diversified values, the different ways they process information, as well as other social and cultural aspects. We may never be digital natives, as Rupert Murdoch once noted, but we must accommodate ourselves to their needs and their world. ■

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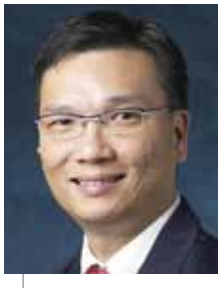
Our People: Drivers of Growth

While Singapore's aerospace industry has been a star performer over the years, contributing slightly more than three percent of GDP and experiencing almost a 14 percent Compound Annual Growth Rate (CAGR) in the past decade, one of the main challenges it deals with today is an inadequate aerospace talent pool.

As Aloysius Tay, Chief Executive of the Association of Aerospace Industries (Singapore), reports, having to compete with other growth sectors for a limited talent supply doesn't make the job of attracting talent to air transport professions any easier. And far from being a situation that is unique to Singapore, this challenge in fact reflects a global shortage of talent.



Aloysius Tay

At the Association of Aerospace Industries, Singapore (AAIS), manpower has always been one of our key focuses as we aim to enhance the overall capabilities and competitiveness of the local aerospace industry. In 2010, we decided to go one step further by dedicating our 2010/2011 cycle as the 'Year of the *Aero*Workforce'.

We did this primarily because we recognize one very important thing—that if we want to move the industry, we have to move its people.

To better understand the industry's current manpower situation, the AAIS commissioned the Singapore Aerospace Manpower Study to identify related gaps. This would form the basis of how we could better, and more accurately, formulate strategies to address our manpower challenges *(see Table 1, page 12)*.

The study projected that Singapore's aerospace industry will require 16,381 technicians and engineers as of 2015. In 2009, this figure had been estimated at 13,856.

Some aerospace vocations faced a higher shortage than others, and each for varying reasons. Although the supply of aerospace-trained graduates looks to be sufficient to meet this demand, the deficiency occurs because of attrition to other industries. Engineers, for example, are in ample supply, but many (or rather, too many) are being lost to other industries for various reasons. As well, we are lacking in technicians because not enough young people

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a) the ICAO document Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods (ICAO Doc 9481)

(source: ICAO Technical Instructions)

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TABLE 1

	Demand for new industry hires	Availability of manpower supply	Comparative pay levels
Engineers	Potential supply of school leavers should be sufficient to meet industry demand. Address industry value proposition to attract school leavers.	Supply available	As pay appears competitive, other reasons for attrition need to be examined: • Promotions and long term career potential. • Learning & development. • Pursuing further studies.
Inspectors		Shorten training period by changing PET and CET contents. Revise the industry's training practices to attract school leavers/mid-career recruits.	
CAT B1/B2 Licensed Aircraft Engineers			
CAT A Certifying Technicians			
Special Process Technicians	Explore sourcing from other industries to meet demand.	Re-skill manpower from industries with similar competencies, lower pay and with excess supply.	
General Technicians			

Source: AAIS Aerospace Manpower Landscape Study 2010.

entering the workforce want to be trained to become one.

This situation is not about to improve itself unless we act upon it now.

Aviation's Value Proposition

So what is the real issue here? Are we not attractive enough as an industry to bring in the right people? Are we just another sunset industry whose glory days have come and gone? Is it a fundamental problem with the people of today?

The study raised an all-important question: is there a strong value proposition to attract these talents to join the air transport industry? It found that the answer to this varies across different generations. It is therefore important for us to not only understand the workforce of this generation, but also the next. With this improved understanding in-hand we can then better adapt our practices to maximize our engagement of the next generation of aviation professionals.

Companies need to understand what employees value in their value proposition before spending money on under-valued or under-appreciated initiatives. Table 2 *(page 13, top)* summarizes the generational differences in terms of what each age group values in a job.

As this data illustrates, although base pay is important to Gen Y, what's most important to them is career potential and development. Having clear career progression paths drawn-up and providing up-skilling opportunities influences job selection and cultivates more effective retention mechanisms. Unlike other generations, recognition is also listed as one of the most important aspects of employment for Gen Y. This, again, highlights the existence of evolving wants and needs.

Attrition is never desirable. Understanding a company's own workforce profile and generational preferences will guide companies in designing initiatives that can more effectively attract and retain different employee segments.

The public's perception of the industry is generally positive so we should take full advantage of that to further promote aerospace as a desirable career choice.

One of the main responses from potential aerospace employees was that the training time needed to qualify aerospace professionals was simply too long. This was a key reason why the industry was being avoided.

TABLE 2

Total Rewards element		Generation Y (18 to 29)	Generation X (30 to 42)	Baby Boomers (43 to 60)	Traditionalists (60+)
Compensation	Base Pay	2	1	2	3
	Short-term Incentives	4	2	1	4
	Long-term Incentives & Deferred Comp	9	5	5	5
	Recognition	3	7	7	8
Benefits	Retirement	12	12	3	1
	Health & Welfare	10	4	4	2
	Perquisites	13	13	13	9
Careers & Development	Performance Management	5	8	6	10
	Career Pathing	1	3	8	12
	Training Programmes	6	6	10	11
	Global Mobility	7	10	11	13
Work Lifestyle	Time-off	11	11	13	7
	Alternative Work Arrangements	8	9	9	6

Source: Mercer experience and studies on Total Rewards perspectives by generation

Multi-pronged Approach to Attracting and Retaining Talent

Despite its 'sexiness', there are some stigmas associated with the industry that make it less attractive than what we hope it could potentially be.

In order to mitigate this and ensure adequate manpower for aerospace, the industry needs a multi-pronged approach to attract qualified graduates to join the industry. Part of that involves re-skilling and attracting employees from other industries, as well as reducing attrition levels in the current industry workforce.

In particular, one of the key recommendations of the study is for industry to work more closely with government and Institutes of Higher Learning (IHLs) to fully engage the next generation aerospace professional.

In Singapore, this is already occurring at some level. For instance, although the IHLs can decide independently which areas of its training curriculum to accredit, they tend to work with industry associations like the AAIS to determine where the industry's current demands are. This helps them

define the sourcing strategies for key jobs and ensure the alignment of students prepared to join the industry after graduation.

In Singapore, we have achieved significant success in this area. One of the main responses from potential aerospace employees was that the training time needed to qualify aerospace professionals was simply too long. This was a key reason why the industry was being avoided. Taking the Licensed Aircraft Engineer (LAE) as an example, it takes at least four to five years to be fully trained and qualified and finally issued with a CAT B license.

From this feedback, the AAIS worked with the Civil Aviation Authority of Singapore (CAAS) and the IHLs to re-vamp the current academic curricula and requirements in order to cut down on classroom training prior to joining the industry. This meant that part of the training that students had to go through during the course of their studies would be recognized and, very importantly, count towards their LAE training requirements.

Most recently, the CAAS facilitated the request to harmonize the requirements by modifying their regulations to allow IHLs to be SAR 147 accredited. Therefore, when the IHLs meet the SAR 147 requirements and eventually attain certification, they will be able to have their curriculum recognized by the CAAS. With the IHLs also tweaking their curriculum in line with SAR 66 requirements, the training time upon employment is now reduced by a substantial six months.

The success of this initiative has definitely given us a positive outlook on other possible measures that can be undertaken to make the aerospace industry a more favourable option for young recruits.

Some aerospace vocations faced a higher shortage than others, and each for varying reasons. Although the supply of aerospace-trained graduates looks to be sufficient to meet this demand, the deficiency occurs because of attrition to other industries.

Commitment to Engage Next Generation

The study has certainly enlightened us on where we have fallen short, confirming what has always been speculated at and setting the stage for how we, as an industry, should move forward.

Following the study, the AAIS established the Aerospace Human Capital Steering Committee—a tripartite committee dedicated to focusing on human capital issues, officializing matters such as course curriculum endorsement, and distilling industry feedback on workforce policy matters, amongst others. The industry plans to take the Committee's recommendations and improve manpower engagement both for the current workforce and the next generation's.

The AAIS also works with ICAO with the common aim of understanding and engaging the next generation of industry professionals. This ensures that our national initiatives will always be in line with global programmes and objectives.

We strongly believe that strong international partnerships and support are critical to changing the aerospace industry's manpower landscape.

With the industry's commitment to the cause, the AAIS is confident that these initiatives will slowly, but surely, contribute towards improving the aerospace manpower situation globally, and consequently drive the industry's growth at unprecedented levels. ■

The Association of Aerospace Industries (Singapore) or "AAIS", a non-profit organization, is a leading industry association dedicated to promoting competitiveness within the Singapore aerospace industries. It represents companies from the Maintenance, Repair and Overhaul (MRO), Aerospace Manufacturing, Research and Development/Training sectors and suppliers for civil air transport and aerospace defence. Working with government partners, the AAIS aims to assist aerospace companies in growing existing businesses and developing new businesses/partnerships regionally & globally by facilitating strategies in innovation competitiveness, technical standards and accreditation.

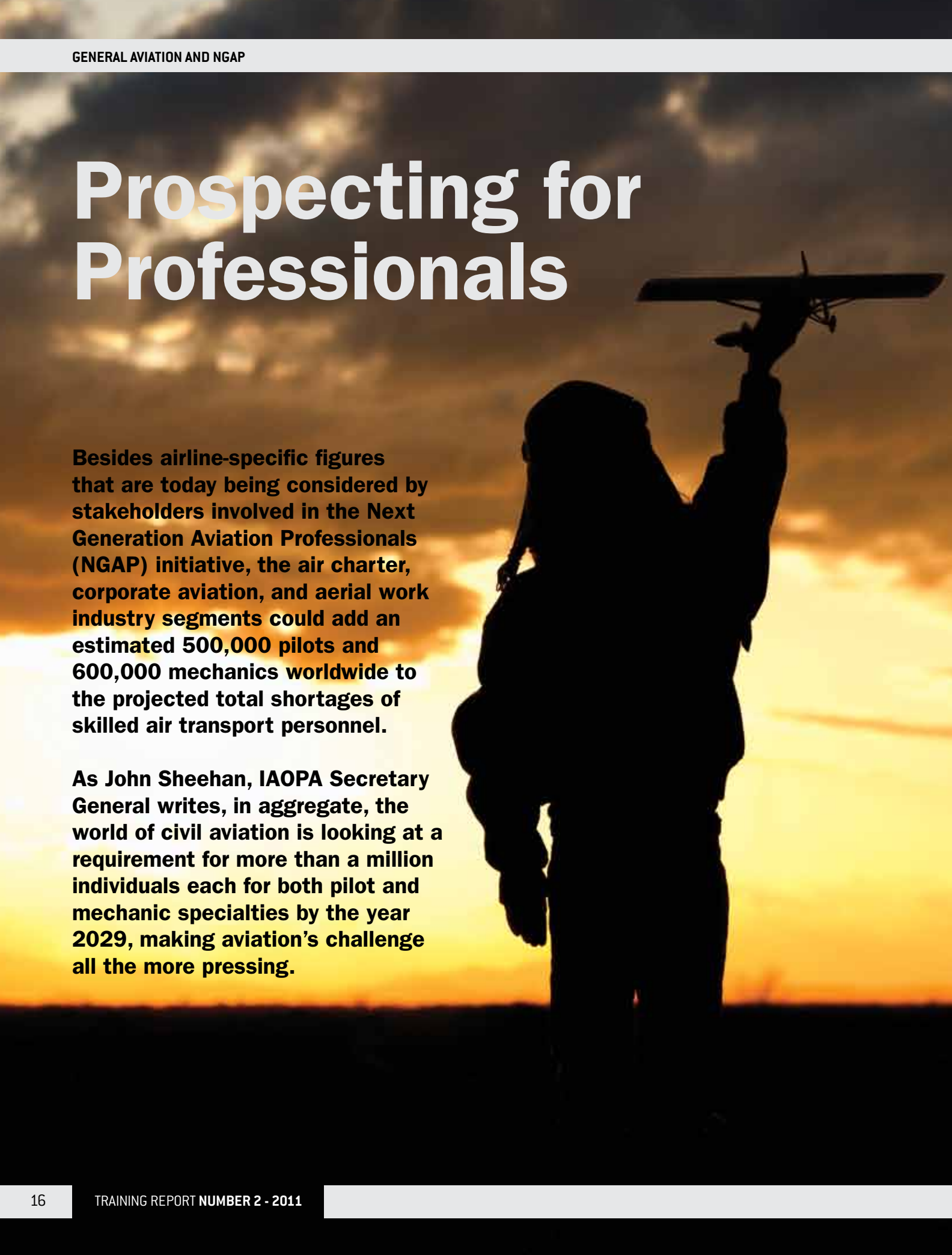
TRAINAIR *PLUS*

CONGRATULATIONS TO THE FOLLOWING AVIATION TRAINING CENTRES THAT JOINED THE **TRAINAIR *PLUS*** PROGRAMME IN 2011.

1. **United Arab Emirates**
   Gulf Centre for Aviation Studies (GCAS)
2. **Republic of Korea**
   Incheon Airport Aviation Academy (IAAA)
3. **The Netherlands**
   Joint Aviation Authorities Training Organization (JAA TO)
4. **Japan**
   Aeronautical Safety College (ASC)
5. **Morocco**
   L'Académie Internationale Mohamed VI de l'Aviation Civile (AIAC)
6. **Dominican Republic**
   Academia Superior de Ciencias Aeronáuticas (ASCA)
7. **Mexico**
   Centro Internacional de Instrucción de Aeropuertos y Servicios Auxiliares (CIIASA)
8. **Russia**
   CompLang Aviation Training Centre
9. **Romania**
   Romanian Aviation Academy (RAA)
10. **Singapore**
    Singapore Aviation Academy (SAA)
11. **Kenya**
    East Africa School for Aviation (EASA)
12. **Cuba**
    Centro de Adiestramiento de la Aviación (CAA)
13. **Central America**
    Instituto Centroamericano de Capacitación Aeronautica (ICCAE) de COCESNA
14. **Spain**
    Servicios y Estudios para la Navegación Aérea y la Seguridad Aeronáutica (SENASA)
15. **Ecuador**
    Escuela Técnica de Aviación Civil (ETAC)
16. **Peru**
    Centro de Instrucción de Aviación Civil (CIAC) de CORPAC
17. **Qatar**
    Qatar Aeronautical College (QAC)
18. **France**
    Centre Français de Formation des Pompiers d'Aéroport (C2FPA)
19. **Sudan**
    Civil Aviation National Training Institute (CANTI)
20. **Nepal**
    Civil Aviation Academy (CAA) of Nepal
21. **Canada**
    The ASI Institute, A Division of Aviation Strategies International

www.icao.int/trainairplus

Prospecting for Professionals



Besides airline-specific figures that are today being considered by stakeholders involved in the Next Generation Aviation Professionals (NGAP) initiative, the air charter, corporate aviation, and aerial work industry segments could add an estimated 500,000 pilots and 600,000 mechanics worldwide to the projected total shortages of skilled air transport personnel.

