

Agenda

Advancing economics in business

Destination unknown? The future of the aviation industry

The landscape of passenger aviation has transformed since the dawn of the industry 100 years ago. While it is clear that the sector will continue to change, it is less clear how it will do so. Oxera and PA Consulting have considered some of the issues affecting passenger aviation and how the industry is likely to evolve over the next 20 years, and have developed four future scenarios

Some of the recent changes to the aviation sector have been predictable, such as the increase in aircraft fuel efficiency, while others have been less so—the UK government's 2003 White Paper, 'The Future of Air Transport', barely mentioned the development of hub airports in the Middle East.¹ Further unpredictable changes are likely to occur, and airports, airlines and other industry participants will need to plan in the face of this uncertainty.

Scenario planning is widely used by businesses and governments to prepare for uncertain futures. By choosing some themes that are likely to affect the future of the industry, distinct scenarios can be developed. This approach allows stakeholders across sectors to consider the implications of different possible futures. Oxera partnered with PA Consulting to review the current passenger aviation industry, and to think about how it is likely to develop over the next 20 years.

What's trending? Key trends affecting the passenger aviation industry

It is worth looking back at the key factors that have affected the industry over the last two decades, as these may provide indications of future industry trends.

Passenger demand for air travel has increased by 165% over the last 20 years.² This growth may be explained by a number of factors, including:

- increases in population, GDP and trade;
- the liberalisation of airspace;
- a decline in the price of air travel;
- growth in low-cost carriers and other business models.

However, the trends in the aviation industry over this time have not all been positive, with increasing concerns in many countries over the noise, local air pollution and carbon dioxide emissions produced by the industry.³ Increasingly intrusive security is also unlikely to be viewed favourably by airports, airlines and passengers. As Table 1 demonstrates, the cost to passengers of queuing at security gates at the top seven airports in the UK is nearly £200m.

Table 1 Cost of security queues at the top seven UK airports

Airport	Total passengers per year (m)	Queue time (average minutes)	Cost (£m)
Heathrow	72.3	7.27	99.8
Gatwick	35.4	4.90	23.8
Manchester	20.7	7.39	23.5
Stansted	17.8	8.98	22.4
Edinburgh	9.8	6.08	11.5
Luton	9.7	8.44	11.2
Glasgow	7.4	3.32	4.4
Total			196.5

Note: Cost is calculated using time values of money. The value of time is taken to be £22.69/hour for business passengers, and £5.07/hour for leisure passengers. Numbers do not sum due to rounding.

Source: Data collated from Department for Transport (2014), TAG data book; Department for Transport (2013), 'Air passenger experience of security screening survey'; and Civil Aviation Authority (2013), UK Airport Statistics.

The factors that are likely to shape the industry over the next 20 years, and their associated sectors, are illustrated in Figure 1, and discussed below.

- **Economics.** The demand for, and supply of, passenger flights over the next 20 years will be affected by factors such as demographics, income, trade and commodity prices.
- **Technology.** The pace and nature of technological change will be an important factor. Technology could play a significant role in four main ways: through airline operating costs, security, airspace management, and communications technology. It seems likely that technology will contribute to incremental increases in fuel efficiency and reductions in costs; however, opportunities for large changes by 2034, such as the use of biofuel,⁴ may be limited. On the other hand, significant developments in communications technology are highly likely, which could reduce some of the need for long-distance travel.
- **Consumer experience.** Consumer willingness to fly can be affected by factors such as perceptions of safety, the ease and cost of air travel relative to other options, and the level of service provided by the carrier. While aviation is likely to continue to be the only practical way for most passengers to travel over long distances, these factors could affect customers' tendency to travel at all or to use alternative modes over shorter distances.
- **Environment.** A continued focus on the environmental agenda may increase the costs of the aviation industry—

for example, through the introduction of taxes or the implementation of operating and capacity restrictions at airports.

- **Government policy and regulation.** Government policy towards aviation will affect both the competitive dynamics within the industry and the cost of travel.

