

Public version



FILE No: C2003/536

DOC: 003/20853

Qantas Airways and British Airways Joint Services Agreement

A report by NECG on economic issues relating to the pending application
for reauthorisation of the Joint Services Agreement between Qantas and
British Airways

May 2003

www.necg.com.au

contactus@necg.com.au

Canberra o Sydney o Brisbane o Auckland o New Orleans
NETWORK ECONOMICS CONSULTING GROUP PTY LTD
ACN 006 819 969 ABN 72 006 819 969

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Confidentiality

This report has commercially confidential information removed.

Disclosure of this information could result in material financial loss and prejudice the competitive position of Qantas and British Airways. Qantas and British Airways have accordingly applied pursuant to section 89(5) of the TPA, for this information to be kept confidential by the Commission and excluded from the register kept by the Commission.

For convenience, '[Confidential Information Deleted]' and '[cid]' denote where in the report confidential information has been removed. A confidential version of this report, with the confidential information included, has been provided to the Commission.

Executive summary

This report sets out an economic analysis of the impacts of a reauthorised Joint Services Agreement (JSA) between Qantas and British Airways (the 'JSA parties'). Under the JSA, the JSA parties are able to coordinate schedules, and jointly set prices and manage yields.

The JSA has been in operation for seven years and has been authorised twice. The current authorisation period is due to expire in July 2003 and hence the JSA parties now seek a reauthorisation of the Agreement by the ACCC. The critical issue for the Commission is to determine whether the JSA will continue to provide a net benefit to the Australian community. This report sets out the reasons why a reauthorised JSA would continue to provide substantial net benefits and should, therefore, be authorised. We summarise those reasons in this executive summary.

At the heart of the JSA is the operation of air passenger services between Australia and Europe. This 'Kangaroo Route', a term we use to describe routes between Australia and European end points via Asia and the Middle East, involves high stakes for Australian aviation, and hence for the Australian economy and society more generally. The fact of the matter is that Europe is of great importance to Australia, both economically and because of the many cultural and social ties.

Historically, migration from Europe has been the primary source of population inflow to Australia, and many of today's Australians were born in Europe or are the children of parents who were European born. The ease and efficiency of travel between Australia and Europe is consequently of obvious and continuing importance to our population.

Additionally, Europe remains one of Australia's largest trading partners - indeed, in many respects, our largest. European firms have long been and remain the leading overseas investors in Australia. Our bilateral merchandise trade has long been important, and is now paralleled by rapidly growing trade in services. In more recent years, tourism inflows from Europe have made a substantial contribution to the emergence of the tourist industry as one of Australia's largest export activities.

These social and economic links depend on an efficient, affordable and extensive airline network that joins parts of the world that are, by any standard, extremely distant. The Kangaroo Route is a pivotal part of the infrastructure over which these links are established, renewed and expanded.

Looking to the future, there is substantial scope for further expansion in trade and investment between Europe and Australia. Already now, it is clear that much of this expansion will occur through the growth of trade in services, including tourism. For this to eventuate, Australia's aviation links with Europe need to expand, not contract. Our analysis demonstrates the importance of the JSA to achieving this outcome.

However, it is not merely Australia's links to Europe that depend on the Kangaroo Route and hence the JSA. Rather, the Kangaroo Route, with its flow of passengers to and from Europe, provides important economies of density to Australia's links with South East Asia. As a result, the Kangaroo Route needs to be seen as a crucial component of Australia's wider transport links with our neighbours in the region, as well as further afield.

The fact that the Kangaroo Route is so important does not, however, assure its continued prosperity or commercial viability. Indeed, there are structural factors that make this Route especially difficult to operate on a commercially viable basis. An understanding of these factors is crucial to a proper assessment of the impact of the JSA.