As John Sheehan, IAOPA Secretary General writes, in aggregate, the world of civil aviation is looking at a requirement for more than a million individuals each for both pilot and mechanic specialties by the year 2029, making aviation's challenge all the more pressing.

Last year's Next Generation of Aviation Professionals (NGAP) Symposium defined the projected needs and potential shortfalls for aviation personnel over the next two decades. Additionally, training goals and methods were discussed to ensure that the desired occupational specialties are properly qualified to perform their jobs safely and effectively.

But, while much was said about forecast needs and probable shortfalls, little was said about how the ranks of professionals would be filled. More specifically, the subjects of identifying potential candidates, motivating them to seek an aviation career and providing ways and means to enable their desire were not explored in any depth.

Government statistics, however, show that the flow of individuals into pilot and mechanic positions is slowing, substantiated by the number of student, private pilot and mechanic licenses being issued. Of particular interest is the fact that a smaller percentage of student pilots are graduating to private pilot licenses.

Dimensions of the Problem

The statistics outlining the scope and magnitude of the problem at the NGAP Symposium were almost exclusively airline-oriented. Total demand for more than 466,000 pilots forecast for 2010–29 and an average of 23,300 new pilots a year applies to airlines only, courtesy of Boeing. These numbers, when combined with the need for more that 700,000 aviation mechanics are impressive, if not daunting.

But, what of the other types of aviation operations that require professionals? The air charter, corporate aviation, and aerial work industry segments comprise an estimated 200,000 pilots and 300,000 mechanics worldwide. Given nominal growth rates, requirements for these occupations twenty years hence could easily top 500,000 and 600,000, respectively. In aggregate, the world of civil aviation is looking at more than a *million individuals* each for both pilot and mechanic specialties by the year 2029.

John Sheehan

Each of these non-airline specialists are true professionals, certificated and monitored by States in the same manner as are their airline brethren. Significantly, these personnel will be competing for airline jobs as well. More to the point, the airlines and all other operational aviation interests are in competition with one another for the best and brightest in their occupational specialties.

Contrary to popular belief and for a variety of reasons, not all aviation personnel are in competition for airline jobs. Yet, a significant number of general aviation and aerial work personnel will provide a talent pool for the growing airline needs. The lesson here should be that the interests in *all* types of aviation operations should be accommodated and planned for, not just for those headed for the airlines.

Where will these individuals be found? Moreover, where will we find properly motivated, qualified and experienced individuals to fill these roles?

Generating Interest

Traditionally, aviation occupations have been filled by young men and women who developed an early interest in the magic of flight and the occupations that make flight possible. Children often cycle through a variety of occupational interests, lured by the glamour or adventure associated with the representative jobs. Fire fighter, soldier, dancer, astronaut, and nurse are traditionally desired jobs for the very young.

As children progress through their teen years into young adulthood, occupational lures still play on the imagination, fueled by the lure of fame and fortune.

While many businesses actively attempt to attract young people to their fields of endeavor, most do little to foster and entice the young to their niche occupations.

This *laissez-faire* approach to filling occupational ranks often seems to work, since very few job classifications go begging in the public arena. Yet, much of the mutual selection process between individual and occupational fields is accidental, being influenced mainly by chance encounters between individuals and workers.

Young people develop an occupational interest in aviation early in life due to a variety of influences: proximity to an aviation facility, friends and relatives engaged in these operations, school programmes and presentations highlighting a specific occupational field and pleasant experiences, such as a first-time airplane ride.

Unfortunately, these events are largely driven by chance and do not contain the assurance that any one or group of individuals will likely gravitate toward an aviation career. This 'build an aircraft and they will come' attitude must change to one of 'let's attempt to get the best possible candidates to fill our future aviation needs'. Aviation industry take note.

YOUTH IN AVIATION WEB SITES

www.copaforkids.org
www.aopa.org/path
www.aopa.org/letsgoflying/
www.youngeagles.org
www.avkids.com
www.orlandoapopkaairport.com/youth-in-aviation.html
www.aafc.org.au
www.cadets.ca/content-contenu.aspx?id=47015
www.airleague.co.uk/about/position-papers/youthinaviation
resources.learningforlife.org/exploring/aviation/index.html

The Long Climb to a Job

But, for conjecture, let's say that an individual has become enamored with a career in aviation operations and wishes to make good on the dream. The aspirant soon finds that the road to a job as a professional pilot or mechanic is neither short, easy nor inexpensive. The prospect of years of training, qualification and experience building can be a daunting and seemingly insurmountable.

Then comes a considerable investment of money, hard work and dedication to a goal that prevents many from making the journey. The light at the end of the long and expensive tunnel is by turns small, flickering or dim; not an undertaking for the faint of heart or those lacking a strong resolve to compete and win.

And yet tens of thousands of individuals brave these obstacles every year to realize their dream of a career in aviation. Government statistics, however, show that the flow of individuals into pilot and mechanic positions is slowing, substantiated by the number of student, private pilot and mechanic licenses being issued. Of particular interest is the fact that a smaller percentage of student pilots are graduating to private pilot licenses.

This latter phenomenon is reportedly caused by the increasing expense of training and difficulty in qualifying for even a private pilot license. This is coupled with the prospect of still more training and expense to obtain a professional pilot certification, low professional pilot starting wages, an unstable career environment, and the constant threat of losing one's job to a failed check ride or medical examination for pilots, or due to a maintenance error for mechanics.

Similarly, mechanically inclined individuals are finding that the struggle to even become hirable as an aviation mechanic may not be worth the time, expense and effort. This may be caused by the fact that automobile and air conditioning mechanics are often in greater demand than a licensed aviation maintenance engineer.

A number of States and large airlines depend upon their own *ab initio* pilot and mechanic selection, funding, training and qualification processes to ensure an adequate flow of qualified personnel into the ranks of aviation professionals. However, these are very expensive programmes that involve extensive pre-selection processes supposed to yield not only qualified but adequately *motivated* individuals. Given the potentially inexact nature of the related selection processes, ab initio approaches may yield marginally competent professionals who may not be fully motivated for an aviation career.

While these prospects do not necessarily create an ideal occupational career path, the system continues to supply adequate numbers of individuals who are properly licensed to fill occupational roles in commercial air transportation, corporate and charter aviation and aerial work. Yet the pool of qualified applicants for these jobs is decreasing worldwide.

There may be barely adequate numbers of trained and qualified individuals from which to choose to fill the ranks of professionals in aviation operations, but is this enough? Merely having *adequate* numbers of *minimally* trained and *basically* qualified individuals should not be the goal; having a pool of the best, brightest and most qualified people should be our goal. Having this luxury will require the cooperation of both industry and regulators to fill the labour pool with a truly desirable professional cadre to move aviation into the mid twenty-first century.

Ways and Means

Commercial aviation, especially the airline sector, was once was a highly desirable industry to pursue for those wanting to make a career in aviation. This industry has not sustained its original level of desirability due to:

- Declining prestige, industry instability and entry level costs.
- High levels of experience required for commercial air transport occupations.
- Competing opportunities in other challenging and well-paying professional fields.

Each of these issues has served to reduce the attractiveness of an aviation career. The entire aviation industry must work to change these negative features.

Most professional pilots and mechanics get their start in general aviation[1], flying and maintaining light aircraft. They do this because it is the traditional entry portal into the world of commercial aviation,

[1] ICAO defines general aviation as: *"An aircraft operation other than a commercial air transport operation or an aerial work operation."*

be it for transporting passengers or cargo, carrying company personnel in corporate and charter aircraft, or engaging in aerial work activities. Very few people have traditionally gotten their start in an aviation profession by first flying or maintaining a larger airliner.

Perhaps the most significant activity general aviation pursues to bolster the ranks of aviation professionals is to call the attention of young people to the joys and fascination of aviation and to introduce them to the *experience* of flight. General aviation is both accessible and approachable; people can get closer to light aircraft and actually experience the true sensations of flight.

The 69 International Council of Aircraft Owner and Pilot Associations affiliates around the world, as well as other groups, have established programmes to introduce young people to, and nurture an interest in, aviation, attempting to implant this desire early in the life of interested and motivated individuals.

First-flight programs, classroom topic outlines, career counselor materials, airport field trips, mentoring efforts, scholarships and more are being used by a number of AOPAs and others to capture the imagination of today's youth so they may become the aviation professionals of tomorrow. Additionally, many States sponsor air cadet, aviation exploring or aviation courses in schools. See the sidebar *(page 18, top right)* for some of the websites now highlighting aviation programmes for youth.

A recent study noted that a first-flight programme such as the Experimental Aircraft Association's Young Eagles initiative was five times more likely to produce a licensed pilot than for individuals who had not participated in such programmes. This is convincing evidence that instilling a desire for an aviation career in young people will help bolster pilot ranks for years to come.

Similar results are possible for the mechanic trades via maintenance and repair shops at the airport.

The future of aviation and its ability to attract and nurture young people to enjoy what many of us have already experienced is really in our hands. We are the ones who can best help attract and guide young people with a vision of a career in aviation.

It's up to us. ■

About the IAOPA

The International Council of Aircraft Owner and Pilot Associations represents the interests of more than 450,000 pilots and aircraft owners in 69 countries. Formed in 1962, IAOPA is dedicated to promoting the peaceful uses of general aviation and aerial work worldwide.

Applying Competency-based Pilot Approaches to ATC Training

Boeing and Airbus predict 33,500 new aircraft will enter the market by 2030. Seldom, however, does one hear related personal shortage concerns extending to the Air Traffic Controllers (ATCs) who will be managing increasing numbers of aircraft in our finite airspace.

Aviation Systems Consultant Marsha Bell discusses how competency-based flight training course design principles could also serve the needs of ATC training stakeholders.

To best prepare our future Air Traffic Management (ATM) personnel, a lesson might be taken from recent improvements to the pilot training principles detailed in Edition Three of ICAO Doc 9625—*Manual of Criteria for the Qualification of Flight Simulation Training Devices (FSTDs).* These amendments were developed by an International Working Group (IWG) sponsored by the Royal Aeronautical Society (RAeS).

The IWG began with clear ends in mind: namely a well-trained pilot and the definition of the necessary training tools to achieve that result. It identified the competency elements required for each type of flight training and matched them with the simulator features that the technical team defined.

Were such a document to exist for ATC training, improvements in course design, delivery and harmonization would be among the results. Training competencies would establish one global baseline for ATM personnel, ensuring consistent quality, improved interoperability, and a common set of performance criteria for the schools themselves.

In addition, regulators would have clearer guidance on how to evaluate the suitability of new or existing training tools, increasing confidence in non-local training. ATC simulator manufacturers would know what to develop to satisfy training requirements and new technologies could be developed to better support ATC training missions—or even be applied in the line of duty. Any investments required would be more manageable due to the pioneering IWG research.

Borrowing from Doc 9625

Doc 9625 anticipated a volume being developed for aircraft and a second for helicopters. I'd suggest a third could be reserved for *Air Traffic Systems.* The existing volumes comprise three parts: *Training Task Derived Flight Simulation Requirements; FSTD Criteria;* and *Flight Simulation Feature and Fidelity Level Criteria.* Each part provides a model for developing a similar document for ATC training.

Part I - Training Task Derived Simulation Requirements

The training Sub-group (SG) of the IWG first completed a Training Task Analysis to determine the types of training to support various license and rating requirements. It compiled these from EASA, ICAO, and the FAA. At its highest level, the analysis produced eight Training Tasks which, with the exception of threat and error management, represented the phases of flight.

While it might be naively pilot-centered to think that a 'phases of flight' task list would apply to ATC training, it could be a starting point for organizing controller tasks, subtasks, etc. These ATC training types might include: Apprentice Qualification, Departure Qualification, Arrival Qualification, Radar Qualification, Location Qualification, etc.

The challenge with ATC training is not harmonizing devices across regulators, but rather developing an initial device list that ATC training companies can use to build their programmes, confident that the right device is supporting the training mission.

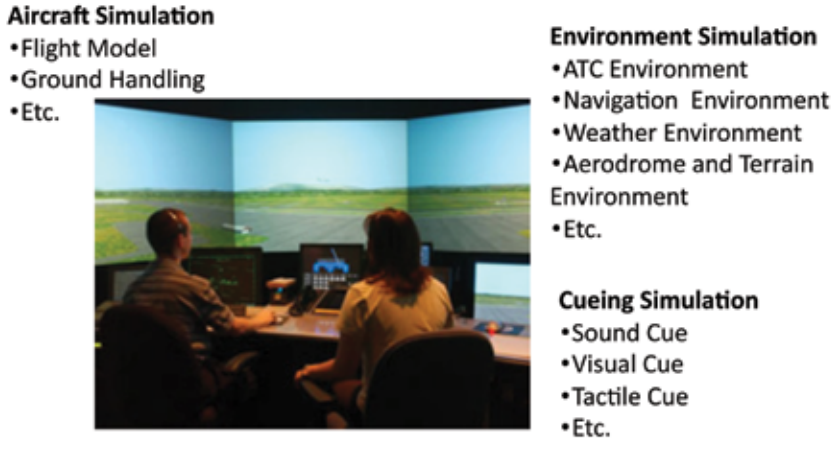
Potential ATC Simulator Features

The Technical SG identified twelve simulator features for replicating an aircraft in operation. In their work, ATC Environment was identified as a new simulation feature. As training moves increasingly from the flight line to FSTDs, a virtual ATC environment must compensate for the dynamics of other aircraft and controllers.

In looking at ATC training, perhaps the simulator attributes could be itemized as per Figure 1 *(below).*

Once the simulator features are settled, the necessary level of fidelity is considered to deliver training or to measure training to proficiency, 'T' and 'TP' in Doc 9625 vernacular. For example, training for an Instrument Rating requires a lower level of visual cueing fidelity than does recurrent training for pilots. Fidelity levels span from No Requirement (N), through Generic (G), Representative (R), and Specific (S).

