

Dr Ashley Nunes
gives his view on why manpower represents the Achilles' heel of aviation growth in the Middle East.

Unfortunately, recruitment isn't as easy as 1-2-3

Aviation is a vital part of an increasingly globalised world economy. Its economic contributions are the driving force behind financial investments aimed at increasing aviation system capacity, as governments compete to ride the economic globalisation wave and seek to claim a greater share of the financial benefits for their populations.

This is especially true in the Middle East where, according to Amadeus, a leading technology partner for the global travel industry, a new set of socio-economic and geo-political factors are enabling the region to eclipse the traditional travel centres of North America and Europe.

Airlines in this region are expected to experience some of the highest growth, as passengers are increasingly lured by the appeal of new aircraft and impeccable service offerings.

But, according to Associated Press airlines writer Scott Mayerowitz, the real key to the airlines' incredible growth is geography: their hubs in Qatar and the United Arab Emirates are an eight-hour flight from two-thirds of the world's population.

Economic opportunity

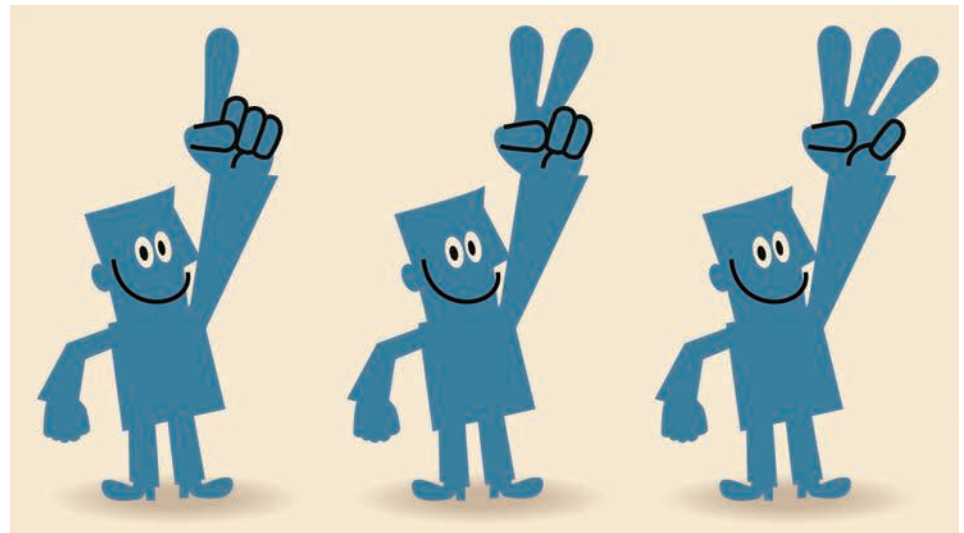
Sensing economic opportunity, local governments have made tremendous financial investments to create the airport infrastructure necessary to boost regional aviation capacity. And these investments are beginning to pay off.

Mayerowitz pointed out last year that passengers, who had historically utilised London, Amsterdam and Frankfurt as layover points, were increasingly switching planes in Dubai, Doha and Abu Dhabi.

Meanwhile, Air Traffic Management magazine's Aimee Turner has reported that the total aircraft movements to/from and within the Middle East region are estimated to increase to 2.3 million in 2025, reflecting an astonishing average annual growth rate of 7.6%.

According to Amadeus, this boom in the aviation sector is poised to have a significant influence on future global air traffic, and the Middle East's strategic location will enable the emerging national carriers to connect most metropolises via a single hub.

Yet, despite all the infrastructure investment in the region, aviation has been, and will continue to be, an essentially human enterprise.



The economic benefits afforded by aviation are ultimately dependent on a capable scientific and technologically aware workforce. And it is a workforce that is rapidly changing.

This change can best be understood within the context of global aging (as researched by Andreev & Vaupel, 2005), a phenomenon characterised by declining fertility rates and increasing life expectancy.

Safety-critical professions

Across multiple safety-critical professions – energy, medicine, aviation etc – an entire workforce generation is reaching retirement age. As an Aerospace Industries Association (AIA) report in 2008 recognised, countries are not producing the quantity or quality of workers required to even begin replacing those who have served so well, let alone grow to cope with projected demand.

Current industry forecasts suggest that, by 2032, nearly a million new pilots, technicians, cabin crew and air traffic controllers will be required. This growing imbalance between workforce supply and service demand represents the industry's greatest challenge.

There are a multitude of reasons why workforce shortages exist in aviation, but high attrition rates associated with the initial selection and training of recruits is among the most important.

