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TOWARDS A UK AVIATION SKILLS PLAN

**— THE FUTURE SKILLS AND TRAINING NEEDS
OF THE AVIATION OPERATING INDUSTRY**



Simon Witts, FRAeS

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TOWARDS A UK AVIATION SKILLS PLAN

— THE FUTURE SKILLS AND TRAINING NEEDS OF THE AVIATION OPERATING INDUSTRY

Simon Witts, FRAeS

Simon Witts is a highly experienced transportation operations, engineering, regulatory, education, skills & training senior executive with a career spanning all aspects of airline and aviation operations — latterly working across other sectors. An Executive Director on the Boards of five regional airlines, including for British Airways, initially in an Engineering/Technical capacity and latterly responsible for all aspects of airline operations (COO role) he is a regular conference speaker.

He was most recently at City & Guilds/ILM Group as a Director. Prior to this, he created and was then Director of the Training Academy at Flybe — considered by many to be a nationally significant Academy. A GoSkills Board Member/Chairman of the GoSkills Aviation Industry Board, he also established and chaired the Exeter & Heart of Devon Employment and Skills Board.

Born near London and a Graduate from Queen Mary College, University of London, in Aeronautical/Electronic Engineering, he also spent nine years with the UK Civil Aviation Authority in flight test and transport aeroplane certification, including responsibility for the Boeing 777 programme. He started his career with Bristow Helicopters, moving to Racal/Decca in the development, marketing/sales of navigation/mission management systems involving significant worldwide experience.

Front cover: *The control tower at Heathrow Airport. NATS photo.*

This paper does not represent the views of the Royal Aeronautical Society. While the author would like to thank all who have commented on earlier drafts of this paper, the author accepts full responsibility for any errors of commission or omission.

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ROYAL AERONAUTICAL SOCIETY

No.4 Hamilton Place
London W1J 7BQ
United Kingdom

T +44 (0)20 7670 4300
E raes@aerosociety.com

www.aerosociety.com



British Airways cabin staff. British Airways photo.



Bombardier Q400. Bombardier photo.

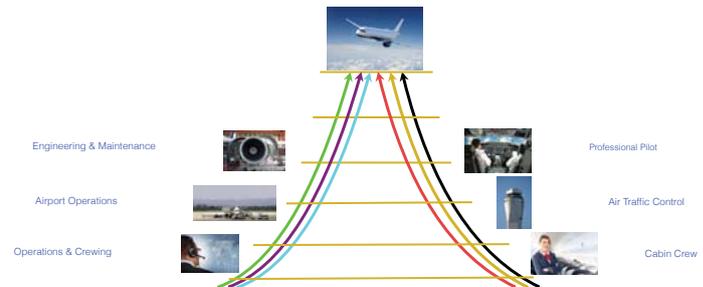
1.0 INTRODUCTION

The UK has a proud aviation heritage of design, manufacture and operation of aircraft. The workforce of this industry was originally drawn from, and heavily dependent on a readily available, wide-ranging and well-educated pool of people from which it was able to grow, train and develop its own staff eventually to meet the needs of the whole spectrum of aviation.

From 25 August, 1919, and the start of the world's first daily international passenger air service from London to Paris operated by Air Transport & Travel Ltd (later British Airways) in a converted de Havilland bomber, the UK began to train people for roles in the burgeoning aircraft and aerospace operating industry. In these early days aerospace and aviation in the UK were more integrated as the UK manufactured the aircraft that British operators tended to operate; skills were more aligned, operators talked regularly to manufacturers and developed joint approaches to training requirements. Training providers were more involved with and integrated into the sector and hence pathways both into and within the sector were well defined, as well as the institutional pathway for entrants to the industry.

However, from the 1950s, when the emergence of severe economic problems combined with the growth in international competition in the sector, the UK started to suffer from a skills shortage. The resulting skills and training problem led to a number of initiatives, including a cross-party agreement to establish bodies such as the Industry Training Boards in the 1960s, which set standards and generally regulated supply against demand. This steadied the system and created an integrated approach that resulted in a reasonable flow of people through the system.

In the more recent past, as the industry globalised, the UK moved away as a nation from designing and manufacturing complete aircraft (with the exception of helicopters and military vehicles) towards the development and construction of components and sub systems such as wings, engines, landing gear, and large sub-assemblies. Consequently, the sector fragmented into two distinct parts:



Integrated career pathways. Copyright The Aviation Skills PartnershipTM.