Figure 1: Some of the Proposed Simulator Attributes for ATC Training



The compilation of all this data generated a comprehensive FSTD Master Matrix that, when consolidated, resulted in a requirement for seven types of training devices. The matrix harmonized the varying approvals of the same device for like training by different regulators, reducing the number of device types from 26 (across JAA, FAA and ICAO) to seven.

The challenge with ATC training is not harmonizing devices across regulators, but rather developing an initial device list that ATC training companies can use to build their programmes, confident that the right device is supporting the training mission.

Part II - Simulation Training Device Criteria

"Flight" is in Part II's title in Doc 9625 but, for ATC training, flight is only part of the simulated environment. In the case of controller training, Aviation System Simulation Training Device (ASSTD) might be a better moniker. Aviation System includes the working environment of the different controller roles, en-route centre, radar room, tower, etc.; airport ground operations; and the interaction between those players with the aircraft in the system.

This latest edition of Doc 9625 sought to future proof against technology developments. An area that has been developing for many years is simulated behavior for controllers, ground operators and pilots in ATC training as an alternative to role-playing. As the ATC version of this document is written, its authors would want to be open to developments in computer generated forces, speech recognition and vocal manipulation.

Because there aren't existing regulations for Simulation Training Devices in

ATC training, Volume II is a template for identifying standards, tolerances, and tests.

Part III - Simulation Feature and Fidelity Level Criteria

This Part provides guidance to regulators on evaluating simulation training devices extant before the latest edition of Doc 9625. Since there are a number of training devices currently in use for training globally, an ATC version could employ the Airplane Volume as a model. This prevents premature obsolescence of existing training tools already fielded.

Borrowing from IATA

IATA's Training and Qualification Initiative (ITQI) provides additional insight in developing ATC training Standards and guidance. As part of the ITQI focus on Evidence-based Training (EBT), nine classifications of knowledge, skill and attitude (KSAs) have been developed. Because aviation professionals share many attributes, some of these may be readily adopted by the ATC discipline.

A slight rewrite of this list for ATC training could be:

- *Situational awareness:* Awareness of time and space as it relates to the paths of aircraft within a control area.
- *Teamwork:* Understanding of team dynamics and interpersonal conflict resolution to promote safe, efficient control environments.
- *Effective communication:* Ability to provide a positive control environment through clear, concise communication.
- *Technical Knowledge:* Knowledge of procedures as published in all applicable documents.
- *Workload management:* Ability to make expert control decisions based on individual and group workloads through planning, prioritizing, etc.
- *Decision-making:* Ability to detect and resolve deviations, evaluate positive control behaviour and implement corrective actions safely and efficiently.
- *Self-awareness:* Appreciation of personal, physical and emotional limits and effective stress management to maintain safety efficiency during emergency and contingency operations.

As part of the ITQI focus on Evidence-based Training (EBT), nine classifications of knowledge, skill and attitude (KSA) have been developed. Because aviation professionals share many attributes, some of these may be readily adopted by the ATC discipline.

A definitive list would likely overlap the pilot KSAs to some extent.

Future Objectives

Identifying the training tasks is a first step. In the case of ATC training, these reside as potentially proprietary training programmes at various training organizations. If these could be acquired, it would launch an analysis and consolidation effort.

Alternatively, some ATC training tasks could be easily extracted by looking at the pilot training tasks. A description of the pilot teaching point related to ATC environment indicates the corollary ATC training task. A training list extracted in this way would form a basis that would be completed by precedent and subsequent tasks surrounding each communication.

The IWG estimates that the latest update to 9625 cost the industry more than $10 million. The results of their efforts will serve us for many years and in the case of the ATC training arena can save many millions in achieving the same goals by leveraging the good work already codified in Doc 9625. Fewer than 60 tasks in pilot training from the combined ICAO and FAA lists involve the ATC environment. That's not such a daunting start. ■

The Gulf Centre for Aviation Studies

The region's dedicated Airport & Aviation training hub

The Gulf Centre for Aviation Studies (GCAS) was established in 2009 by Abu Dhabi Airports Company (ADAC), the operator of the five major airports in the Emirate of Abu Dhabi, to lead the development of the aviation industry in the UAE and the region through delivering highly qualified aviation professionals. GCAS is the world's first international Civil Aviation Organization (ICAO) TRAINAIR PLUS training centre and a fully certified and endorsed aviation training institution by the General Civil Aviation Authority (GCAA) of the United Arab Emirates, to provide the region with cost-effective training solutions addressing the challenges confronting the industry in the 21st century. Positioned within a world-class international business aviation airport, GCAS offers airport and aviation employees a combination of theoretical and practical leading training modules to promote best practice in the various sectors in aviation. GCAS offers a combination of internationally acclaimed programmes, which were once only available outside the Gulf region, along with tailored modules specific to the needs of the local and regional aviation industry.

An Internationally Acclaimed Institution

GCAS is the world's first 'TRAINAIR PLUS' training centre for its technical expertise, training resources and quality assurance system providing the best possible aviation training together with its internationally recognised partners.The Joint Aviation Authority- Training Organization (JAATO) has announced GCAS to be their exclusive training provider for the Gulf and the Middle East region. The centre is also one of the Airport Council International's (ACI) global training hubs, and a partner of Safe Passage International (SPI) - a global supplier of computer-based and web-based training programmes for the aviation, cargo, judicial, maritime and general security industries. GCAS has received many prestigious awards, including the accolade of 'Training and Education provider of the year 2010' at the Aviation Business Awards.

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The World's First
TRAINAIR PLUS Member

- GCAS has been awarded the world's first TRAINAIR Plus membership from the International Civil Aviation Organisation (ICAO)
- Trainair is a system to improve safety and efficiency of air transport through the establishment and maintenance of high standards of training and competency for aviation personnel
- The Trainair Plus programme will allow GCAS to share its educational resources with other members promoting the country's knowledge sharing and exporting capabilities

A Quality Curriculum for International Best Practice

GCAS has designed a diversified and comprehensive curriculum with high quality programmes and training options. GCAS is committed to furthering the collective expertise and knowledge base in the aviation industry, and providing training solutions for all key aviation organisation's in the region and the world.

International Expertise Available in Abu Dhabi

GCAS provides first-hand experience of the Gulf region; leading the world in terms of airport operations, airport infrastructure, air traffic growth and airline development. GCAS has its own dedicated facilities at Al Bateen Executive Airport in Abu Dhabi where our accredited courses are taught. It is one of the few aviation training centres in the world located in an operational airport, thus enhancing the educational experience. We have a team of talented specialists and instructors, all whom are highly qualified and experienced industry professionals. Brand new state-of-the-art facilities with six lecturing theatres, five training rooms, a business centre, library, recreational centre, breakout area, e-learning facilities, dining hall, high-speed internet coverage (Wi-Fi) and on-site catering.

Gulf Centre for Aviation Studies- Division of Abu Dhabi Airports Company PJSC
PO Box 94449 Abu Dhabi,United Arab Emirate
T +971 2 49 42 355, F +971 2 49 42 366, **www.gcas.ae**

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ABU DHABI AIRPORTS COMPANY

Increasing Airport Excellence through Improved Training and Development

The global airport business is increasingly characterized by cross-border and multi-cultural dimensions. Whatever the mix of personnel talents and skills at a given location, airport authorities must have the means to unite their teams behind the shared objective of delivering service excellence to a multi-national customer base that has high expectations at all destinations.

As Kevin Caron, Assistant Director of Global Training for Airports Council International (ACI) writes, an airport's ability to meet today's service delivery challenges is strongly linked to its human resource commitments.

Kevin Caron

Aviation today is beset with efficiency and performance goals that airports must meet if they are to ensure a viable future for both themselves and the broader commercial air transport community. Training provides a credible platform that allows today's airport personnel to develop the competencies and skills that will help them reach these goals and better adjust to a volatile and rapidly changing modern business environment.

In today's increasingly complex air transport and airport environments, management teams are regularly called upon to generate new revenue streams and to strengthen the social and economic potential of the communities they serve. As a result, today's airport managers need 'rapid-response' business skills to balance short-term imperatives with long-term business needs. Gone are the days of the airport as a simple infrastructure supplier.

A final challenge to consider is that, as the industry expands, airports will need to compete for existing skilled candidates. They will need not only to attract and train new personnel but, in order to hold on to them, ensure that they can enjoy a satisfying career development path.

Helping ACI Members

Under the guidance of its Training Steering Group, ACI has designed flexible programmes to maximize benefits at all levels at the airport, from top management to frontline staff skills. Three key drivers have guided ACI in this strategic exercise.

Firstly, the alignment of standards globally is an industry pre-requisite. Where will the next generation of skilled workers come from? How will we build and maintain consistency as these skilled workers and managers migrate across borders to new opportunities? Global accreditation programmes based on shared standards are part of the solution.

ACI is collaborating with ICAO in this area on the Organization's Next Generation of Aviation Professionals (NGAP) initiative. NGAP is seeking to assess the changes that are needed to establish globally recognized training opportunities for aviation professionals. The ultimate goal for the NGAP programme is to attract future generations to aviation and ensure that not only airport operators, but pilots, technicians and air traffic controllers as well have the required competencies to do their job.

To succeed, we must understand the next generation's educational requirements and expectations. If we fail, we will have a severe shortage of aviation professionals to face in the next 10 to 20 years.

A second strategy is to ensure the competencies required of today's airport

professionals. These include proficiencies in technical and operational domains, as well as the complex business management field.

As a simple example of the multidisciplinary skills demanded by today's airport environment, the 'airport city' phenomenon is emerging more and more as a popular model for many hub airports, with due emphasis on the diversification of revenue streams. As a result, airports increasingly seek out and train qualified individuals to focus on the economic and commercial aspects of airport management.

ICAO and ACI have already started addressing high-level management competencies, joining forces to offer the Airport Management Professional Accreditation Programme (AMPAP). Through many of the elective offerings in this programme we are also achieving significantly improved understanding of the security, environmental and regulatory imperatives that are vital for our airports.

The third ACI personnel strategy focuses on the need to improve operational performance through targeted training. We want to be able to see concrete results from course participation.

Let's take safety, our number one priority, as an example. Standards are defined, requirements understood, and budgets approved, yet airports in many parts of the world struggle to comply with basic Safety Management Systems (SMS) requirements.

What are the issues holding us back? Topping the list are investment, commitment, training, human resources and entrenchment of an effective safety culture. To respond, ACI has incorporated safety training at all levels of its training offerings, addressing different levels of knowledge and competencies through online SMS training, two dedicated safety diplomas (Global Safety Network and Advanced Global Safety Network) and through a more advanced analysis of SMS implementation requirements.

One Piece of a Complex Puzzle

Human factors will continue to play a key role as we re-invent our industry. Training is only one piece of this puzzle, in addition to regulation, better sharing of best practices, environmental responsibility and new technologies, but it remains an essential component to future air transport sustainability and success.

Together with airport members, world business partners, faculties, vendors and other stakeholders, ACI Global Training has embarked on a voyage that will set a course for increased success in achieving airport excellence. ■

ICAO and FIATA Develop New Dangerous Goods by Air Training Programme

ICAO and the International Federation of Freight Forwarders Associations (FIATA) recently announced that they would be working together to develop a new ICAO/FIATA Dangerous Goods by Air Training Programme for freight forwarders, incorporating both initial and recurrent training.

"This is an important collaboration for FIATA with the broader air transport community," commented Jean-Claude Delan, FIATA President. "We will now be offering a training programme to our members backed by ICAO's significant technical knowledge and regulatory experience."

ICAO's stake is equally important, since freight forwarders account for the vast majority of all shipments tendered for transport by air. The ICAO/FIATA Dangerous Goods by Air Training Programme will be based on the ICAO Technical Instructions (TIs). From a legal perspective, the TIs are the only authentic regulations for the international transport of dangerous goods by air. Under the provisions of the Chicago Convention on International Aviation, ICAO's 191 Member States are required to have inspection and enforcement procedures to ensure that dangerous goods are being carried in compliance with the TIs and must adopt the requirements of the ICAO Technical Instructions into their national laws.

"This system results in safety standards which are essen-tially consistent and harmonized throughout the world, in accordance with ICAO's global role and mandate," noted ICAO's Packing Instructions Project Coordinator, Lynn McGuigan. "The ICAO Technical Instructions manual need only be purchased every second year and will now be offered to FIATA members and its training institutions at a significantly reduced price."

The Canadian Freight Forwarders Association (CIFFA) being presented with an inaugural plaque as the first member training school to offer the new ICAO/FIATA Dangerous Goods by Air Training Programme. From left to right: Mohamed Elamiri, Deputy Director Safety Management and Monitoring, Air Navigation Bureau, International Civil Aviation Organization (ICAO) ; Marc Bibeau, President of the Board of Directors, Canadian International Freight Forwarders Association (CIFFA) ; William Gottlieb, *Immediate Past President,* International Federation of Freight Forwarders Associations (FIATA).

The new ICAO/FIATA Dangerous Goods Training Programme will concentrate on fulfilling FIATA members' training objectives through a focus on 'competency-based training' approaches as set out in the ICAO Training Policy. Participating training institutions will have the option to deliver courses through classrooms, blended learning and e-Learning. The curriculum is being designed to meet the expectations of FIATA's mem-bers that training programmes should incorporate student assessments of the highest standards in order to ensure quality, competency and excellence.

FIATA's objective in the new partnership is to ensure accessibility of Dangerous Goods by Air Training to forwarders at reasonable costs and with broad distribution. In order to achieve this, it is welcoming training organizations that have established their commitment to delivering quality vocational training to join this new network under FIATA's umbrella. The association has over 30 year of experience in providing forwarders with accessible by-air dangerous goods training.

Recognized FIATA Training Centres will offer students who successfully complete the training for freight forwarders an official and co-branded ICAO/FIATA certificate, evidencing both government and industry requirements have been met.

Those training institutions which have demonstrated their commitment to offering Dangerous Goods by Air Training to the forwarding industry are also now invited to become recognized FIATA Training Centres.

CIFFA becomes Early Adopter

The Canadian Freight Forwarders Association (CIFFA), in its on-going efforts to ensure its 249 member companies have access to the latest in world class training, recently became the first member training school to offer the new ICAO/FIATA Dangerous Goods by Air Training Programme.