For example, the selection rate of air traffic control candidates at Eurocontrol is about 6%. This means that of every 100 applicants that apply, only six will obtain the qualification scores necessary to continue. Of those, a significant percentage will not successfully complete training for medical reasons or inability to meet the qualification standards. For example, at the Maastricht ATC facility, the failure rate of trainees is around 40%.

The immediate consequence of such standards is reduced access to a qualified aviation workforce and a subsequent reduction in service provision. However, because of air transportation's unique characteristics (such as its speed, reliability and safety), its economic contributions are unique. Consequently, reducing service to levels that match dwindling workforce access would be likely to have serious consequences, as seen in Austria in 2008. In that instance, a shortage of air traffic controllers prompted massive delays and flight cancellations, producing €5.8 million (\$8 million) in costs to Austrian Airlines.

Similar trends are now being observed in India and Indonesia, where the economic benefits of affording air service to an expanding middle class, are being impeded by workforce shortages.

An alternative to addressing these shortages has been to increase the productivity of the

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existing workforce. However, research suggests this carries consequences of its own. Historically, these consequences have been conceptualised in terms of decreased safety; because humans have limited capacity to do a job, they can, at times, become overwhelmed, resulting in safety being compromised.

More recent studies also suggest that increased productivity carries economic consequences. For example, exposure to higher traffic levels can have an impact on the quality of air traffic controllers' service, resulting in decreased routing efficiency; a result which has economic implications.

This is especially problematic for an industry characterised by high rates of cash flow and narrow profit margins, where typical returns on revenue average only a few per cent. Hence, the economic benefits associated with increased productivity in response to workforce shortages, may be offset by limits in working capacity of humans.

Aviation workforce shortages are, therefore, poised to have negative impact on global economic growth. However, the regional impact may be particularly profound for two reasons.

Firstly, the industry in the Middle East is heavily reliant on the migration and retention of a highly skilled expatriate workforce (air traffic controllers, pilots etc). The majority of these come from countries experiencing workforce shortages of their own because of global aging. Consequently, as existing workers retire and the global skilled workforce pool contracts, replacing them will become increasingly difficult. And, because the region is disproportionately reliant on a highly skilled expatriate workforce, the resulting economic impact may well be more profound compared to other regions.

A second cause for concern is that, while

aviation represents a means of diversifying the region's economic portfolio, its potential as a revenue generator is highly dependent on specialised workforce access. Any access changes will profoundly affect regional economic growth.

Regional governments have turned their focus to attracting, recruiting, and grooming talent from within the region through nationalisation programmes. Yet, these, while timely and important, present other challenges.

First, uniform implementation of nationalisation programmes across all sectors does not address disproportionate workforce gaps in specific sectors (such as aviation) that are considered to be critical to the long-term economic security of the region.

Increased errors

Second, the introduction of recruits carries with it the prospect of increased errors due to inexperience. Such errors decline as greater familiarity is acquired on the job, but its impact on regional aviation safety must be considered.

Finally, whereas nationalisation may reduce reliance on foreign labour, it cannot circumvent the cumulative effects of global aging. For example, in 2012, the population of the United Arab Emirates and Qatar over the age of 60 was 1.4% and 2.2% respectively. These numbers are expected to grow to 36.3% and 27.9% respectively by 2050 (Global Age Watch, 2013). Consequently, nationalisation is a short-term answer because the most prominent contributor to a contracting workforce is declining fertility.

A viable solution lies in alternatives that enable aviation stakeholders to achieve higher productivity from a declining workforce in a sustainable manner.

One such alternative is technology, and proponents argue that scientific advances are facilitating the creation of a brave new world, one in which increasing aviation demand will be seamlessly accommodated by new technologies.

An historical review of aviation certainly lends some support for this supposition. From fly-by-wire systems to conflict detection and resolution alerts, aviation technology has come a long way from the times of Wright Brothers and Archie League. Yet, during unexpected circumstances, when technology fails, a human must still be able to respond.

Hence, research efforts are needed that address fundamental questions such as: For how long can a human work? At what level of effort? What are the trade-offs that exist in terms of cost and efficiency at varying levels of shift duration and intensity for workers? And, perhaps most importantly, what are the optimal conditions under which humans and technology can work together to ensure continued safety and profitability?

Aviation's economic promise is ultimately dependent on a highly skilled workforce that is undergoing unprecedented demographic changes.

These changes, which had their origins in the 19th and 20th centuries and are continuing well into the 21st century, are transforming the world and they present enormous challenges, particularly as they relate to regional economic growth.

Yet, there is also an opportunity for governments to find a solution to a problem that has economic and social consequences for all of mankind. Given the interconnectedness of the modern era, surely this would be a contribution of the highest order.



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