Hub effects and the Kangaroo Route

As discussed in section 3, the key feature of the Kangaroo Route is its length. The link between Europe at one end and Australia at the other is the longest high frequency commercial aviation route in the world, with for example, the distance from London to Sydney being some 50 per cent greater than that from New York to Tokyo. As matters currently stand, it is not possible to operate non-stop flights on the Kangaroo Route. Rather, the distance between Europe and Australia is such that all flights have to stop en route to refuel, to relieve crew and to service the aircraft. This in turn has two important consequences.

First, since a stop is inevitable, and since there are several intermediate points that can and do operate as points of transit, consumers face a very wide range of choices in deciding how to fly between Australia and Europe. Asian and Middle Eastern sixth freedom airlines, which operate these transit points as their home port, have a natural basis for competing on the Route, as they can readily link flights between their home base, Australia and Europe respectively into a network serving the Kangaroo Route. Given the number of these airlines, competitive pressures on the Route are intense, all the more so as several of the competing suppliers operate with direct or indirect government backing, as we note in section 5.2.4.

This in and of itself makes it difficult for an airline without a home base between Australia and Europe to attain and retain commercial viability on the Kangaroo Route, as evidenced by the recent exit of a number of European carriers (discussed in section 5.2.5).

However, notably for the JSA parties, these effects are compounded by a second factor which relates to the economics of hub-and-spoke networks, discussed in section 3.1 – that is, networks in which a range of terminal points are connected through one or more hubs at which flows are aggregated. As noted in section 3.2, the extreme length of the Kangaroo Route, and the fact that it links a number of points in Australia with a wide variety of European destinations, lends itself to hub and spoke operations, in which economies of density are achieved by concentrating traffic on long sectors.

There is here a crucial asymmetry between the Asian and Middle Eastern airlines on the one hand and their rivals, including the JSA parties, on the other. In effect, the former can carry out this traffic aggregation at their home hub – that is, at the airport which accounts for the bulk of the interconnectivity in their network. It is this home hub which they naturally use as the stopover point for the Kangaroo Route. In contrast, the JSA parties, and other airlines not based in the region, cannot use their home hubs as the stop-over point for the Route; rather, the stop-over point will be essentially a spoke in their network, forming part of a multi-stage segment that connects the home hub to the terminal point.

The implications this has are wide-ranging and need to be carefully considered when examining the impact of the JSA. When an airline carries traffic over a multi-stage service, achieving commercially acceptable levels of loading depends on being able to replace the traffic that terminates at the intermediate point with traffic going from that point to the final destination – so that Qantas, for example, in operating a flight from Melbourne to London via Singapore, needs to replace at Singapore the passengers who are only travelling on the Melbourne to Singapore sector. As a result, the ability of an airline to operate the multi-stage service viably critically depends on the ease with which it can source traffic from the intermediate point to the terminal points of the link.

The Asian and Middle Eastern carriers, because the intermediate points they use for the Kangaroo Route are their home hubs, have a substantial advantage in securing traffic at that intermediate point. It is, to take an example, far easier for Singapore Airlines to attract passengers in Singapore that can support reasonable loadings on flights from Singapore than it would be for any other airline. The reasons for this relate to the far greater connectivity Singapore Airlines can provide out of Singapore. Reflecting this greater connectivity, a Singapore Airlines flight out of Singapore Airport can, potentially, draw on passengers arriving from any of the 64 other destinations served by Singapore Airlines and

20 destinations served by its wholly owned subsidiary Silk Air. Additionally, and importantly, the passengers that are most naturally attracted to Singapore Airlines in Singapore will be those with relatively high yields due to the impact of network reach and brand presence (see section 3.2). As a result, non-Singapore carriers transiting Kangaroo Route flights through Singapore will face a fourfold penalty:

- (1) because they will not have direct access to bilateral rights out of the intermediate point, they will be more constrained than the hub carrier is in constructing a commercially attractive range of frequencies and destinations out of and into the intermediate point;
- (2) to the extent to which there are scale economies in operating a transit facility, they will face higher resource costs than does the hub carrier at this intermediate point;
- (3) they will have greater difficulty in attracting traffic at this intermediate point, and hence in securing reasonable loads on each sector; and
- (4) the traffic they do attract at this intermediate point is likely to be lower yielding, depressing their yield on the route as a whole.