"We're excited to be offering dangerous goods training that is based on the ICAO Technical Instructions," commented CIFFA president Marc Bibeau. "CIFFA's recognition by ICAO/FIATA is important to Canadian freight forwarding companies. This new Dangerous Goods by Air Training Program is a key addition to the extensive professional training provided to CIFFA members." ■

ICAO Training Report Directory Listings

Africa

ACADÉMIE INTERNATIONALE MOHAMMED VI DE L'AVIATION CIVILE – AIAC (MOROCCO)

Contact: Mr. Abdellah Menou, Head of Training and Partnership Department
Email: a.menou@onda.ma
Tel: +212 660 100 241
URL: www.aiac.ac.ma

Through its four specialised institutes - Institute of Aviation Management, Institute of Air Traffic Services, Institute of Safety Systems and Institute of Aviation Security- AIAC as has trained over 500 participants from more than 30 countries since 2001. By consistently staying ahead of developments taking place in international civil aviation, AIAC is able to develop new programmes not readily available elsewhere. AIAC also offers degree and graduate diploma programmes through alliances with reputable national and overseas academic institutions.

AIR FORM Groupe (Morocco)

Training for better airline integration

Contact: Mr. EMBAREK ALLAL, International Relations Manager
Email: airform.international@gmail.com
Tel: +212 537 682 526
URL: www.airform.fr / www.air-form.ma

Air-Form is a leader in civil aviation training in Morocco. Air-Form Group meets EASA, ICAO and other international standards for the following trainings:

- Cabin Crew: Initial safety training - EU OPS.
- Station Agents.

AIR TRAFFIC (AIR TRAFFIC AND NAVIGATION SERVICES – ATNS) (SOUTH AFRICA)

Leaders in the provision of air traffic management, navigation, training and related services

Contact: Ms. Thandi Mosupye, Senior Manager Marketing and Communications
Email: marketing@atns.co.za
Tel: +27 0860 2867 26
URL: www.atns.com

ATNS is responsible for air traffic control in approximately 10% of the world's airspace. Our services extend further than the familiar air traffic control service, into the provision of vitally important aeronautical information used for all flight planning purposes as well as search and rescue coordination activities and the maintenance of a reliable navigation infrastructure.

EAST AFRICAN SCHOOL OF AVIATION (KENYA)

The sky is only the lower limit

Contact: Director, East African School of Aviation
Email: info@easa.ac.ke
Tel: +254 20 6823602/7
URL: www.easa.ac.ke

The East African School of Aviation is the training department of Kenya Civil Aviation Authority. It is a premier aviation training institution in Africa established in 1954 to provided skilled personnel for the aviation industry. The school is one of the 17 worldwide Civil Aviation Training Centres member of the International Civil Aviation Organisation's (ICAO) TRAINAIR PLUS Programme and one of the three Regional Aviation Training Centres in Africa; At EASA, we create competent human capital for the aviation industry in the Region to enhance Global Aviation Safety & Security.

Africa

INFOHAS GROUP – CABIN CREW TRAINING INSTITUTE (MOROCCO & CANADA)

Your path to Excellence

Contact: Mr. Rachid El Sabah, International Relations Manager
Email: infohas@menara.ma & Rachid.ElSabah@infohas.com
Tel: +212 537 661763 (Morocco) +1 514 418 6368 (Canada) **Fax:** +212 537 762025 (Morocco)
URL: www.infohas.com

Cabin crew and ground staff training Institute is one of the best worldwide Training center. Since 1996, more than 1500 of our graduates effectively working for international airlines companies. Our services: Training and Staffing supply (Cabin crew and ground staff, etc.). The excellence is at your service to the recruitment of your cabin crew and ground staff. Do not hesitate to call us or mail us about your hiring plans and staffing needs.

LOUMED CABIN CREW TRAINING CENTER, LCCTC (MOROCCO)

Your Education is our priority

Contact: Mrs. Loubna Ouhadious Hoummady, Executive Director
Email: loumedpncenter@gmail.com
Tel: +32 71 34 55 10
URL: www.lcctc.ma / www.lcctc.net

LCCTC is a cabin crew training center which is located in Agadir, south of Morocco, the sunniest city throughout the year. LCCTC provides a set of coherent and consistent training taking into account the International requirements of training. To offer a high level of training and maintain a high success rate, LCCTC has focused the collaboration of professionals in the business of aviation, also all the main subjects are taught in French and English. At LCCTC, quality and the steps associated with it are a guarantee and continuous improvement in performance. LCCTC makes your dream a reality.

NIGERIAN COLLEGE OF AVIATION TECHNOLOGY (NIGERIA)

Training for excellence

Contact: Engr. Zakari Adamu Zubairu, Deputy Rector
Email: deputy-rector@ncat.gov.ng
Tel: +234 803 703 9671 / +234 69 879271
URL: www.ncat.gov.ng

NCAT is a unique government institution established in 1964 to train aviation professionals. It trains Pilots, Air Traffic Controllers, Aircraft Maintenance Engineers, Aeronautical Telecommunications Engineers, Flight Dispatchers, Cabin Crew, Avionics Engineers, etc. It implements training programmes, which conform to ICAO's standards and recommended practices, meeting national and international needs for both operational and top-level management personnel. NCAT consists of five co-located schools, Aviation Management, Flying, Aircraft Maintenance Engineering, Air Traffic Services/Communication, and Aeronautical Telecommunications Engineering.

UNITED ATS (EGYPT)

United ATS are committed to Aviation Excellence

Contact: Mr. Amr Mohamed Shehata, Training Director
Email: info@unitedats.com
Tel: +201 1445 61117 **Fax:** +201 00609 0684
URL: www.unitedats.com

United ATS plays an integral part in aviation safety by providing competent and professional services and training which complies with international standards. Services and training is provided with integrity that is customer focused and placing value on safety to the aviation industry to meet mandatory ICAO requirements, such services are IFP Design, Airspace management and design, Aeronautical Studies, Aeronautical Survey, Turn Key eTOD services and approximately Fifty professional training Courses Related to our provided services.

Asia and Pacific

AIRWAYS (NEW ZEALAND)

Delivering international training for over 50 years

Contact: Ms. Jacqueline Rodríguez Q., Gerente de Operaciones
Email: international@airways.co.nz
Tel: +64 03 357 2832 **Fax:** +64 03 358 1690
URL: www.airways.co.nz

Airways Training provides a range of ATS courses using a blend of cutting-edge technology and classroom lead training programmes. Relying on extensive international experience, Airways Training provides courses customised to individual needs, guaranteeing that your trainees are receiving training that is tailored to their needs. Over the last 20 years Airways has reduced ATC training course length from 18 to 6 months, lowered recruitment costs by 25% and achieved 85% average success rate for ATC ab-initios. Talk to us about how to enhance your current training practices.

IRANAIR *ENGINEERING & MAINTENANCE TRAINING DEPARTMENT* (IRAN, Islamic Republic of)

Developing well-qualified aircraft maintenance professionals is our pride

Contact: Mr. Mehdi Ghoncheh, Director General
Email: techtraining@iranair.com
Tel: + 98 21 46627700
URL: http://emtd.iranair.com

IranAir *Engineering & Maintenance Training Department* (EMTD) has played a pioneering role in the aviation maintenance training for technical staff in Iran since 1970. In full compliance with CAO. IRI and International Regulations, EMTD offers a wide range of technical courses including knowledge and practical training facilitated by well-equipped standard classrooms, mechanical workshops and avionic laboratories. EMTD welcomes more than 150 trainees at the same time and provides them with easy access to the hangars and workshops.

SINGAPORE AVIATION ACADEMY (SINGAPORE)

Developing Talent for Global Aviation

Contact: Ms. Zheng Wanting, Executive (Marketing & Promotions)
Email: saa@caas.gov.sg
Tel: 65 65406209/6543 0433
URL: www.saa.com.sg

The Singapore Aviation Academy (SAA) - the training arm of the Civil Aviation Authority of Singapore (CAAS), offers a wide range of operational and management programmes under its four specialised schools - School of Aviation Management, School of Aviation Safety and Security, School of Air Traffic Services and School of Airport Emergency Services. Besides developing talent for the aviation community, it also serves as an international platform for the sharing of knowledge and experiences through its conferences and forums.

Europe

AEROLINGUA TRAINING CENTRE FOR FURTHER PROFESSIONAL EDUCATION (UKRAINE)

English is your runway!

Contact: Ms. Olena Petrashchuk, Doctor of Science, Professor
Email: info@aerolingua.com
Tel: +38 067 467 37 06 **Fax:** +38 044 457 78 68
URL: www.aerolingua.com

AEROLINGUA Training Centre for Further Professional Education has a full accreditation from CAA of Ukraine to provide English Language training and testing services for aviation personnel. AEROLINGUA offers courses in Aviation/Technical English as well as English Language assessment against ICAO scale (for pilots and controllers) and Council of Europe Framework of Reference (for aviation engineers and technicians). AEROLINGUA is headed by Dr.,Prof. Olena Petrashchuk – an author of Aviation English Test, Aviation English for controllers, training course for examiners/raters.

AIR SAFETY SECURITY SERVICES – A3S (SWITZERLAND)

Experience and Professionalism according to your needs and expectations

Contact: Lt Col François VILLARD, Managing Director
Email: a3s@air-safety-security.com
Tel: +4179 635 77 63
URL: www.air-safety-security.com

Training and consultancy for airports, airlines, national civil aviation in fire and rescue, safety, security and crisis management issues. Security threat analysis for airports and airlines. Family care centers design, building and training. Emergency plans and major exercises. Basically we are working on site in order to give the most accurate and precise answer to your needs.

AIRTRACE (SWITZERLAND)

Swiss quality training

Contact: Ms. Mercedes Tercier, Airtrace coordinator
Email: info@airtrace.ch
Tel: +41 22 817 46 66
URL: www.airtrace.ch

Airtrace – International Airport Environement Training Centre – is a company operating the fields of training, auditing and counseling for airport safety, environment and management. Airtrace is specialized in Wildlife Hazard Prevention but courses include Environement and Biology, Airport Management System, Safety Management System, Crisis Management, Operations Continuity, Airside Driving Permit, First Aid, Aircraft Rescue and firefighting. We offer our experience and skills through a broad spectrum of activity to bring the best solutions to airports.

ANGLO-CONTINENTAL (ENGLAND)

Established in 1950

Contact: Véronique Bethell
Email: aviation@anglo-continental.com
Tel: +44 1202 411887
URL: www.aviation-english-division.com

Anglo-Continental, accredited by the British Council, is a leading English language teaching organisation. We have been specialising in teaching Aviation English worldwide for 40 years. Recently, Anglo-Continental has developed programmes and a test designed for aviation personnel to meet ICAO's language proficiency requirements. We offer scheduled and bespoke courses for aviation personnel, in order to meet our customers' specific requirements. Anglo-Continental's professionally trained raters and our centres deliver our test in the UK and abroad.

AVIOTRACE SWISS (SWITZERLAND)

The future is in the air

Contact: Eng. Franco Matarazzo, Sales Manager
Email: franco.m@aviotraceswiss.com
Tel: +41 445860484
URL: www.aviotraceswiss.com

Aviotrace Swiss is an approved Part.147 Maintenance Training Organization particularly focused on Part 66 Basic Training, for the achievement of Aircraft Maintenance License (categories A1, B1.1, B2), Maintenance Training and Continuation Training. Aviotrace Swiss offers a wide range of other courses and services, tailored to the needs of individuals as well as aviation companies. Aviotrace Swiss courses offer the theoretical part in different solutions: Classroom, Multimedia Based Training system (Distance Learning) and Virtual Classroom (Web-based instruction and Tutors).

BELGIAN FLIGHT SCHOOL (BELGIUM)

The Best Way to Touch the Sky!

Contact: Mr. Maxime Wauters, Business Development Manager
Email: m.wauters@bfgroup.aero or info@bfschool.aero
Tel: +32 71 34 55 10
URL: www.bfschool.aero / www.bfgroup.aero

Belgian Flight School is Belgium's leading Flight Training Organization for airline pilots. The organization is approved by the Belgian Civil Aviation Authorities (BCAA), on behalf of the Joint Aviation Authorities (JAA), to train airline pilots according to current European regulations (EASA/JAR-FCL). BFS offers an innovative Integrated ATPL program, offered in joint venture with Aerosim Flight Academy (USA) and provide state of the art, competency based training program. The school also offers a modular program. Since 2008, BFS became a member of BFG (Belgian Flight Group) headquartered at the airport of Charleroi Brussels-South, which offers a wide range of services (other than pilot training) related to general and business aviation.

CAA INTERNATIONAL (UNITED KINGDOM)

Committed to supporting aviation safety around the world

Contact: Training Team
Email: training@caainternational.com
Tel: +44 0 1293 768821
URL: www.caainternational.com

CAA International (CAAi) is a wholly owned subsidiary of the UK Civil Aviation Authority. We offer training, technical assistance and examination services to help you with the development of good practice in aviation safety. CAA International's dedicated training department provides a portfolio of training courses covering all aspects of safety regulation for industry and regulatory clients, drawing on the expertise of the UK CAA and external facilitators.

EMERY ROBERTS - AVIATION ENGLISH TRAINING (UNITED KINGDOM)

Best practice in aviation English training and testing

Contact: Mr. Andy Roberts, Director of Training
Email: contact@emery-roberts.co.uk
Tel: +44 (0) 7977 43 9908
URL: www.emery-roberts.co.uk

Emery-Roberts Aviation English Training Limited (ER) is an internationally-recognised leading provider of aviation English language education and assessment services. ER provides a wide range of scheduled and bespoke language training and testing solutions for the aviation industry. Services are delivered at our training centre in the UK, or at the customer's preferred location. In keeping with ER's reputation for innovation 2012 sees the launch of 'Aviation English Live'- live interactive practice in the Emery-Roberts Virtual Aviation English Academy.

Europe

ÉCOLE NATIONALE DE L'AVIATION CIVILE – ENAC (FRANCE)

Live your passion and take off to your future

Contact: Isabelle Rossi, International and Commercial Affairs Assistant
Email: isabelle.rossi@enac.fr
Tel: 33 0 5 62 17 44 38
URL: www.enac.fr

ENAC is a unique aviation university in the world that offers a wide range of ab-initio and refresher courses for the executives and main actors of the civil aviation world, for both private and public sectors in all fields of its well known expertise: ATM, CNS, airports, air transport, AVSEC, human factors and aviation English. ENAC also provides training courses for airline transport pilots and flight instructors. ENAC can set up tailor-made courses to meet specific needs.

ÉCOLE TECHNIQUE AÉRONAUTIQUE GÉNÉRALE AERO CLUB DES RIÈZES ET DES SARTS (BELGIUM)

Osez l'Aéronautique !

