



The Future Role of Helicopters in Public Transport

Introduction

The helicopter has still not realised its full potential to contribute to economic development in industrialised countries. Worldwide, for various reasons, there are more helicopters in military service than in civilian hands. The major commercial helicopter operators in the United Kingdom have looked to helicopter support of off-shore energy production and other industrial activity, such as surveying, to make a realistic return on capital.

Overland public transport has been only a small segment of a diverse industry although it was foreseen, as early as the late 1950s, that helicopters or other vertical lift aircraft would be integral to the transport systems of heavily populated countries well before the end of the 20th century. Aircraft such as the Fairey Rotodyne were to transport people from city centre vertiports (often on the top of buildings) to airports or to other city centres. Now, more than 50 years on, this vision has still to be realised.

For many years helicopters have been flown intensively and safely over urban areas and most modern European cities have places at which helicopters can land; but overland commercial passenger-carrying operations have largely been confined to the corporate or charter markets flying a few people in small or medium sized types of helicopter. However there is now renewed reason to expect that helicopters may soon offer a practical means of transporting busy people, and possibly even tourists, between urban centres and to airports over distances of up to about 180 miles.

This paper assesses that prospect. For convenience the term helicopter is used but other vertical lift aircraft, for example with tilt rotors, might meet the operational requirement.

Public Perception

Where special circumstances pertain, scheduled helicopter operations have proved their value. The Penzance/Isles of Scilly service has operated successfully for nearly 40 years and the link between Heathrow/Gatwick Airports in the 1970s served an essential purpose before the M25 motorway was complete.

In the Mediterranean, Monaco and Nice Airport are connected by a frequent helicopter service. However many of the prerequisites for successful helicopter operations were not in place in the 1970s and 1980s; hence their absence from the overall transport scene. One explanation is that helicopter developments were usually prompted by military requirements; therefore when machines were adapted for civil use they tended to be noisy and lack adequate standards of comfort.

Modern helicopters, from small types such as the MD 520N which dispenses with a conventional tail rotor, to the large 30 seat EH101, are designed to minimise exterior and interior noise. They are therefore more comfortable and create much less environmental irritation than earlier types. Recent efforts by industry have resulted in increased levels of safety; statistics show that helicopters are now approaching those achieved by existing commuter aircraft. Public perception possibly lags behind the reality that the safety standards of public transport helicopters have steadily improved over recent years.



Over 300,000 passenger carrying flights per year take place in the UK sector of the North Sea in all weathers. These helicopters often operate in conditions unsuitable for fixed wing aircraft. Reliability standards have also improved considerably, in part due to the introduction of computerised monitoring systems to aircraft in flight. North Sea operators report reliability rates exceeding 98% throughout the year. Overland operations by professionally crewed helicopters can claim equally impressive figures for reliability and safety. Indeed, no member of the public on the ground in this country has ever been hurt as a result of a mishap to a helicopter in flight.

Public appreciation of the value of helicopters has also been enhanced in recent years due to their increasing use by the Police, Ambulance Service, HM Coastguard, on survey tasks, and in newsgathering throughout the country.

Environmental Impact

The helicopter has had a far less favourable environmental image than it deserves. It has been perceived as noisy and obtrusive. In part this is due to the fact that military flights, which are often conducted at fairly low levels, form a disproportionately high percentage of helicopter traffic in many countries. Responsible civilian operators do all they can to encourage pilots to observe a Code of Conduct, which limits noise pollution.

The environmental impact of helicopters can thus be minimised so that they are no longer an irritant. A modern helicopter being flown in a considerate manner over a congested urban area at 1,500 feet is rarely heard above the ambient noise level, and even when it comes in to land, the noise has only a limited impact. The application of new technology, such as quieter rotor blades and the shrouded tail rotor, is further contributing to significant noise reduction.

The only infrastructure that a helicopter requires is a small area on which to land and, for poor weather operations, access into an air traffic control system. If properly planned and well-sited, such places can be found in most cities. Modern twin-engined helicopters can operate to performance Class I standards which means that, should an engine fail at any stage of flight, the helicopter can either land or fly away safely using the remaining engine. In any case, with the increasing reliability mentioned earlier, the chances of an engine failure are remote.

Economic Factors

Helicopters are complex machines which may never be cheap, but in relation to other means of transport they can be time efficient and economically viable. They use space which is not available to other means of transport, and infrastructure costs are small.

Although major new airport developments in most western countries are under consideration, the available runway space will be strictly rationed. At the same time there will be increasing congestion on motorways, other roads to airports and those in city centres. The helicopter can overcome these problems by flying over traffic jams and into airports with fewer air traffic constraints than fixed wing operations. The economic case for using helicopters will become stronger, hence more and more people will wish to fly in them.

Two complementary studies are of interest in this respect. European helicopter manufacturers are cooperating on 'Helitrans' which aims to demonstrate the role that vertical take-off and landing aircraft could play to relieve Europe's congested transportation system.



'Eurofar' takes this work a stage further and aims to define a viable civil transport system based on a tilt-rotor aircraft.

The United States government and industrial agencies are enthusiastic in studying 'Intermodal Transportation Systems', ie the means of integrating helicopter operations into airports, rail interchange stations, freeway systems, car parks and city centres. Imaginative transport planners in this country are also thinking along the same lines and in some ways, for example in the redevelopment of rail as a fast and high-grade transport asset, Europe leads North America.

Conclusion

The helicopter possesses a unique capability which can help to solve the transport problems of the 21st century. It can provide a safe, comfortable, reliable and economic form of transport requiring very little expenditure on infrastructure. Any integrated transport strategy must include the unique contribution that is available from helicopters.