As outlined in section 3.3, the JSA does not eliminate these disadvantages, as they apply to Qantas and British Airways, but it does materially reduce them. More specifically, the JSA has at least four relevant effects.

First, the JSA allows each of Qantas and British Airways to better collect and manage traffic at the terminal ends of the Route. The greatest impact is likely to be on Qantas which, thanks to JSA benefit sharing, can secure seats from British Airways on heavily booked, peak time, connecting flights into and from its European destinations. This makes it easier for Qantas to secure reasonable loadings at the terminal ends, somewhat offsetting the penalty associated with passenger loss at the mid-point.

Second, by combining their load and coordinating their flights into the intermediate point, the parties can secure economies at that point. The JSA helps alleviate the 'end sector' problem for each airline as the operations of the JSA parties are complementary – British Airways supports the route with single sector passengers between Europe and the mid-points, whilst Qantas contributes single sector passengers between Australia and the mid-points. The resulting economies take the form not only of lower unit costs to transit but also, and importantly, of greater scope to hub traffic at that point.

Third, given this greater load, the parties can coordinate bilateral rights so as to develop schedules and, more broadly, networks that better match customers needs, are commercially attractive and operationally efficient. Qantas, by being able to use British Airways' thick European networks to originate and terminate load, can at least partly loosen the constraints that might otherwise come from bilateral rights. For example, the rights between Singapore and Paris Charles de Gaulle ('CDG') are limited by the French Government. Preferential access to British Airways' European network, with its high frequencies into and out of Paris CDG, reduces the adverse impact these constraints would otherwise have on Qantas' ability to compete on the French route.¹

Fourth, the cost savings achieved through higher loads, and the greater frequency and reach that load and the close coordination of rights allows, then make the parties more competitive both at the terminal ends of the Route and at the intermediate points.

These impacts are substantial. As outlined in section 7.2, we believe that in the absence of the JSA, the mini-hub Qantas and British Airways have developed in Singapore would not attain critical mass. Related to this, the current scale of Qantas' European operations would no longer be sustainable and would need to be significantly reduced. Additionally, we believe that British Airways would find it impossible to maintain the level of its current operations in Australia, and would significantly reduce their frequency and reach.

Substantial though these effects are when seen from the perspective of the parties, it is clear that the authorisation test is concerned with the impacts of the conduct for which authorisation is being sought on Australian society as a whole. The issue, in other words, is not whether the JSA is important to the parties, but rather whether its benefits to Australia as a whole outweigh any detriments it causes. It is consequently this wider test that needs to be addressed.

¹ Specifically, the codeshares Qantas has on British Airways flights from Heathrow to Paris, as well as Heathrow to both Nice and Lyon, assist Qantas in reducing the disadvantage that Qantas faces from only having rights to fly from Australia to Paris 3 times per week.

Competitive effects

In considering this wider test, it is natural to start with the potential competitive detriments caused by the JSA. It is our view that the JSA causes no detriments from the standpoint of Australian society. More specifically, we believe that the JSA does not materially lessen competition in any relevant market.

The key market in this respect is that for passenger air travel between Australia and Europe, as noted in section 4. In section 5, we consider a range of indicators of competitive behaviour in this market, including market shares and the behaviour of prices relative to costs. It is clear from each of these indicators that competitive disciplines are effective, and have been at all times since the initial JSA was authorised. Additionally, there is every sign that the Asian carriers, far from retreating from this market (as the Commission feared in their previous authorisation), have expanded their presence, largely at the expense of the continental European carriers, who have indeed almost entirely withdrawn from the Kangaroo Route.

Looking to the future, we see no reason for thinking that these competitive pressures will abate. Rather, the success of Emirates in expanding its market presence highlights the degree to which the market remains open to new entrants, and to expansion by existing players, especially on the denser city pairs.