Contact: M. Hermann METENS, Instructeur-aviateur, Professeur d'Aéronautique
Email: ars.etag@hotmail.com
Tel: +32 (0) 60 377 922 / +32 (0) 478 56 38 34
URL: www.etag.2kool4u.net

Cette formation vise à développer des compétences de base en aéronautique au niveau des techniques générales, à savoir en aérotechnique (cellules, moteurs, instruments, aérodynamique, exploitation,...), en réglementation, en météorologie, en navigation, en radiocommunication et en langue anglaise (niveau élémentaire). Elle donne accès à des emplois de premier niveau dans le domaine de l'aéronautique, notamment dans des entreprises de construction aéronautique, dans des sociétés de transport aérien, d'exploitation de la navigation aérienne ou de gestion d'aéroport.

HELLENIC AVIATION TRAINING ACADEMY – HATA (GREECE)

Beyond the front row!

Contact: Mr. Theodosios S. Arpatzoglou, Head of Training
Email: hot@hata.edu.gr
Tel: +30 22990 41314
URL: www.hata.edu.gr

The HELLENIC AVIATION TRAINING ACADEMY (HATA), minutes from Athens International Airport, is the organisational centre of comprehensive service and support solutions including EASA/HCAA approved training for maintenance, flight operations and management, product life-cycle extension, aircraft evaluation/acquisition services and technical publications. HATA satisfies the ever-increasing needs of the civil aviation industry in the south eastern Mediterranean and international markets by developing tailored solutions providing optimum value and effect.

INTERNATIONAL ASSOCIATION OF AVIATION PERSONNEL SCHOOLS (THE NETHERLANDS)

Contact: Mr. Leen van der Spek, Secretary
Email: secretary@iaaps.info
Tel: +0031 (0)50 30 98 330
URL: www.iaaps.info

IAAPS is a non-profit organisation where any aviation training organisation can become a member and share experience, concerns, and projects, both within the association and with the regulatory environment. IAAPS special attention is on regulations as prepared by ICAO and EASA. Our members support Evidence Based Training as developed by the ITQI group of IATA and Competency Based Training as prescribed in MPL regulations. IAAPS has representatives in EASA FCL001, FCL002 and FCL008, EAB (EASA advisory board) and SSCC (Safety Standards Consultative Committee). In Montreal IAAPS is represented on ICAO matters like the NGAP (Next Generation of Professional Pilots). Annual IAAPS general assembly invites with speakers to discuss the latest developments about aviation training.

MACMILLAN EDUCATION (UNITED KINGDOM)

Your partner in education

Contact: Charlotte Ellis, Marketing Executive (Adult, Professional and Methodology)
Email: help@macmillan.com
Tel: +44 (0) 1865 405700
URL: www.macmillanenglish.com/aviationenglish

Macmillan Education is a leading publisher of materials for learning English. In 2008 Macmillan was one of the first publishers to produce materials for pilots and air traffic controllers to achieve and maintain level 4 of the ICAO language requirements. Aviation English and Check Your Aviation English were authored by experts in the field, Henry Emery and Andy Roberts, and are ideal preparation for any aviation English exam.

MAYFLOWER COLLEGE (UNITED KINGDOM)

A leader in Aviation English Training & Testing

Contact: Mr. Paul Stevens, Director
Email: paul@maycoll.co.uk
Tel: +44 1752 673784
URL: www.aviation-english.com / www.english.aero

Mayflower College has been working in the 'Aviation English' field since 1988 and provides: • Courses for pilots, controllers, teachers and examiners in the UK or at the customer's location • 'Climb Level 4' – the leading online programme for aviation professionals aiming to reach ICAO Level 4 or 5 • Test of English for Aviation (T.E.A.) – a face-to-face test delivered at over 100 test centres around the world.

OXFORD AVIATION ACADEMY (16 GLOBAL LOCATIONS)

Skills for Flight

Contact: Ms. Emma O'Donnell, Group Marketing Manager
Email: emma.odonnell@oaa.com
Tel: +44 1865 84 1234
URL: www.oaa.com

Oxford Aviation Academy is one of the leading international providers of innovative airline pilot, cabin crew and maintenance training solutions. Operating from 10 ab initio and type training centres in Copenhagen, Goodyear, Hong Kong, London Gatwick, London Heathrow, Manchester, Melbourne, Oslo, Oxford and Stockholm, OAA specialises in providing integrated "Total Training Solutions" tailored to meet the particular needs of any customer worldwide. OAA Group Company, Parc Aviation, adds flight crew resourcing, technical support and ferry flight services to the group portfolio with offices in Beijing, Dublin, Shanghai, Shannon and Tokyo.

TBILISI INTERNATIONAL AVIATION TRAINING CENTRE" (TIATC) LTD. (GEORGIA)

Safety is best Policy

Contact: Ms. Tamara Gelashvili, "TIATC" Deputy director
Email: t.gelashvili@tiatc.ge
Tel: +995 32 227 44 377
URL: http://www.airnav.ge

Tbilisi International Aviation Training Centre"(TIATC)Ltd., has full accreditation from Georgian CAA. The "TIATC" is located at Tbilisi International Airport, with comfortable, electronic classrooms and new simulator suits. it's well established infrastructure enables us to offer training to the International clients. With the support of experienced Instructors, we offer training services in English language. The activities of the Centre is focused on, ICAO and Eurocontrol compliant aviation training needs for all comprehension ATM trainings. TIATC provides a full range of total immersion English Language training programmes for air traffic controllers, pilots, engineers, management and administrators as well as ICAO Language Proficiency training, Assessment and certification to pilots, air traffic controllers and interlocutors/ raters. We design our courses to specifically meet our client's requirements.

Europe

THALES ATM TRAINING INSTITUTE (FRANCE)

Long-term relationship with our customers to fulfil future training needs

Contact: Mr. Bruno VILAINE, Head of Integrated Logistics Support Department
Email: bruno.vilaine@thalesgroup.com
Tel: +33 0 6 77 80 11 78
URL: www.thalesatm-services.com

Thales is world leader in ATM systems and civil radars, and has a 70% market share in the navigation aids market. Thales offers integrated gate-to-gate solutions, from pre-flight to landing, ensuring airport safety, efficient traffic handling operations, data sharing on aircraft and seamless handover operations between territories. Thales is involved in the key Single European Sky ATM Research (SESAR) program in Europe, in which it is the largest industrial contributor, as well as a key technology partner in the US NextGen program.

Middle East

THE GULF CENTER FOR AVIATION STUDIES (UNITED ARAB EMIRATES)

The Regions dedicated airport and aviation training hub

Contact: Mr. Tarek Khoury, Training Manager
Email: training@gcas.ae
Tel: +971 249 42355 **Fax:** +971 249 42366
URL: www.gcas.ae

The Gulf Centre for Aviation Studies (GCAS) is a centre of excellence for airport and aviation training based in Abu Dhabi, United Arab Emirates. Positioned within a world-class international business aviation airport, Al Bateen Executive Airport, GCAS offers the very best in international-standard training through a combination of high-tech facilities, global expertise and industry leading courses. GCAS has been awarded the world's first TRAINAIR PLUS membership from the International Civil Aviation organization (ICAO).

North America

AIRPORTS COUNCIL INTERNATIONAL GLOBAL TRAINING (CANADA)

Reach Your Highest Potential

Contact: Mr. Kevin Caron, Assistant Director, Global Training
Email: training@aci.aero
Tel: +1 514 373 1200
URL: www.aci.aero/training

In 1991 airport operators around the world created Airports Council International – the first worldwide association to represent their common interests and foster cooperation with partners throughout the air transport industry. At the same time, ACI provides the platform for pursuing a constructive and cooperative relationship with the airline associations, governments and regulators. On critical industry issues – liberalisation, ownership, capacity planning, regulatory restrictions, and environmental action – ACI defends airports views and strengthens their ability to shape the future of our industry, backing up individual airport actions. ACI offers its members numerous training opportunities, a customer service benchmarking programme, detailed industry statistical analyses and practical publications.

AQS AVIATION TRAINING CENTRE (MEXICO)

Searching for the Best Route

Contact: Mario Maturin, CEO
Email: mariomaturin@gmail.com
Tel: +52 722 5829293
URL: www.e-aqs.com

AQS AVIATION TRAINING CENTER, S.C. has committed itself to provide and contribute to the formation of human of capital of companies and their organization in the aeronautical sector. Based on the profound conviction that the development of skills of persons involved in the formation of high quality teams and their continuous improvement, allowing organizations to build efficient, effective, competitive and healthy teams, giving priority to the educational process involving strategic technological innovation through scientific research and technology, which will provide continuity and stable conditions require for their development.

THE ASI INSTITUTE - A DIVISION OF AVIATION STRATEGIES INTERNATIONAL (CANADA)

Develop Your Advantage

Contact: Ms. Kristina Schneider, Director Learning Strategies and Educational Technology Services
Email: institute@aviationstrategies.aero
Tel: +1 514 398 0909
URL: www.institute.aviationstrategies.aero

The ASI Institute (ASI-I) is the professional training and development division of Aviation Strategies International (ASI). We specialise in organizational needs assessments as well as the design, development, implementation and evaluation of face-to-face, online and blended learning programmes. Our training provides the latest thinking and best practices in aviation management. It is designed to tool participants with actionable learning that quickly translates into solutions, immediately applicable in their professional environment. In addition, we are the officially appointed Global ACI-ICAO Airport Management Professional Accreditation Programme (AMPAP) Administrator, which has been responsible for its design, development and international deployment since its inception.

CAE (AB INITIO & TYPE RATING TRAINING LOCATIONS WORLDWIDE)

One Step Ahead

Email: aviationtraining@cae.com
Tel: 514 341 2000
URL: www.cae.com

CAE is a global leader in modeling, simulation and training for civil aviation and defense. The company employs more than 7,500 people at more than 100 sites and training locations in more than 20 countries. Through CAE's global network of 33 civil aviation, military and helicopter training centres, the company trains more than 80,000 crewmembers yearly. CAE's business is diversified, ranging from the sale of simulation products to providing comprehensive services such as training and aviation services, professional services and in-service support. The company aims to apply its simulation expertise and operational experience to help customers enhance safety, improve efficiency, maintain readiness and solve challenging problems. CAE is now leveraging its simulation capabilities in new markets such as healthcare and mining.

CQFA CHICOUTIMI COLLEGE (CANADA)

Serving the industry since 1968

Contact: Jean LaRoche, Director of R&D, Continuing Education
Email: info@cqfa.ca
Tel: +1 514 300-2732
URL: www.cqfa.ca

CQFA began delivering on-demand courses in 1968 from its Montreal campus and currently delivers 50 courses: Check Pilot (TRE), Ground Deicing, Aviation HR, Pilot Selection Systems, Airport Management, ICAO 054, Jet Transition, Multi-Crew, SMS Audits, and an unique program of CAA Leadership Training. CQFA is the world's largest civilian provider of Winter Aviation Survival courses. CQFA's online training program features a comprehensive ramp-to-ramp Operational Performances Course, International Procedures, SMS, High Altitude Flying, Surface Contamination, Aviation Fuel, and CFIT. We deliver worldwide in English and French. Our unique one-month homestay International Aviation English Program includes time in the simulator.

DYNED INTERNATIONAL (UNITED STATES)

DynEd's AE blended solution - Language learning anytime, anywhere

Contact: Timothy Karstetter, Aviation English, Global Manager
Email: t.gelashvili@tiatc.ge
Tel: +1 602 481 0713 **Fax:** +1 650 375 7017
URL: www.dyned.com/products/aviationenglish

DynEd International, Inc., the world's leading provider of "blended" English language training solutions, provides Aviation English solutions to thousands of ab-initio cadets, active pilots, controllers, maintenance technicians and cabin crew around the world. Our Aviation English solution significantly accelerates English language proficiency gains in an aviation context, with the primary goal of improving safety and reducing operational costs.

PHOENIX EAST AVIATION (UNITED STATES)

Training Pilot Candidates for Airlines Worldwide since 1972

Contact: Pat Cobleigh, Director of Marketing
Email: patc@pea.com
Tel: 1 386 258 0703 **Fax:** 1 386 254 6842
URL: www.pea.com

Phoenix East Aviation is a U.S. nationally accredited flight training academy offering FAA Part 141 and Part 61 courses, jet type ratings and airline dispatcher training. Flight training programs include Private, Commercial and Airline Transport Pilot certificates, as well as Certified Flight Instructor, Certified Flight Instructor Instrument and Multi-engine Instructor. Cessna Citation 500 series type ratings are also offered. Phoenix East Aviation specializes in training international students and has trained pilots from over 100 countries.

South America

ACADEMIA DE CAPACITACION EN SEGURIDAD Y SERVICIOS (CHILE)

Nuestra filosofía de servicio combina calidad en la gestión e implementación de programas y entrenamiento tanto presencial como e-learning, conforma a los requerimientos de nuestros clientes

Contact: Ms. Jacqueline Rodríguez Q., Gerente de Operaciones
Email: jacqueline.rodriguez@acass.cl
Tel: +56 2 2332944
URL: www.acass.cl

ACASS Ltda., ha sido creada con el fin de capacitar a quienes requieran de una formación, no tan sólo desde una perspectiva laboral-instrumental, sino que, además, teniendo presente que dicha capacitación debe integrar sólidos principios éticos y sociales que conviertan al trabajador en una persona de alto valor agregado, dentro del ambiente en que se desempeñe y fundamentalmente, en un real aporte al grupo humano en que se encuentra inserto.

EL INSTITUTO NACIONAL DE AVIACIÓN CIVIL (INAC) (BOLIVIA)

La Excelencia En Educacion Aeronautica Al Servicio Del Pueblo Boliviano

Contact: Mr. Rimort Edson Chavez Araujo, Jefe de Estudios e Instructor Aeronautico
Email: dgacbol@gob.bo
Tel: 591 2 2227281 / 591 2 2444450
URL: www.dgac.gob.bo

El Instituto Nacional de Aviación Civil (INAC) es un Centro Educativo de Instrucción Aeronáutica dependiente de la DGAC de Bolivia que forma Profesionales altamente calificados en distintas carreras que demanda la industria aeronáutica nacional. Su Complejo Aeronáutico se encuentra ubicado en la ciudad de Cochabamba, corazón de Bolivia y América del Sur.

