Chapter 8.10
Challenges Ahead for European Air Traffic

Dave Young
EUROCONTROL, France

Nadine Pilon
EUROCONTROL, France

Lawrence Brom
EUROCONTROL, France

ABSTRACT

The complexity and volumes of the projected future traffic require very demanding air traffic management systems and operations, and the perspective of continuing growth have triggered on both sides of the Atlantic initiatives to modernise the Air Traffic Management systems, namely NextGen in the USA and SESAR in Europe. The present European ATM infrastructure must be transformed. It must be propelled into the modern age, industrialised and developed into an integrated ATM Network facilitating the sustainable development of air transport, which will in turn contribute to a strong and sustainable growth of national economies, while enhancing safety and minimising environmental impact. This transformation requires the application of new operational concepts which fully exploit developments in information technology and airborne intelligence, integrated and implemented in a uniform and consistent manner. This chapter summarises the views of many European opinion leaders and actors of the industry captured in a recent study. It does not pretend to address these all in detail, but aims to provide the reader with insight into aspects where research is required, where issues must be confronted and resolved – where the industry's challenges lie. Whilst the chapter addresses these challenges with a distinct European flavour, it is quite possible that many aspects will find sympathy elsewhere around our increasingly interdependent globe.

INTRODUCTION

At the time of writing this chapter, Air Traffic growth in Europe was forecast to continue steadily to a level estimated at 2.4 more than its 2005 level by 2025 in terms of RPK (SESAR Consortium, 2006), stressing the airport and Air Traffic Management (ATM) infrastructure in Europe well beyond its current maximum capacity (EUROCONTROL, 2008). Existing plans and identified improvements were expected to absorb or minimise the impact of increased demand until 2013 when delays would once again become significant. A recent study into the development of personal air transport means in Europe alone identified the potential for a further 40 million flights annually (EU FP6, 2008).

The current economic crisis has seriously impacted global air traffic growth, with previsionists now wringing their hands to come to grips with this unprecedented situation. In Europe, current forecasts do not foresee recovery to 2007 demand levels until at least 2011, when we once again enter into the spiralling growth patterns.

Not specifically the focus of the work presented here, it may be assumed that other regions of the world are suffering the same difficulties. The impressive 5% p. a. growth rates of recent years have been considerably reduced and are unlikely to be recovered for several years.

But recovery is expected and growth will once again become a major factor in decisions relating to infra-structural investments and research. Effectively, we now have an opportunity, a four year window, to take stock and lay solid foundations for ambitious developments, addressing the future of Air Transport. This four year window however should not be seen as a respite from the pressure created by the urgency of recent years, but as an opportunity to get in front of the demand curve.

The complexity and volumes of the projected future traffic require very demanding air traffic management systems and operations, and the perspective of continuing growth have triggered on both sides of the Atlantic initiatives to modernise the Air Traffic Management systems, namely NextGen in the USA and SESAR in Europe.

A number of external factors have a direct impact on the performance of today's ATM system, limiting the growth in capacity and inducing major additional costs for the users of the system. The average cost per year for European ATFM related delays are estimated at around €1bn since 2002 over and above the ~€6bn paid in route charges (EUROCONTROL, 2008). These factors include the lack of a harmonised and integrated view on ATM evolution, the lack of a mandatory regulation and implementation process, the lack of implementation of new (existing) technologies and the fragmentation of service provision.

ATM is very much anchored in procedures which today rely on technologies of a past age where the human is central, and mostly unassisted, to assure the safe and secure transit of aircraft throughout the network, relying upon ingrained procedures and human natural creativity to resolve problems within the environment. This statement is by no means critical of the competences, professionalism and dedication to which the profession is renowned, but simply highlights that ATM remains at the level of craftsmanship – which whilst the quality is indisputable, has its price and productivity remains low.

Consequently, the present European ATM infrastructure must be transformed. It must be propelled into the modern age, industrialised and developed into an integrated ATM Network facilitating the sustainable development of air transport, which will in turn contribute to a strong and sustainable growth of national economies, while enhancing safety and minimising environmental impact. This transformation requires the application of new operational concepts which fully exploit developments in information technology and airborne intelligence, integrated and implemented in a uniform and consistent manner.

To achieve this modernised and fully integrated continuum of European Sky, there are major chal-

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