Equally, we do not see any evidence of competition being ineffectual or weakening in the other markets we have examined. Thus, in the market for the transport of air freight, which we discuss in section 6, competitive pressures have closely paralleled those in the passenger market, and we would expect this close link to persist. Equally, as noted in section 9, we do not believe there are any significant flow-on effects from the JSA that prevent or lessen competition in the provision of Australian domestic aviation services – as Virgin Blue’s ability to expand attests.

Given this, it is our assessment, based on the structural indicators, that the JSA is far more likely to promote competition than to lessen it. The JSA makes Qantas and British Airways more effective competitors to the Asian and Middle Eastern airlines than they otherwise would be; this, in turn, ensures stronger competition than could otherwise prevail in all segments of the relevant markets.

That said, we have nonetheless sought to quantify, where possible, any competitive detriments and public benefits that might arise from the JSA. To do so, we need to compare the future with the JSA to the future without it. Working with the parties, we have therefore developed two scenarios for the Kangaroo Route, a ‘factual’ (that is, the future with the JSA)

and a 'counterfactual' (the future should the JSA not be re-authorised). These scenarios are presented in section 7.

We have carefully examined these scenarios and we believe they embody realistic expectations with respect to the course of developments. There are obvious uncertainties attached to any such exercise, including the prospect of extended instability in the Middle East and the ultimate impact of SARS, and it is likely that the future will inevitably differ from our predictions. However, we believe our views represent the best approximation at this point in time of the future with and without the JSA.

While it is possible to develop factual and counterfactual scenarios for the JSA Parties, determining competitor response to the counterfactual is complex and, as a result, in section 8, two extreme scenarios are analysed. We find that if all capacity removed by the JSA parties in the counterfactual is replaced, then although there is a theoretical possibility of a small competitive detriment, it is most likely that prices and output would remain unchanged in the counterfactual. In the alternate scenario, under which no capacity is replaced, prices will likely be higher and output lower in the counterfactual. The reality of competitor response is likely to be between the two extreme scenarios and as such there would be a competitive benefit, through lower prices and higher output, associated with a reauthorised JSA.

The public benefits

We have examined the different sources of public benefits associated with the continuation of the JSA, and where possible, sought to quantify the magnitude of the benefits likely to be secured. However, the nature of some of these benefits make accurate quantification impossible. This obviously does not mean that those benefits are small or insubstantial, but merely that there is not a ready metric which allows them to be scaled relative to those benefits that can be given a dollar value.

As discussed in section 11, the public benefits that flow from the JSA are primarily of six types.

First, the JSA allows the parties to achieve significant cost savings, as outlined in section 11.1, which frees resources in Australia for other uses. For example, the JSA permits substantial cost savings associated with the joint development of IT systems and the joint provision of facilities and staff (for example operating joint sales teams). As noted in section 11.1.1, we conservatively estimate that over 5 years Qantas would make cost savings of \$43m in these areas alone if the JSA were reauthorised.

Second, through the operation of a Singapore mini-hub, made possible by the cooperation of the JSA parties, the JSA facilitates the provision by Qantas and British Airways of a number of additional flights. More specifically, without the JSA, we expect that Qantas would reduce capacity to Europe and that British Airways would scale back its Australian operations.

Third, through its impact on quality, capacity and promotion, the JSA generates additional tourists visiting Australia. We have used a Computable General Equilibrium model to assess the appropriate valuation of the economic impact on Australia of these JSA related tourist inflows. As noted in section 11.3, this modelling suggests that real consumption will fall by at least \$58 million based on conservative assumptions, and as much as \$353 million, over 5 years due to the loss of tourism if the JSA is not reauthorised.

Fourth and related, the JSA – both through its impact on tourism and on the viability and profitability of the parties – increases Australia's net exports, as discussed in section 11.4. It is estimated that the JSA directly supports over 950 Australian jobs within Qantas. We calculate that, absent the JSA, there would be a loss of at least \$165 million based on conservative assumptions, and as much as \$301 million, in resources employed in the Australian economy over 5 years.