PUNTA DEL ESTE FLIGHT SCHOOL (URUGUAY)

Open your wings into the sky of Uruguay

Contact: Mr. Rodrigo Valetta, International representative
Email: r.valetta@puntaflightschool.com
Tel: +46 73 764 7997
URL: www.puntaflightschool.com

Punta del Este Flight School is a flight training center certified by DINACIA (local Civil Aviation Authority) and located in Punta del Este, a well-known summer resort on the Rio de la Plata / Atlantic Ocean coast in Uruguay, South America. We offer all training courses for different air professionals, with a strong emphasis on curricular training, by making sure that the trainee not only goes through the flight training but also all the theory, through planned and coordinated instruction. Featuring several certified instructors with wide experience Punta del Este Flight School guarantees quality education within planned and agreed upon timelines.

IATA Honors its 2011 Top-performing Global Authorized Training Centers

The International Air Transport Association (IATA) Training and Development Institute announced its 2011 Premier Circle (Worldwide Top 10) winners as well as its Regional Top 10 authorized training centres as part of the IATA prestigious Training Partner Recognition Programme.

More than 220 IATA authorized training centres were evaluated on the number of students trained and, more importantly, on the quality of training delivered determined by the examination pass rate. The excellence of these training centres significantly contributes to the development of the next generation of aviation, cargo, travel and tourism professionals.

The Top 10 Regional winners adhered to similar selection criteria of Premier Circle at their respective regional levels and include training partners from Africa, the Americas, Asia-Pacific, Europe, the Middle East, and South Asia.

"Prestigious awards for both the 2011 Premier Circle (Worldwide top 10) and Regional Top 10 winners were delivered during award ceremonies in the Asia Authorized Training Center (ATC) Regional Congress held in India in February, as well as the Europe & Africa ATC Regional Congress conducted at IATA's executive Headquarters in Geneva in early May," **commented Ismail Albaidhani, Head of Global Partnerships & Learning Innovation at the IATA Training & Development Institute in Montreal.**

2011 WORLDWIDE TOP 10

AFT-IFTIM FORMATION CONTINUE TFTL

Region: Europe **Country:** France **Tel:** 03 44 66 36 95
Email: ploubiere@aft-iftim.com; JosselineVEG@aft-iftim.com
URL: http://www.aft-iftim.com/

AKBAR ACADEMY OF AIRLINE STUDIES

Region: South Asia **Country:** India **Tel:** +91 471 3911151
Email: ho@akbaracademy.com akbaracademy@gmail.com
URL: http://www.akbaracademy.com/

AIRCARGO TRAINING CENTER OF JAPAN

Region: Asia Pacific **Country:** Japan **Tel:** 0081 48 4746324
Email: yoshitakamasuda@aa.pial.jp
URL: http://www.iata.org/ps/resellers/Pages/index.aspx?sc_cid=findatc1234

AIR TRAVEL & RELATED STUDIES CENTRE

Region: Africa **Country:** Kenya **Tel:** +254 20 2228336
Email: info@airtravelstudies.co.ke; admin@airtravelstudies.co.ke
URL: http://www.iata.org/ps/resellers/Pages/index.aspx?sc_cid=findatc1234

IITC-INDIA INTERNATIONAL TRADE CENTRE

Region: South Asia **Country:** India **Tel:** +91 22 22028055
Email: info@iitcworld.com; sandesh@iitcworld.com
URL: http://www.iitcworld.com/

JAPAN AIRCARGO FORWARDERS ASSOCIATION (JAFA)

Region: Asia Pacific **Country:** Japan **Tel:** 81 3 5695 8451
Email: kubota@jafa.or.jp; sakai@jafa.or.jp; yokohama@jafa.or.jp
URL: http://www.jafa.or.jp/english/index.html

PATRIOT AVIATION COLLEGE

Region: South Asia **Country:** India **Tel:** +91 (487) 2388677
Email: patriot@sbglobal.in; patriot@patriotedu.com
URL: http://www.patriotaviationcollege.com/

KUONI ACADEMY

Region: South Asia **Country:** India **Tel:** 91 22 61577900
Email: MilyS@kuoniacademy.co.in; ChittaranjanB@kuoniacademy.co.in
URL: http://www.kuoniacademy.co.in/

SPEEDWINGS ACADEMY FOR AVIATION SERVICES

Region: South Asia **Country:** India **Tel:** 91 484 2539937
Email: saas@speedwings.org; biji@speedwings.org; siniginet30@gmail.com
URL: http://www.speedwings.org/

TRADE WINGS INSTITUTE OF MANAGEMENT

Region: South Asia **Country:** India **Tel:** 91 22 26250605
Email: yoshitakamasuda@aa.pial.jp
URL: http://www.timindia.com/

IATA Honors its 2011 Top-performing Global Authorized Training Centers

AFRICA TOP 10 REGIONAL ATCs

EAST AFRICAN SCHOOL OF AVIATION
Country: Kenya **Region:** Africa **Tel:** 254 020 823607
Email: jkimari@easa.ac.ke; smwathe@easa.ac.ke
URL: http://www.iata.org/ps/resellers/Pages/index.aspx?sc_cid=findatc1234

FRONTIER TRAVEL ACADEMY
Country: Nigeria **Region:** Africa **Tel:** 234 1 7631517
Email: oidowu@frontiertravelacademy.com; info@frontiertravelacademy.com
URL: http://frontier-academy.com/contact.php

KBA AND PARTNER'S
Country: Côte d'ivoire **Region:** Africa **Tel:** +225 (20) 32 02 73
Email: mmbra_10@yahoo.fr; alainkouassi2001@yahoo.fr
URL: http://www.iata.org/ps/resellers/Pages/index.aspx?sc_cid=findatc1234

KENYA UTALII COLLEGE
Country: Kenya **Region:** Africa **Tel:** +254 726 726799
Email: tourism@utalii.co.ke; jmaina@utalii.co.ke
URL: http://www.iata.org/ps/resellers/Pages/index.aspx?sc_cid=findatc1234

LANDOVER AVIATION BUSINESS SCHOOL, LANDOVER CO LTD
Country: Nigeria **Region:** Africa **Tel:** +234 (1) 4979780 5
Email: trg@landover.aero; admin@landover.aero
URL: http://www.iata.org/ps/resellers/Pages/index.aspx?sc_cid=findatc1234

MAKAIR TRAVEL ACADEMY
Country: Tanzania **Region:** Africa **Tel:** 255 22 2151357
Email: makair2002@yahoo.com; mwalli2001@yahoo.com
URL: http://www.iata.org/ps/resellers/Pages/index.aspx?sc_cid=findatc1234

UPEO TRAINING CENTRE
Country: Tanzania **Region:** Africa **Tel:** +254 20 823498
Email: rcc_upeo@yahoo.com
URL: http://www.iata.org/ps/resellers/Pages/index.aspx?sc_cid=findatc1234

SAYNA CONSULTING
Country: Côte d'ivoire **Region:** Africa **Tel:** +225 (20) 320724
Email: jacquesangaman@hotmail.com
URL: http://www.sayna-ci.org/

SKYWALKER TRAINING CENTER
Country: Nigeria **Region:** Africa **Tel:** 234 1 8193656
Email: info@skywalkertraining.com
URL: http://www.skywalkertraining.com/

CAREER INSTITUTE
Country: Uganda **Region:** Africa **Tel:** 256 414 251208
Email: admin@careerinstituteug.com
URL: http://www.iata.org/ps/resellers/Pages/index.aspx?sc_cid=findatc1234

ASIA TOP 10 REGIONAL ATCs

ADVANCED TOURISM INTERNATIONAL COLLEGE (ATIC)
Country: Malaysia **Region:** Asia Pacific **Tel:** 60164711344
Email: preshath@atic.edu.my; vj2310@hotmail.com; vijay@atic.edu.my; ceo@atic.edu.my
URL: http://www.atic.edu.my/

CIVIL AVIATION MANAGEMENT INSTITUTE OF CHINA CAMIC
Country: China **Region:** North Asia **Tel:** 86 10 6472 0670
Email: zhangzuizhu@yahoo.com.cn; flightsafety@vip.tom.com
URL: http://www.iata.org/ps/resellers/Pages/index.aspx?sc_cid=findatc1234

TMIS BUSINESS SCHOOL
Country: Singapore **Region:** Asia Pacific **Tel:** 65 62388688
Email: hp.loi@tmis.edu.sg; kelvin.yeo@tmis.edu.sg; jenny.chan@tmis.edu.sg
URL: http://www.tmis.edu.sg/

CAAC GUANGZHOU CIVIL AVIATION COLLEGE
Country: China **Region:** North Asia **Tel:** 86 20 86124496
Email: heym_2009@126.com; wenling_c@163.com
URL: http://www.iata.org/ps/resellers/Pages/index.aspx?sc_cid=findatc1234

KIFFA TRAINING CENTER
Country: South Korea **Region:** Asia Pacific **Tel:** 82 (2) 7338000
Email: kiffa@kiffa.or.kr; waiting4@kiffa.or.kr
URL: http://www.iata.org/ps/resellers/Pages/index.aspx?sc_cid=findatc1234

MANUKAU INSTITUTE OF TECHNOLOGY
Country: New Zealand **Region:** Asia Pacific **Tel:** 64 9 379 4997
Email: tim.wilson@manukau.ac.nz; helen.murray@manukau.ac.nz; Kristine.Navera@manukau.ac.nz
URL: http://www.manukau.ac.nz/

RISM HOSPITALITY ACADEMY SDN BHD
Country: Malaysia **Region:** Asia Pacific **Tel:** 603 91737070
Email: ktlim@rha.edu.my
URL: http://www.rha.edu.my/

SANYA AVIATION AND TOURISM COLLEGE
Country: China **Region:** North Asia **Tel:** 86 898 8834 8128
Email: xuemin-du@hnair.com; xinglei@hnair.com; gl_ma@hnair.com
URL: http://www.hnasatc.com/gb/

INTERNATIONAL TRAVEL COLLEGE OF NEW ZEALAND
Country: New Zealand **Region:** Asia Pacific **Tel:** 64 09 279 3525
Email: kerry@itc.co.nz
URL: http://www.itc.co.nz/

SENTRAL EDUCATION SDN BHD
Country: Malaysia **Region:** Asia Pacific **Tel:** +60 (4) 2299168
Email: admin@careerinstituteug.com
URL: http://www.sentral.com.my/

EUROPE TOP 10 REGIONAL ATCs

ECOLE ATHENA
Country: Switzerland **Region:** Europe **Tel:** 41 21 3232284
Email: info@athenaschool.com; miaheinzer@hotmail.com
URL: http://www.école-club.ch/business

ECOLE-CLUB MIGROS
Country: Switzerland **Region:** Europe **Tel:** +41 58 568 8350
Email: joelle.ruellan@gmnefr.migros.ch
URL: http://www.athenaschool.com/

ROC LEIDEN
Country: Netherlands **Region:** Europe **Tel:** +31 235343853
Email: bwtersteege@gmail.com
URL: http://www.iata.org/ps/resellers/Pages/index.aspx?sc_cid=findatc1234

ESPACE FORMATION PME INFAC-INFOBO
Country: Belgium **Region:** Europe **Tel:** 32 2 334 98 15
Email: g.dubois@efpme.be; c.jadot@efpme.be
URL: http://www.efpme.be/

ECOLE D'HOSTESSES INTERNATIONALES LEJEUNE
Country: Switzerland **Region:** Europe **Tel:** 41 22 7357522
Email: info@ecole-lejeune.ch
URL: http://www.ecole-lejeune.ch/

NATA ROMANIA
Country: Romania **Region:** Europe **Tel:** +40 749 05 05 81
Email: ioana.dobrescu@anat.ro; office@anat.ro
URL: http://www.anat.ro/

MEGA AIRLINES STUDIES
Country: Greece **Region:** Europe **Tel:** 30 210 323 0167
Email: info@megaairlinestudies.gr
URL: http://www.megaairlinestudies.gr/

SWETRAVEL INSTITUTE
Country: Sweden **Region:** Europe **Tel:** 46 16 159320
Email: els-marie.holmberg@studieframjandet.se; maria.k.sandin@studieframjandet.se
URL: http://www.swetravelinstitute.se/

SUNSHINE TOURS TRAINING
Country: Bulgaria **Region:** Europe **Tel:** 359 2 9713420
Email: sunshine.training@sunshinetours.net
URL: http://www.sunshinetours.net/

V.I.P. OBUCHENIE TRAINING CENTRE
Country: Russian Federation **Region:** Europe **Tel:** +7 495 961 0199
Email: d.yurchenko@vipservice.ru; a.kondratieva@vipservice.ru
URL: http://vip-class.ru/page_iata_7

IATA Honors its 2011 Top-performing Global Authorized Training Centers

MIDDLE EAST TOP 10 REGIONAL ATCs

AL KHAWARIZMI INTERNATIONAL COLLEGE
Country: United Arab Emirates **Region:** MENA **Tel:** 971 2 6789700
Email: n.radi@khawarizmi.com ; aligttc@gmail.com
URL: http://www.khawarizmi.com/

AMERICAN UNIVERSAL COLLEGE
Country: Lebanon **Region:** MENA **Tel:** +961 4 404 765
Email: badihchemali@gmail.com
URL: http://www.auclebanon.com/ws/main.html

IRAN AIR
Country: Iran **Region:** MENA **Tel:** 98 21 46627600
Email: vahid.adso@gmail.com; Norouzalibeik@iranair.com; sharafbafi@iranair.com
URL: http://www.iranair.com/

NATIONAL HOSPITALITY INSTITUTE SAOG
Country: Oman **Region:** MENA **Tel:** 968 24816313
Email: cleonluis@gmail.com ; cleon@nhioman.com
URL: http://www.nhioman.com/

OMAN AIR TRAINING CENTRE
Country: Oman **Region:** MENA **Tel:** +968 24519435
Email: Rosanna.Mendonsa@omanair.com; Saleh.AlZadjaly@omanair.com; Ghaliya.AlRaisi@omanair.com
URL: http://www.omanair.aero/training

PRESTON UNIVERSITY, AJMAN
Country: United Arab Emirates **Region:** MENA **Tel:** +971 6 7469555
Email: joelabel@emirates.net.ae
URL: http://www.preston.ae/

QATAR AERONAUTICAL COLLEGE
Country: Qatar **Region:** MENA **Tel:** 009741 440 8800
Email: eeboy@qac.edu.qa
URL: http://www.qac.edu.qa/

SKYLINE UNIVERSITY COLLEGE
Country: United Arab Emirates **Region:** MENA **Tel:** 971 6 5441551
Email: andy@skylineuniversity.com
URL: http://www.skylineuniversity.com/

SKYLINE INSTITUTE
Country: Kuwait **Region:** MENA **Tel:** 965 5640777
Email: hatim@boodaiaviation.com; safaa@boodaiaviation.com
URL: http://www.skylinekw.com/