While these factors are likely to have a significant effect on the passenger aviation industry in 2034, there are substantial uncertainties about how they will evolve. For instance, to what extent will the emerging economies catch up with the established ones? How will airline business models respond to new technology and changing consumer preferences? Given the importance of these factors, it is crucial for the aviation industry to consider how it would react to the different possibilities.

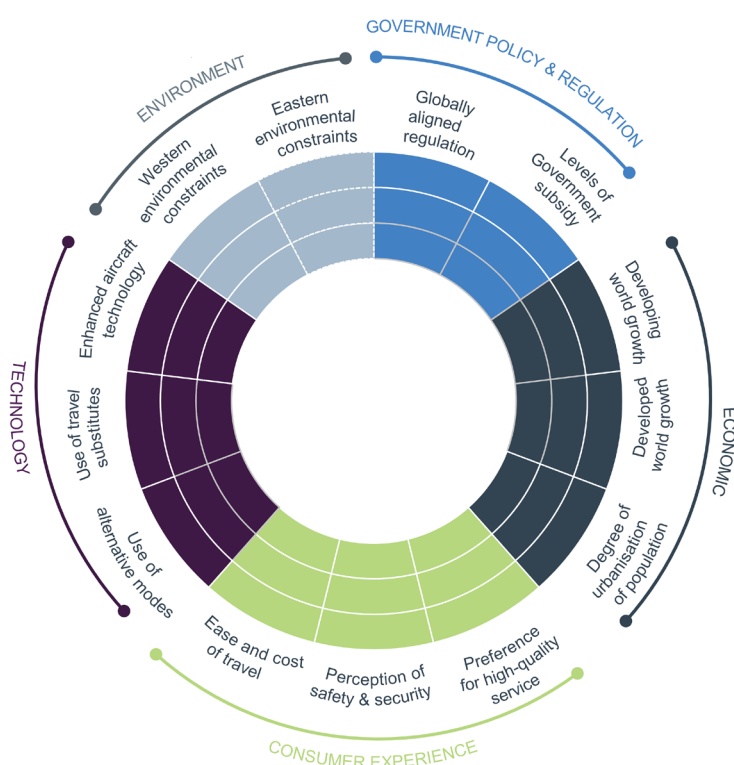
Previously, companies facing such uncertainty (starting with Royal Dutch Shell in the 1980s⁵) have conducted scenario analysis. This involves assessing company business plans against a range of scenarios and potential outcomes.

In line with this approach, and to facilitate and simplify the debate on what the passenger aviation industry might look like in 20 years' time, Oxera and PA Consulting developed four scenarios that capture the uncertainties discussed above.

The scenarios are based on two principal considerations:

- **how the industry will evolve:** how will the global economy and government intervention affect the industry as a whole?
- **how the passenger experience will evolve:** how will the combination of technology, regulation and customer preference affect passengers' flying experience?

Figure 1 Key drivers of passenger aviation

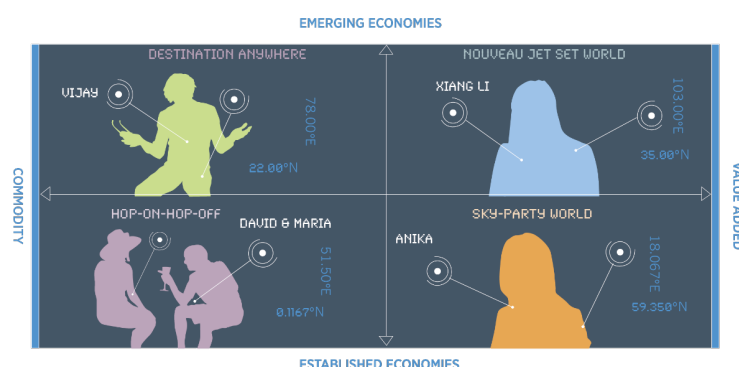


Source: Oxera and PA.

Setting the scene: future world scenarios for passenger aviation

The four alternative 'worlds' are summarised in Figure 2, and discussed in turn below.

Figure 2 Four future world scenarios



Source: Oxera and PA.