Fifth, the benefit sharing mechanism within the JSA provides strong incentives for British Airways and Qantas to jointly manage their inventory. Joint inventory management gives the JSA parties the ability to identify where complementary gaps in their bookings are opening up, and put these together to create through itineraries that might not otherwise be sold. Additionally, through the 'economies of massed reserves', joint yield management requires a smaller number of seats to be protected for late booking high fare passengers, facilitating additional availability of discount seats.

Last but not least, the JSA will improve Qantas' international competitiveness. With a reauthorised JSA, Qantas will be more likely to earn an economic rate of return on its international operations, and notably on the capital employed for the routes at issue. A key factor enhancing the prospect of capital costs being covered are the scale economies created by the JSA which considerably improve Qantas' cost competitiveness. In addition Qantas, like its international competitors, is a network carrier whose strength depends to a large extent upon the breadth of the network it is able to offer to customers. The flights to Europe that are likely to become unsustainable without the JSA form a significant part of Qantas' network. Loss of the JSA is therefore likely to materially weaken Qantas as a network carrier in a very challenging aviation environment. Overall, the JSA enhances the vigour and ongoing viability of Qantas as an international carrier enabling it to participate in an ever

more competitive and global airline industry. In this way, the JSA has a direct and material effect on the competitiveness of a significant Australian business in world markets.

The overall assessment

Our analysis indicates that there would be a competitive benefit, through lower prices and higher output, associated with a reauthorised JSA. The public benefits we have identified are not intended to be exhaustive – for example, we have not sought to assess the implications of reducing flight frequency and reach to Europe for the long term growth of trade and investment between Europe and Australia. However, as presented in section 12, it is clear that those benefits we have evaluated are significant. We summarise the benefits in Table 1 below under both the scenario that capacity withdrawn by the JSA parties is fully replaced and the scenario that none of the capacity withdrawn is replaced. The results show that there is a significant benefit from reauthorising the JSA whatever level of capacity replacement is assumed.

Table 1: Summary of Australian benefit estimates, \$ million 2003–2007

	Lost JSA capacity replaced	Lost JSA capacity not replaced
Cost Savings	\$43	\$43
Tourism	\$58	\$353
Net Exports	\$301	\$165
Total	\$402	\$561

Given the substantial nature of the public benefits, allied with a competitive benefit as a result of lower prices and higher output, we believe that reauthorisation of the JSA would be clearly beneficial to Australia.

Period of authorisation

In its May 2000 authorisation of the JSA ('Determination A30202'), the Commission authorised the JSA for 3 years, with authorisation expiring on 21 July 2003.² The Commission noted that this would coincide with the expiration of the authorisation of the alliance between Singapore Airlines, Ansett and Air New Zealand. The Commission's period of authorisation was also based on uncertainties going forward, including the extent to which increased competition would be maintained; possible reductions in economy class seat availability; possible changes in Qantas and British Airways schedules; and the impact of various market developments, including entry by Virgin Blue in Australia, the effect of the relationship between Singapore Airlines and Virgin Atlantic, and the effect of the relationship between Singapore Airlines, Ansett and Air New Zealand.

In our view, there are good reasons why an extended period of authorisation for the JSA is now appropriate.

The performance of JSA routes over the past seven years of authorisation should provide the Commission with comfort that there is no serious or even material risk of competitive constraints weakening in the foreseeable future. In retrospect, the uncertainties pointed to by the Commission as impacting on its decision in Determination A30202 regarding the authorisation period have not, as a matter of reality, emerged as factors that have lessened competition in the relevant markets.

- Asian carriers and Emirates have expanded their presence rather than withdrawn from JSA routes.
- While the number of British Airways economy class seats may have reduced,³ over a similar time period the number of Qantas economy class seats has increased. This reflects the fact that the JSA has enabled increased specialisation and efficiency in service provision by both Qantas and British Airways.

² ACCC, 2000, *Application for Authorisation: Joint Services Agreement between Qantas Airways Limited and British Airways Plc*, 10 May. Authorisation No: A30202, File No: C1999/767 ('Determination A30202').