ZABEEL INTERNATIONAL INSTITUTE OF MGMT & TECH
Country: United Arab Emirates **Region:** MENA **Tel:** 971 4 3974905
Email: info@zabeelinstitute.ae
URL: http://www.zabeelinstitutedubai.com/

SOUTH ASIA TOP 10 REGIONAL ATCs

BIRD EDUCATION SOCIETY FOR TRAVEL & TOURISM
Country: India **Region:** South Asia **Tel:** +91 (11) 4352 7842
Email: sc@bird.in; np@birdin.com; t.narayanan@birdin.com
URL: http://www.birdacademy.in/

CHAVARA SCHOOL OF TOURISM STUDIES
Country: India **Region:** South Asia **Tel:** +91 484 23377242
Email: chavaraschool@gmail.com
URL: http://www.chavaraschooloftourism.org/

KANNANTHANAM SCHOOL OF TOURISM STUDIES
Country: India **Region:** South Asia **Tel:** 91 484 2377341
Email: kannanthanamschool@yahoo.com
URL: http://www.kannanthanamschool.com/

INSTITUTE OF AIRLINES & TRAVEL AGENCIES
Country: India **Region:** South Asia **Tel:** 91 44 28277606
Email: iata@vsnl.com; dsouza@giasmd01.vsnl.net.in
URL: http://www.iatachennai.com/

INSTITUTE OF AIR TRAVEL STUDIES
Country: India **Region:** South Asia **Tel:** 91 04734 226025
Email: pp_georgekutty@rediffmail.com
URL: http://www.iatsadoor.com/

INTERNATIONAL AIR FARE DESK
Country: India **Region:** South Asia **Tel:** 91 56264968
Email: gouridixit@gmail.com
URL: http://www.iafdtraining.com/

INTERNATIONAL AIRLINE TICKETING ACADEMY
Country: Sri Lanka **Region:** South Asia **Tel:** 94 777 33 1150
Email: airline@webstation.lk
URL: http://http/www.webstation.lk/airline/

LOUIS PRESTON SCHOOL OF TRAVEL & TOURISM
Country: Sri Lanka **Region:** South Asia **Tel:** +94 11 53 66 440
Email: dinesh@louispreston.com.lk; mahesh@louispreston.com.lk
URL: http://www.louispreston.com/

RASHMI'S TRANSWORLD ACADEMY
Country: India **Region:** South Asia **Tel:** +91 22 24075490
Email: info@rtwa.in ; captsamtani@rtwa.in
URL: http://www.iata.org/ps/resellers/Pages/index.aspx?sc_cid=findatc1234

SCHOOL OF AIRLINES & TRAVEL MANAGEMENT
Country: India **Region:** South Asia **Tel:** 91 484 2365765
Email: satcok@vsnl.com
URL: http://www.iata.org/ps/resellers/Pages/index.aspx?sc_cid=findatc1234

Bridging Safety, Operations and Training through Data

There is growing consensus in the aviation community that a gradually increasing number of National Aviation Authorities (NAAs) and training organizations will use a more adaptive system instead of today's widely used prescriptive, hours-based training requirements.

CAE's Lou Nemeth, Chief Safety Officer, and Gary Morrison, Senior Regulatory Specialist, report how the growing volume of operational safety data, properly aligned, will provide significantly greater insight into the parameters of a training system.

Lou Nemeth and Gary Morrison have served on the IATA Training and Qualification Initiative (ITQI), which is developing evidence-based training updates to ICAO Doc9868—Procedures of Air Navigation Services - Training (PANS-TRG). Nemeth also chairs a number of International Working Groups working on safety and regulatory enhancements, while Morrison is on the FAA Aviation Rulemaking Committee addressing new pilot training requirements, as well as the Federal Aviation Administration Task Force On Air Carrier Safety and Pilot Training.

Terms such as competency-based training, proficiency-based training, performance-based training and evidence-based training have been used to describe essentially the same concept: training which is more directly relevant to the modern aviation professional's role and can be objectively evaluated based on current safety and operational data.

In other words, train required competencies to manage today's and tomorrow's safety risk.

Significant improvements in safety must come from the human factors side of the equation. This requires a transformation in the way we train aviation professionals for operational realities.

Competency-based training through regulations such as the United States' Advanced Qualification Program (AQP), the European Alternative Training and Qualification Programme (ATQP) and ICAO's Multi-crew Pilot License (MPL) guidance, reflect the trend to training that is based on quantifiable, verifiable competencies. Evidence-based Training (EBT) applies enhanced, real-world operational data to competency-based training principles and specific training tasks.

There is a wealth of information readily available which NAAs, aircraft manufacturers, aircraft operators and training organizations, can apply to competency-based training and EBT training analyses. This includes accident and incident reports, flight operations quality assurance (FOQA), Safety Management Systems (SMS), AQP/ATQP metrics, and more. CAE Flightscape has also developed a capability to capture simulator operations quality assurance (SOQA) data for use in debrief visualization tools as well as to tailor training to operator preferences.

Much of the focus to date has been on the benefit to pilots, i.e. improved competencies in areas of knowledge, situational awareness, decision making, communication and other attributes needed to effectively manage the complex environment of today's modern airliner cockpit.

We believe the benefits of safety data analysis will extend well beyond the cockpit crew. When applied in a rigorous, structured process, flight and operations data can bridge the safety, operations and training departments and help increase efficiency, effectiveness and safety.

For flight operations and safety departments, latent unsafe indicators derived from integrated data solutions—such as a trend of unstable landing approaches—will be identified earlier and more accurately, before they manifest as incidents or accidents. Impact analysis may suggest changes to operational procedures as well as training needs.

For NAAs, objective safety data systems will enable bullet-proof compliance evidence. Compliance reports will indicate which unsafe indicators have been identified, how effectively they have been mitigated, by whom, and how long it took the organization to respond.

For the airline finance department, potentially unmitigated errors are trapped before they can become costly events and safety data can be used to justify changes in operations and training.

For the training department and training instructors, safety data-based training assessment becomes more objective and training delivery more targeted to safety issues which are especially relevant to today's aircraft flight handling characteristics. New evaluation tools will assist instructors and evaluators for better assessment of pilot performance and root cause analysis.

The instructional designer can target knowledge and skill gaps reflected in safety data trends. Training objectives can be optimized to the most effective and efficient training tool.

Even the academic researcher will benefit. Until now, holistic data on the effectiveness of the complete training cycle has been difficult to obtain. The growing volume of safety data, properly aligned, will provide significantly greater insight into the parameters of a training system. ■

The ATNS Centre of Training Excellence

The Air Traffic and Navigation Services Company (ATNS) has its own Aviation Training Academy (ATA) which provides a full range of Air Traffic Services (ATS), engineering and related training. The ATNS vision is to be a major contributing partner towards ensuring aviation safety in Africa through its training efforts. The full ATNS training schedule can be found at: www.atns.co.za

As Anna Sanfilippo writes, ATNS is committed to global best practices and provides each client with the skills and knowledge to successfully take on the challenges faced by providers of ATS and Engineering Support.

ATNS employs top quality instructors and personnel and is proud of its state of the art training systems, equipment and facilities. Its ATA is ISO 9001:2000 certified, conforms to ICAO Standards and Recommended Practices (SARPs) and is further accredited to various domestic and international training institutions.

The ATA offers a wide range of training products in the ATS and Engineering Support domains. It also offers comprehensive and cost effective quality training in all disciplines associated with Air Traffic Management. ATNS is committed to upholding aviation safety standards, legislation and practices while rigorously training and upgrading our safety knowledge and skills.

At ATNS we always consider our people and safety first and use computer based training (CBT) methodologies in applicable training scenarios. ATNS practical training resources include radar simulators and 2-D and 3-D aerodrome simulators of the highest industry quality. Engineering training utilizes a comprehensive selection of state-of-the-art communication, navigation and surveillance (CNS) systems and equipment deployed in laboratory facilities at the ATA and airside.

Since April 2000, the ATA has proudly trained more than 9,000 international and local delegates from Angola, Botswana, Namibia, Swaziland, Lesotho, South Africa, Zimbabwe, Mozambique, Madagascar, Tanzania, DRC, Uganda, Kenya, Ghana, Sierra Leone, Guinea, Liberia, Rwanda, Saudi Arabia, and Sudan South and North.

International Partners

With a view to playing a more meaningful role in the global aviation arena, ATNS training is accredited by the ICAO Trainair *Plus* programme. It also continues to enter into MOU's with other providers such as ASECNA, Algeria ENNA, Sudan CAA, IATA and SACAA.

Customized Courses

Because ATNS understands that each client has unique training requirements to satisfy their individual needs, it is always pleased to tailor the appropriate course for the client and, wherever possible, it will present the course on-site or at any venue its client may select. ATNS has the capability to simulate different airspaces to the client's specifications and are able to conduct site-specific training for a complete training experience.

ATNS engineering training employs a comprehensive selection of state-of-the-art communication, navigation and surveillance (CNS) systems and equipment deployed in laboratory facilities at the ATA and airside.

Since April 2000, the ATNS Aviation Training Academy has proudly trained more than 9,000 international and local delegates from Angola, Botswana, Namibia, Swaziland, Lesotho, South Africa, Zimbabwe, Mozambique, Madagascar, Tanzania, DRC, Uganda, Kenya, Ghana, Sierra Leone, Guinea, Liberia, Rwanda, Saudi Arabia, and Sudan South and North.

The IATA/ATNS Training Programme

ATNS is IATA's first affiliated regional training centre in Africa and is committed to offering aviation professionals in Africa with the most timely training on all matters of concern to the industry and, more specifically, to their region. We are proud to have been awarded the IATA Regional Training Provider of the Year for 2011 award.

Other ATNS/IATA training collaborations include diplomas in: Air Navigation Systems Management; Air Traffic Services Management; Civil Aviation Management; Airport Management; Aviation Security; Human Performance/Project Management; Safety Management in Civil Aviation; Airline Operations (in conjunction with South African Airways).

Civil Aviation and Air Navigation Services (ANS) Management Programme

For the ninth year in a row, IATA and ATNS will be joining forces to offer a unique training programme on civil aviation management and air navigation services. Focusing on important issues such as safety management, aviation security, ANS/ATS management, civil aviation management, airline management, cargo management and human performance, the courses will give participants the knowledge and skills to assume a leadership role in today's complex civil aviation environment. This is a unique opportunity for managers at all levels to learn from a multi-disciplinary and international faculty.

ICAO Government Safety Inspector Programmes

ICAO has accredited the ATA as a Government Safety Inspector Training Centre to address their training for Africa through the South African Civil Aviation Authority (SACAA). The ICAO GSI Training Programme includes courses on: Operation Air Operator Certification; Airworthiness Air Operator Certification; Train-the-Trainer. ■

ATC Training for Success Via Total Control Simulations

The ATC production line in its simplest form can be described in three key phases: recruitment and selection; basic skills training; and on-the-job training (OJT). There are multiple issues in each of these phases but the largest bottle-neck by far in the ATC personnel area is OJT.

As John Mackenzie of Airways International writes, this was mainly due to the number of operational OJT positions available at any one time and the value of the OJT time consumed by trainees. Simulators emulating location-specific ATC environments with real world traffic scenarios to enhance specific skill sets can address these issues while increasing the quality of training outcomes.

Organizations are restricted by the number of physical operational positions available within them—not all of which are suitable for training. While to an outsider-looking-in it might seem that the issue can easily be overcome by just shortening on-the-job-training (OJT) time, in practice, it is not that simple. This leads to frustration as organizations try to quickly increase ATC numbers to cope with growing traffic demand and other related factors.

While ICAO stipulates a minimum number of hours/days for OJT training (ICAO Annex 1, *Personnel Licensing*—ATC licence and rating SARPs), the reality is that OJT takes a lot longer on most operating positions, whether due to a lack of traffic, too much traffic, or traffic and environmental complexity.

In response to these issues, Airways New Zealand recently ran a trial to try and reduce OJT times at a regional control tower. The normal time frame for initial rating training at Ohakea Tower was five to six months, with an average of 450 hours of OJT. The objective of the trial was to reduce OJT hours by 50 Percent and the solution chosen to achieve this objective was Airways' Aerodrome Control Simulator—Total Control.

Airways developed its prprietary Total Control simulator with the objective of improving training quality and safety while reducing overall ATC training costs and timetables. Up until recently this had been achieved for basic skills training, response and refresher training, advanced low visibility operations rating training and in simulations associated with the introduction of new technology.

While initial training success rates have improved significantly, the simulator had not been used until now to explicitly reduce OJT duration.

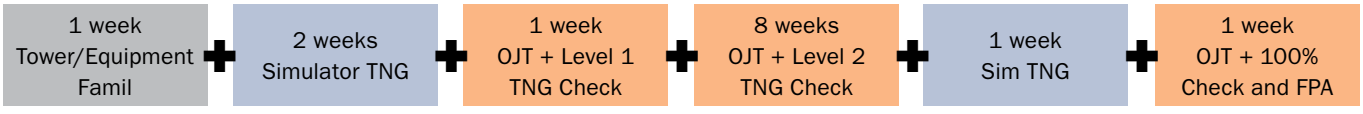
Airways had to adapt is Total Control simulator to the Ohakea environment by employing immersive characteristics including:

- Out-the-window photo realism.
- Hi-fidelity 3-D graphic resolution.
- Hi-fidelity equipment emulation of the controller's work position.
- Full airspace emulation.
- Real world builds of all local IFR procedures.
- Exercises developed by the Ohakea instructors in line with the Unit Training Plan to achieve specific objectives.

Ohakea OJT instructors were involved in all aspects of the adaptation to ensure absolute realism. The same instructors were also used in the simulation training sessions.

It is important to note that the Airways simulator was used at specific times during the course of the OJT with strategic objectives in mind. The timeline below shows how the simulator usage was blended into the OJT training program. The net result was initial rating achievement that reduced the average OJT time at Ohakea by half—225 hours over a period of 14 weeks.

Advantages of this approach included increased familiarity with the Ohakea airfield layout and the actual view from the cab. Trainees could visually see and appreciate taxi routes and their rationales and standard phraseology



could be practiced. Additionally, OJT instructors could either be SMC or ADC as needed and provide one-on-one guidance, allowing the trainee to remain focused on their tasks.

Trainees were relaxed in the simulator and could capture actual, lesson-specific conflicts such as wake turbulence, runway separations, circuits, etc. They were given total control of the pilots and traffic levels and in general had 'the basics' covered within the first week of OJT instruction.