- manufacturing
- operation

As the manufacturing side (aerospace), is well covered by other work — and the subject of a recent RAeS Discussion Paper — this paper focuses on the operating industry (aviation) and its the skills and training issues.

It will examine the skills shortage in the sector and whether the current system is capable of generating the right people in the right numbers with the right skills and attributes. It is now well recognised that, while there is a flow of people coming forward and that some people can and will still self-fund their own training where available, there is still a lack of training opportunities for all of those aspiring to enter or to progress within the sector. This is causing a severe shortage and undermining growth in the sector.

2.0 THE AVIATION INDUSTRY

The aviation operating industry in the UK is now effectively aligned with international manufacturers and in most cases, has diverged from UK manufacturing. The operators have worked closely and very effectively with manufacturers to hone the skills requirements to effect the most efficient and safe operation of their products to the point where the industry is the envy of other sectors aspiring to reach comparable safety and operational levels. However, this has tended to leave British training providers with a limited

amount of direct information about how the aviation industry operates and its needs; this affects their ability to increase the knowledge necessary to support the operating industry. Most of the intellectual property around training needs and skills now resides with the manufacturers or sits within the airline. Therefore, as UK providers are increasingly unable to create career pathways, develop training programmes and to deliver them, airlines and operators have started to train their own staff or, in some cases, rely on partnerships with a few large training providers.

So although jobs are readily available on the aerospace side, and although the aviation sector has posts at all levels and in most areas, the career or progression options for people wishing to become involved on the operating side of the industry (aviation, as opposed to aerospace) have become increasingly polarised — to the extent that young people increasingly view the industry as inaccessible. This is in stark contrast to the pure manufacturing, repair and overhaul roles in aerospace where pathways and options are much better defined and where successful training provider/manufacturer relationships, including joint ventures, have opened up a wider range of prospective avenues.

A young person may still stare at an aircraft in the sky, gaze over the fence at an airport and develop an unimpaired enthusiasm for a career in the aviation operating sector, but access to information, advice and guidance and then to find the entry points which are available and accessible has become very difficult. A straw poll among those about seeking entry to the industry yields a widespread view that getting a start in their 'dream sector' is all but impossible. Admittedly, people continue to find innovative and very credible pathways on their own to achieve their dream; but, for the most part, this will never fully generate the numbers of people industry needs. Individuals are taking up educational routes to get to a job that will pay for their training with no intention of staying in that sector long-term.

Overall then, we have a situation where there are few clear accessible pathways leading to jobs in the aviation operating sector.

The problem is exacerbated, particularly in the aviation operating side, as certain careers have tended to become inaccessible to the average person due to the need to fund their own training. A good example of this is pilot training. While great credit goes to the providers who provide world-class training, the result of self funding is that either the UK has increasingly to rely on foreign nationals to take up the available slots, or they are only available to a narrow group who are able to self-fund or those who are simply in the right place at the right time. This is not just a British issue as airlines and aviation organisations worldwide are predicting a serious and significant skills shortage in the aviation sector as a whole. However, it does seem that the UK is in a particularly difficult position.

Lastly, the CAA the regulator in the UK is looking for ways to encourage the development of the competence levels of people in the sector as one of the means of enhancing safety. The issue is not just a question of 'regulatory compliance through vocational qualifications' but also of assuring that the best people get the jobs in the sector which adds a critical layer in trying to create and execute a new skills plan.

So, looking to the future, the ADS Steering Group (ADSSG) has the prime responsibility for developing aerospace skills in the UK for the UK government Department of Business, Innovation and Skills. The ADSSG has done an excellent



Monarch photo.

job in creating and executing a number of initiatives in the aerospace field and work is continuing to ensure that this works at all levels and across all disciplines. Rather than creating a new layer of activity or to add to bureaucracy and cost, it has been suggested that the optimum way of moving forward would be to extend this initiative to the operating side of the industry.