³ This is true for many BA routes, not just the Kangaroo Route.

- Virgin Blue has expanded rapidly and successfully in Australia, suggesting that the JSA has had no material impact on competition domestically in Australia.
- Similarly, Singapore Airlines' continued expansion on JSA routes clearly suggests that the collapse of Ansett has not impeded its ability to compete on JSA routes.

In addition to this, it is arguable that an extended or indefinite period of authorisation would substantially enhance the benefits the community could obtain from the JSA. In particular, as well as reducing direct costs associated with the reauthorisation process, an extended or indefinite period of authorisation would minimise the regulatory risk associated with new investments. This would facilitate efficient investments that might not be undertaken were the JSA to be authorised for a short duration. In effect, reduced regulatory risk would improve the terms on which the JSA parties obtain funds required to undertake new investments. This is important given that the competitiveness of the relevant markets and the observed difficulties airlines have had in earning economic returns are likely to have made potential investors especially cautious about financing new airline investments.

As a result, it is our view, particularly given the ACCC's ability to review its decision in response to material changes, that the net benefits to the community would be greatest if the ACCC were to grant an extended or indefinite period of authorisation.

1 Introduction

1.1 Description of the Joint Services Agreement

In 1995, British Airways and Qantas entered into an integrated alliance (the JSA) under which they which they agreed to coordinate airline services on a range of routes. The agreement that originally governed the JSA alliance (the Original JSA) provided for coordination of scheduling, pricing, marketing, sales, and customer service activities. This agreement was authorised for 5 years by the Trade Practices Commission effective from 12 May 1996. The authorisation was subject to a number of conditions, complied with by the parties, including controls on a representative economy class fare. Under the Original JSA, the JSA parties implemented a benefit sharing arrangement in relation to their operation of services between: Australia and Europe; Australia and South East Asia; and Europe and South East Asia (together, the JSA Services or JSA Routes).

In April 2000, to reflect the continued development of the commercial relationship, the parties agreed to enter into a revised agreement (the Restated JSA) to govern the terms of their alliance. The Restated JSA contemplated that, among other things, the parties could extend their benefit sharing arrangements to any part of their network. In practice, however, the parties have not expanded these arrangements beyond the routes to which benefit sharing arrangements applied under the Original JSA. The Restated JSA was granted unconditional authorisation by the ACCC in 2000, valid until 21 July 2003.

1.2 NECG's instructions

The Network Economics Consulting Group Pty Ltd (NECG) has been engaged by Qantas and British Airways to undertake an economic analysis of the competitive effects and public benefits associated with a reauthorisation of the JSA, in particular:

1. to determine the most likely outcome(s) in the absence of the JSA (the "counterfactual(s)"), based on NECG's knowledge of the industry's economics, and through discussions with the parties;
2. to advise on the economic principles underlying the legal competition analysis, including the scope of the relevant markets;

3. to identify and quantify, where possible, the likely benefits and competitive effects of the JSA, as compared to the counterfactual;
4. to prepare a report on NECG's economic analysis, which concludes whether the JSA satisfies the criteria for reauthorisation; and
5. to support the parties in responding to any issues that may arise during the process of the regulator's assessment of the authorisation applications.

Our economic analysis of the detriments and benefits, including our analysis of the specific issues listed above, relies on data and information provided by both British Airways and Qantas, as well as other documents, which are noted and referenced throughout the body of this report where appropriate.

1.3 Report structure

Our report, which presents the findings of our analysis, is structured as follows.