Disadvantages to the Total Control approach included the inability to allow for dual operations (solo watch only) or for working with another controller in the cab. No coordination with TMA or other sectors could be simulated and equipment emulation was incomplete: 'live' radar data wasn't able to be provided and the CWP visual was fixed at a large range. Additionally no AFTN function was available for flight plan input.

This feedback suggests that the trial can be improved upon and the potential is for OJT to be further reduced. It is also worth noting the views of some of the trainees:

> *"Prior to commencing OJT I had two weeks of simulator training covering basic OH aerodrome procedures. I felt that these two weeks set me up very well for OJT and enabled me to 'hit the ground running'. The main advantage of training in the simulator was being able to use repetition to nail down the basics, while being under no real pressure to get everything exactly right."*

> *"The best thing about the sim at the latter stage in training was being able to be loaded up with traffic until I reached a point where I couldn't handle it anymore. It's a useful thing to know where that point is!"*

What we can take away from these aggregate results is that a simulator emulating location-specific ATC environments (with real-world traffic scenarios to enhance specific skill sets) allows for significantly reduced OJT time while increasing the quality of training outcomes.

Due to the unparalleled success of the Ohakea trial, Airways is currently training four more trainees at two control towers and all indications are that OJT reductions will be similar or better than the initial trial. Independent interviews with these trainees have determined that they have at no time felt under pressure to rate quickly and report the training environment as positive, constructive and enjoyable, enhancing their ability to learn.

Airways is confident that through effective use of its Total Control simulator, in conjunction with other advances in the OJT area, it will be possible in the very near future to reduce OJT to less than the mandated ICAO requirements. This is a new frontier for ATC training in as much as technology can now be employed to train more cost-effectively and efficiently while maintaining or increasing skill quality.

Advance Screening Still Critical to Success

From Airways' perspective a critical element in effective and efficient training is the quality of the ATC trainee. Airways has spent 15 years developing a recruitment and selection process that identifies those candidates most likely to succeed. Evidence of this is Airways' currently high training success rates (90 percent in 2011).

In addition, Airways' training-for-success approach helps to ensure the trainees have every opportunity to succeed through analysis of their areas of deficiency and skill enhancement. All Airways processes, policies and methodologies are based on skill deficiency diagnosis and skill enhancement.

As the result of our reduced OJT simulation trial, Airways has gathered some very useful information to roll out to other operational sectors and to further reduce OJT times from those thus far achieved. ■

Developing Human Capital for Tomorrow's Air Transport Industry

The IATA Training and Development Institute (ITDI) is the leading provider of global aviation training solutions and professional development programmes.

As Ismail AlBaidhani, Head of Global Partnerships & Learning Innovation at the IATA Training & Development Institute writes, the only way for ITDI to reach out to the next generations of leaders is by innovating the way it delivers industry knowledge, partner with the best in every country around the world, and provide internationally recognized programmes that reflect the changing needs of the industry, covering all areas of aviation industry safety, security, management, regulation & compliance, operations & infrastructure, and organization & human performance. ITDI works every day to harnesses the power of technology to bring trainees a wide variety of training vehicles that are innovative, flexible and cost-effective.

The demand for skilled people never went away during the industry's downturn. Shifting workforce demographics, talent shortages and skills gaps continue to be shared concerns as the industry moves to renew and reinvent itself.

Developing solutions that reflect cost-conscious programmes, innovative tools and renowned expertise will contribute effectively to manage human capital at every level. These solutions are built to help develop, engage, and retain the workforce needed for improved sustainability and performance.

The IATA Institute (ITDI) aimed at developing human capital for competitive advantage. It draws on trainees' passion for learning, cutting-edge technologies and strategic partnerships worldwide to meet—and anticipate—the evolving needs of aviation leaders everywhere.

This unique training model enables IATA to customize industry knowledge for in-company or distance learning delivery so that organizations can cover large groups with very limited travel costs.

ITDI: Meeting Evolving Needs

Investing in Human Capital is a powerful response to meet the evolving challenges of the future. We firmly believe that training providers and industry can work together in optimizing workforce talent to drive better business performance.

We try to continuously have the most dynamic and innovative training solutions and the global reach to create maximum impact for every individual in the aviation supply chain. Our current strong global client base including many leading airlines, airport authorities and civil aviation organizations in Europe, Asia, Africa, North America and the Middle East, gives us the responsibility to thing ahead in every step we take.

Complete Coverage for Every Industry and Segment

We also align today's training programmes with broader industry priorities of Safety, the Environment, Simplifying the Business, and Financial focus.

FIGURE 1: ITDI TRAINING OFFERINGS BY DISCIPLINE

	Airline	Airport	ANS & Safety	Cargo & DGR	Civil Aviation	Travel & Tourism
Regulation & Compliance	✓	✓	✓	✓	✓	✓
Safety	✓	✓	✓	✓	✓	✓
Security	✓	✓	✓	✓	✓	✓
Operations & Infrastructure	✓	✓	✓	✓	✓	✓
Organization & Human Performance	✓	✓	✓	✓	✓	✓
Environment	✓	✓	✓	✓	✓	✓

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I chose AMPAP

"My journey with AMPAP was truly remarkable... Across continents and time zones, I connected and learned, not only from instructors and learning materials but most importantly, from each other - fellow airport professionals throughout the world."

Nor Azlina Mohd Isa, IAP
General Manager
Planning & Development
Malaysia Airports Holdings Berhad

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Advanced Learning Solutions

ITDI believes in the power of the blended learning concept.

Its in-company training delivery model to reduce corporate training costs, foster innovative thinking and reduce the environmental impact of travel. The forum-style setting for classroom and onsite courses fosters a dynamic and engaging learning experience geared to improving business results.

In addition, every year ITDI brings to market innovative e-learning programmes that offer students exceptional flexibility for distance learning. These include:

Instructor-led

Classroom Training
Courses spanning all areas of study are offered in one of 50 locations worldwide, including six state-of-the-art IATA Training Centres.

Onsite Training
Experts in a variety of specialized fields offer onsite training for companies, tailoring content to suit their specific needs. Onsite training is extremely cost-effective for companies and can be highly motivating for employees.

Distance Learning

e-Learning
Companies can reduce costs and training time with this flexible, quick and easy option. Students can enroll anytime, study at their own pace and obtain the knowledge and skills they require to upgrade their professional competencies.

e-Courses
Course material is professionally developed to deliver comprehensive instruction, in keeping with ITDI's high standards. The material can be accessed via CD-ROMs and e-books or delivered directly to the student with the revolutionary Apple iPad™. These advanced learning solutions facilitate endless possibilities for the student's personal and professional growth.

Top Quality Expertise

IATA's aim is to keep ITDI at the leading edge of innovation and change, from programme design to delivery. It uses countless professionals who are at the forefront of their diverse fields of expertise to shape the design and development of its courses.

To deliver ITDI classroom training, IATA leverages a pool of over 200 highly qualified instructors based in 50 locations around the world. ITDI faculty boasts some 100 world-class professionals in Asia and the Middle East who are immersed in the culture of the host country.

ITDI also exports its knowledge, assigning some 50 senior IATA specialists to work as trainers for clients around the world a few weeks every year.

Global Authorized Training Partner Programme

To reach out, you need to work with the best in each market, IATA collaborate with over 380 training partners, authorizing training centers of airlines, airports, civil aviation authorities, distribution systems, travel, cargo agents and others to deliver its approved knowledge locally to all who anyone who is interested in the air transport sector.

Prestigious Industry & Academic Partnerships

ITDI works closely with prestigious institutions of higher learning to develop cutting-edge training solutions for the changing needs of the air transport industry. Some examples of these include:

- University of Geneva, Geneva, Switzerland
- Nanyang University, Singapore
- Harvard University, Boston, Massachusetts
- Stanford University, Palo Alto, California
- International Civil Aviation Organization (ICAO), Montreal, Québec

Recognized Credentials for Employability

The ITDI three-year Diploma Programme is the gold standard for the global air transport industry. It supports aviation professionals who want to reach an optimal standard of knowledge and proficiency in their chosen field, helping to foster a culture of excellence in the industry.

Perpetual Returns

Research shows that improving employee skills creates employees who work smarter and better and who cope well with change in the workplace. And better skilled employees bring excellence to the workplace, which reflects a return on investment. ■

ITDI: Global Depth and Breadth

- 65,000 trained, 150 countries
- 500 disciplines, 50 locations
- 400 authorized global training providers
- 200 instructors
- 160 course offerings

Increasing Complexity in Less Time: Training Today's ATC Professionals

Improving the efficiency of training through human factors analysis or new training concepts to better cater to air traffic controller and system maintainer needs.

By Thales contributors: Bruno Vilaine, Jean-Philippe Pinheiro, Laurent Pellerin and Georges Bejjani

Thales is the largest industrial contributor to the Single European Sky ATM Research (SESAR) Programme, as well as a key technology partner in the US NextGen initiative. It is also responsible in recent months for key ATM upgrades in Tunisia, Abu Dhabi, Qatar and the Democratic Republic of Congo.

In order to continuously support Air Navigation Service Providers (ANSPs) in the countries it serves, Thales has launched several initiatives in recent years to upgrade and enhance the skills of Air Traffic Control (ATC) personnel in the States it has upgraded. It provides a wide range of training initiatives supporting contemporary ATC advances, all of which share the same guiding principle: *Ensuring ANSP personnel operate their systems safely and efficiently.*

With recent increases in the levels of automation and complexity of modern Air Traffic Management (ATM) systems, the training of air traffic controllers in the operation of new ATM technologies is becoming increasingly important.

Massive automation advances such as flight management systems on the flight deck have resulted in an Air Traffic Control (ATC) environment whereby the controllers increasingly feel like they are "drinking from a fire hose"[1] when learning to work with a new system. Add to this effect the simultaneous strain placed on controllers due to economic conditions forcing a reduction in the amount of available training time, and one can easily discern a situation calling for new approaches and innovation in order to better adapt modern ATC training to the needs of the controllers themselves.

The Thales approach to addressing this challenge has been to improve the content and material supporting its training initiatives through a human factors based analysis of the trainees' needs and difficulties.

The first improvement it highlights surrounds improving the assessment of the trainees needs throughout the development cycle of the system. Studies define training requirements and these training requirements then identify the topics that require a special focus. This approach allows for the training content to be developed within the design of the systems themselves.

It is therefore critical to include training experts in real-time simulations in order, for example, to define the required level of knowledge that trainees should reach before moving to the new systems.

As a second step, training development takes advantage of the large amount of recorded data that is available in computer based trainers, simulators and operational systems. The analysis of this data offers a chance to better understand the difficulties faced by ATCs. Even as simple a metric as the average time spent by ATCs on a computer-based training lesson provides insights into its level of difficulty.

The significant difference between the mean time a novice (*ab initio* training) and an expert (refresh training) ATC operator require may call for a more precise tailoring of the computer-based training module to a more appropriate level of expertise of the trainees.

A similar approach used to analyze the data records from simulators and operational systems provides additional valuable outputs. A specifically developed tool can assist in highlighting the usage of specific functions, therefore providing direct recommendations for future training.

[1] Sherry, L., Feary, M., Polson, P., & Fennell, K. (2003). Drinking from the Fire Hose: Why the Flight Management System Can Be Hard to Train and Difficult to Use.

Finally, Thales performs surveys several months after the training as well as at intervals after the transition to a new system, in order to gather data on how much the operators are actually making use of what they have learned. This feedback is an interesting way to identify additional improvements in terms of content and planning.

Today's ATC training paradox of more skills and information being absorbed in less time calls for this degree of systematic approach. Through Thales coordinated activities, the design, transition and operation of the system are addressed and provide the company with valuable insights into the human factors affecting the efficiency of training—a key challenge to the implementation of new ATM systems.

Integrated Logistics Support: Practice-based Approaches and OPTIMA

Supporting this move towards more tailored and practical training approaches, the Thales ATM Integrated Logistics Support team recently developed a new training module built from real life case studies that allow the trainees to master different types of calculations: reliability, availability, spares dimensioning and life cycle costs.

Two of the company's customers from Asia and Middle East have already made use of the new module and, following very positive evaluation by the trainees, it has now been made available to ATM Customers via conventional or virtual classrooms on the 'Thales Customer OnLine' web site. The new module is additionally available to Thales employees via Thales University.

The Thales ATM Training Institute has additionally combined real day-to-day data with their Integrated Logistics Support practical training in order to create a new training concept: OPTIMA (OPTimized Integrated Maintenance Approach).

OPTIMA aims to make maintenance more efficient through the more effective sharing of technical information in order to develop the best maintenance support for system(s) lifecycles. The trainees (maintenance managers) use their own data (failures analysis, maintenance scheduling, configuration management) in order to compile the most suitable solution for the support of their system(s). These solutions include:

- MTBFs field analysis extraction.
- Number of maintainers.
- Spare sizing.
- Availability.
- Reliability.
- Level of Repair Analysis: LORA.
- Maintenance policy.
- Computerized Maintenance Management functions.

Today's ATC training paradox of more skills and information being absorbed in less time calls for this degree of systematic approach. Through Thales coordinated activities, the design, transition and operation of the system are addressed and provide the company with valuable insights into the human factors affecting the efficiency of training—a key challenge to the implementation of new ATM systems.

Through practical training based on real data, the Thales Training Institute is combining both training and consulting concepts in a continuous quest to increase the effectiveness of training.

ICAO Flight Plan Amendment Training Course

The new ICAO Flight Plan will come into force on 15 November 2012. Thales has already been involved in the implementation strategy and has adapted its customer support to ensure a smooth transition to the new ICAO guidance. One aspect of its transition efforts is a new ICAO Flight Plan Amendment training course.

The course's main objective is to inform the ATCOs, FDOs and OPSUPs of the key changes arising from the new Flight Plan provisions and their impacts. Its aim is to allow these stakeholders to manage the transition to the new Flight Plan Format and related ATS messaging more safely.

The Course is applicable to any ATC System, including the Thales ATC Automation System (Eurocat). Several delivery methods are presently proposed, including CBT, Virtual Classroom and standard Classroom presentations (four hour course containing two hours of optional hands-on training).

Content and typical classroom durations are 30 minutes on the ICAO Flight Plan objectives, 60 minutes on the key changes of the new ICAO format (additional content/fields description for Flight Plan and ATS messages), 30 minutes on the impact of Flight Plan changes (on FPL Window and HMI handling), and an optional 120 minute module covering Flight Plan Creation and HMI Handling Practice on the Thales Eurocat Platform. ■

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