As the pre-eminent, aerospace and aviation learned society in the UK with an International reach; the Royal Aeronautical Society represents all aspects the industry. It is therefore well-placed to consult on and discuss training issues affecting all parts of the aviation sector and thence to establish the foundations of a UK Aviation Skills Plan that would serve the needs of the operating industry. Such a plan would deal with the current problems and capture the initiatives underway; but more importantly, it would create the basis for national and international plans to assure a ready supply of suitable candidates for the aviation industry and enable those already in post to progress up the career ladder. The exposition and implementation of such a plan is critical to the continued success of the UK as a leader in aviation and not just in the aerospace manufacturing sector.

3.0 BUT IS THERE A SKILLS SHORTAGE IN AVIATION?

There is often a discussion of whether there really is a skills shortage in the sector or whether the current system is incapable of generating the right people in the right numbers with the right skills and attributes. However, while there is a flow of people coming forward, and that some people can and will still self-fund their own training where available, there is still a lack of training opportunities for all those aspiring to enter or progress within the sector. This is indeed causing a severe skills shortage and is undermining growth in the sector.

According to Boeing's November 2011 market outlook, the number of aircraft in service will double by 2030. As global economies expand and airlines take delivery of tens of thousands of new commercial jetliners over the next 20 years, the demand for personnel to fly, support and maintain those aircraft will be unprecedented.

Meeting this demand will require aircraft manufacturers and the commercial aviation industry to rely more heavily on new digital technology, including online and mobile computing, to meet the learning requirements of a new generation. The growing diversity of aviation personnel also demands highly qualified, motivated, and knowledgeable instructors with cross-cultural and cross-generational skills. Training programmes will need to focus on enabling airline operators



to gain optimum advantage of the innovative features of the latest generation of aircraft, such as the 787 Dreamliner.

What does this imply in terms of skills needs? The 2012 Boeing Pilot & Technician Outlook projects a need for approximately 460,000 new commercial airline pilots worldwide by 2031. Europe alone will require 100,900 pilots.

A pilot shortage has already arisen in many regions of the world. Airlines across the globe are expanding their fleets and flight schedules to meet surging demand in emerging markets. Asia in particular is experiencing delays and operational interruptions due to pilot scheduling constraints. The region continues to present the largest projected growth in pilot demand, with a requirement for 185,600 new pilots by 2031. China has the largest demand within the region, with a need for 71,300 pilots, North America 69,000, Latin America 42,000, the Middle East 36,100, Africa 14,500, and the CIS 11,900.

The 2012 Boeing Pilot & Technician Outlook also predicted a need for approximately 601,000 maintenance technicians by 2031. In Europe, the number of engineering and maintenance staff to support new aircraft will have to grow by at least 140,200 people. Yet some aviation organisations state that the industry is losing recent graduates to the banking, energy, power and automotive industries. Maintenance, Repair and Overhaul Organisations (MROs) are similarly concerned about the possible effects of a skilled worker shortage.

Skills shortages are therefore not just a British problem. In March 2012 the US Aeronautical Repair Station Association (ARSA) revealed that in a recent survey of ARSA members, skilled worker shortages tie for second place with high fuel prices as the most serious long-term threat to aviation maintenance. Fifty-seven percent of the ARSA members

surveyed say they have had difficulty filling technical positions in the past two years, and 65% expect their business and markets to grow in the coming year.

Similarly, organisations in Australia have warned of the need to focus on ensuring that training and educational institutions are able to equip people to meet industry needs. Operators compete for talent and skills in meeting the shortage of pilots, engineers, cabin crew, air traffic controllers and management and long-term planning has been deemed to be fundamental to the future of the industry there.

As new-generation aircraft come to dominate the fleet over the next 20 years, aircraft reliability will improve and maintenance check intervals will lengthen. Although this trend will moderate demand growth, the requirement for maintenance personnel will continue to expand with the size of the global fleet. Emerging markets that currently recruit maintenance technicians from outside the region will have to develop a foundation for training qualified technical personnel from within the local workforce.

The South African aviation sector is facing an unprecedented loss of skills, as highly trained technical and air crew leave the country for more lucrative employment in Australia, and the Middle and Far East. General aviation has always been the training ground for the whole of aviation, resulting in general aviation remaining under increasing pressure to replace the losses. The same can be said in countries such as Sri Lanka.

To summarise: skills shortages are predicted across most of the key aviation disciplines and any plan designed to rectify this situation should be comprehensive, and not limited to pilots and engineers. While the issue is a global problem, the UK needs urgently to address its shortfall if it is to remain internationally competitive.