- Section 2 discusses the trend toward increased authorised airline coordination. In essence, we present evidence consistent with the view that airline alliances characterised by a high degree of coordination ('integrated alliances') secure significantly greater cost savings and other efficiencies than are potentially realisable from alliances characterised by a much weaker degree of coordination ('marketing alliances').
- While section 2 highlights the ways in which integrated alliances are capable of securing efficiencies, understanding the impacts of the JSA requires a more detailed consideration of the economics of the Kangaroo Route. Central to these economics are the effects of hub-and-spoke structures on airline costs. Section 3 explains these effects and their significance in terms of the JSA.
- These impacts form the backdrop against which the full assessment of the JSA needs to be made. More specifically, they inform our views as to the relevant markets for the purpose of undertaking a formal analysis of the extent to which the JSA parties have been competitively constrained. Our market definition analysis is contained in section 4.
- The analysis in section 3 also informs our evaluation as to the extent to which the JSA parties have historically been competitively constrained in the provision of air

passenger services and air freight services, which we present in sections 5 and 6, respectively. Our analysis focuses on an evaluation of market structure (especially) and historical market performance.

- Given the analysis discussed above, we then elaborate on our views as to the likely future world with and without a reauthorised JSA, (the “factual” and “counterfactual”), which we present in section 7.
- Section 8 looks at the likely impact of the factual and counterfactual on prices and output. To do this, two scenarios of competitor response to the counterfactual are analysed.
- It is possible that the JSA has impacts not just on the specific JSA markets we have studied to this point, but also on related markets. Section 9 considers the competitive effects likely to flow on to Australian domestic routes if the JSA were reauthorised. This section also considers the impact of competition on Australian domestic routes on competition on JSA routes.
- Section 10 elaborates the likely impact, if any, on the Kangaroo Route, associated with the proposed alliance between Qantas and Air New Zealand.
- Section 11 analyses the public benefits that will arise from a reauthorised JSA – in particular cost savings and the effects on tourism and exports.
- Section 12 summarises the likely net benefit from a reauthorised JSA and concludes on the balance between the detriments and the benefits it delivers.

2 Airline alliances

Over the past decade, airlines have had to respond to sustained pressure to reduce costs and achieve efficiencies in order to survive and compete in an increasingly deregulated and liberalised international airline market. At the same time, airlines have been forced to respond to changes in consumer preferences, including demand for seamless travel.⁴ Increased coordination between airlines has been pursued as a means of meeting these two challenges.

In reality, there is a broad spectrum of airline coordination models. For the purposes of simplification, it is helpful to identify two broad types of alliance, 'marketing' alliances and 'integrated' alliances. These were described by the Commission in its May 2000 authorisation of the JSA ('Determination A30202') in this way:⁵

Integrated alliances ... typically involve a high degree of integration of the airlines concerned, including coordination of fares, schedules, service levels and yield and capacity management... integrated alliances contemplate that the alliance carriers operate as a single competitive entity across part or all of their networks.

Marketing alliances offer the consumer the benefits of broader networks, more seamless travel and expanded loyalty programs. However the alliance airlines generally continue to offer their fares, schedules and services independently, and airlines within the same marketing alliance may compete with each other if on the same route.

⁴ By demand for seamless travel, we refer particularly to consumer demand for long haul travel that minimises inconvenience. From the perspective of the consumer, improvements by airlines may arise, for instance, from reductions in connection times, the ability to through check luggage to a customer's ultimate destination, the ability for passengers to switch freely between the flights of partner airlines, and the ability for staff of any alliance member to deal with passengers' enquires and amend bookings.

⁵ ACCC, 2000, *Application for Authorisation: Joint Services Agreement between Qantas Airways Limited and British Airways Plc*, 10 May. Authorisation No: A30202, File No: C1999/767 ("Determination A30202"), p. 27.

As noted by the Commission, the degree of coordination involved with integrated alliances may be so great as to effectively create an operational merger. The extent of coordination integrated alliances can involve is reflected in a description of an arrangement between United, Austrian, Lauda, Lufthansa, and SAS and their affiliates, authorised by the United States Department of Transportation (DOT) in January 2001:⁶

The essential elements of this arrangement include coordination of routes and schedules; the establishment of joint marketing, advertising and distribution networks; co-branding and joint product development; code sharing; coordination of pricing, inventory and yield management; revenue sharing; joint procurement; uniform product and service standards; coordinated cargo programs; coordination of existing information systems, to include reservations, ticketing, accounting, maintenance, financial reporting, and distribution; integration of their frequent flyer programs; harmonization of their financial reporting practices, including revenue and cost accounting practices; and the sharing of facilities and services at commonly served airports. In summary, while the partners state that they continue to be independent companies, the underlying objective of the Alliance Agreements is to enable the companies to plan and coordinate services over their respective route networks as if there had been an operational merger among them.