In the **Destination Anywhere World**, the rising middle class in the emerging economies drives growth in passengers who come from more countries and travel to more destinations. With similar service levels, airlines compete on price and there is fierce competition. State aid provisions in some countries distort the market and cause a demand for more globally aligned regulation.

- **How will the industry evolve?** With the shift of economic power to eastern countries, there is significant investment in hub airports in the Middle East, such as Dubai and Istanbul, with plenty of government support to meet the aviation needs of the new middle class.
- **How will the passenger experience evolve?** Airlines seek to compete on both price and destination, leading to a much larger number of direct routes and an increase in short-haul travel. Passengers are booking more point-to-point journeys and using 'self-connecting' software, facilitated by individual airports, to connect their journeys where necessary.

In the **Nouveau Jet Set World** there are more passengers, but each is making fewer journeys. Air travel is used mainly for long-haul trips; other modes are used for short-haul travel. Passengers are focused on the quality of experience and flying becomes a luxury service once again. There are fewer, larger airlines, but strong competition remains on the major routes.

- **How will the industry evolve?** Passengers make fewer journeys, leading to a decline of local airports and the rise of mega-airports, catering to business and long-haul leisure passengers. Regulation increases and there is greater taxation in the industry to reflect environmental concerns.
- **How will the passenger experience evolve?** Passengers are more likely to travel further to an airport using an alternative mode of transport. With increased costs, they expect greater levels of service and a better overall flight experience.

In the **Sky-Party World**, there are fewer passengers than today due to slow growth in emerging economies and growing environmental awareness in more established economies. Passengers want higher levels of personalised services, and low-cost airlines adapt their business models to provide a premium service. Technological efficiencies offset increased costs, allowing airlines to differentiate services on value and quality of experience.

- **How will the industry evolve?** Increased demand from emerging economies fails to materialise, causing the eastern hubs to struggle against airports in the developed world. Airlines compete on both service and price.
- **How will the passenger experience evolve?** Low-cost airlines adapt their business models to support more premium services to make the flying experience as simple, easy and enjoyable as possible, including seamless and queue-free connections to and from a flight.

Finally, in the **Hop-On-Hop-Off World**, passenger demand grows slowly although short-haul travel in established economies is very popular. Air travel is seen more like hopping on and off a bus, with passengers looking for the cheapest deals and expecting a basic service. The strong demand for short-haul journeys brings new entrants and more competition.

- **How will the industry evolve?** While some demand for full-service carriers remains, low-cost carriers dominate the short-haul market and have gained a strong foothold in the long-haul market. Local airports continue to perform well, while hubs become less important as more traffic is point-to-point.
- **How will the passenger experience evolve?** Passengers have become accustomed to basic levels of service, but enjoy the freedom, flexibility and ease of booking integrated journeys using online and intelligent booking-agent customer support systems.

Pushing the limits of the sky?

In each of these scenarios, aviation will change the landscape of the transport industry, while offering a potential transformation in the passenger experience. However, there will be new challenges in the future world of passenger aviation concerning costs, competition from alternative modes, future airline and airport business models, government regulation, and environmental impacts. The uncertainty about how these factors will evolve over the next 20 years means that we cannot be reliant on a single scenario. Meanwhile, businesses might consider how these and other potential scenarios could affect them, and whether steps can be taken to prepare for the future of the aviation industry.

This article is based on Oxera and PA Consulting (2014), 'Could trains overtake planes? Exploring the future of the passenger aviation industry'. A video describing the scenarios is also available: PA Consulting (2014), 'Could trains overtake planes?'.

¹ Department for Transport (2003), 'The Future of Air Transport', December.

² World Bank, Global passenger numbers.

³ For example, there is an ongoing discussion around the noise implications of expansion at Heathrow.

⁴ National Research Council Canada (2013), 'Analysis of 100 percent biofuel tested in flight by NRC reveals reduction in emissions', news release, 7 January.

⁵ Wilkinson, A. and Kupers, R. (2013), 'Living in the Futures', *Harvard Business Review*, May.