Both marketing and integrated alliances have emerged as significant factors in the global aviation landscape. The growth in marketing alliances is reflected in their share of total international passenger traffic. The three major marketing alliances are the Star Alliance, oneworld and SkyTeam. Credit Suisse First Boston (2002) estimates that these three alliances account for 53 per cent of global international passenger traffic.⁷ The membership of each of these three marketing alliances is presented in Table 2.

⁶ Joint Application of United Airlines, Inc., Austrian Airlines, Österreichische Luftverkehrs AG, Lauda Air Luftfahrt AG, Deutsche Lufthansa, AG, and Scandinavian Airlines System for approval of and Antitrust Immunity for an Alliance Expansion Agreement and an amended Coordination Agreement, Order 2001-1-19, served January 26, 2001, Docket OST-2000-7828, p. 3.

⁷ Credit Suisse First Boston, 2002, *Global Airlines*, 24 May, p. 3.

Table 2: Summary of oneworld, SkyTeam Star membership

Oneworld	SkyTeam	Star
Aer Lingus	Aeromexico	Air Canada
American Airlines	Air France	Air New Zealand
British Airways	Alitalia	All Nippon
Cathay Pacific	Czech Airlines	Austrian Airlines
Finnair	Delta	British Midland
Iberia	Korean Air	Lauda
LanChile		Lufthansa
Qantas		Mexicana
		Scandinavian Airlines
		Singapore Airlines
		Spanair
		Thai Airways
		Tyrolean
		United Airlines
		Varig

Source: www.oneworld.com; www.star-alliance.com; www.skyteam.com.

Marketing alliances, however, are only a partial response to the competitive pressures that airlines face. Improvements in efficiency and the delivery of seamless travel options to consumers are often only possible through closer coordination of commercial decisions than marketing alliances facilitate. Indeed, there are some respects in which marketing alliances cause airlines to bear increased costs (for example, so as to provide services to frequent flyers from other airlines in the alliance) while not providing a framework that involves sufficient commonality of interest for economies of joint provision to be obtained. Rather, as noted above, and for reasons discussed in section 3.3, the types of coordination required in order for alliances to achieve significant efficiencies, both in operating costs and in asset acquisition and holding, can include coordination of capacity, schedule and fares.

Reflecting these factors, there has also been strong growth in the number of integrated alliances. The first integrated alliance was formed between KLM and Northwest in 1993, which now forms the basis of the Wings alliance.⁸ Other integrated alliances have also been

⁸ Credit Suisse First Boston, 2002, p. 15. Other airlines aligned with the Wings alliance are Japan Air Systems, Malaysia Airlines, Martinair, Kenya Airways and Surinam Airways.

formed since this agreement, including the authorised Joint Services Agreement between Qantas and British Airways. In 2002 alone, seven integrated alliances were granted approval or reapproval by either the DOT or the European Commission, these being alliances between Delta, Air France, Alitalia and Czech Airlines; Delta and Korean Airlines; United and British Midland; American Airlines and Finnair; Lufthansa and Austrian Airlines; Northwest and KLM; and United, Lufthansa and SAS.

Each of these recently approved agreements has some or all of the elements of an integrated alliance. For instance, the alliance between Delta, Air France, Alitalia and Czech Airlines, which was granted antitrust immunity on trans-Atlantic routes by the DOT in January 2002, involves coordination of routes, schedules, sales, frequent flyer programs and pricing. Similarly, the agreement between Delta and Korean Air, which was granted antitrust immunity by the DOT in June 2002, allows each airline to discuss network planning, schedules and prices. The agreement between United and British Midland, which is conditional on the US and UK agreeing to an 'open skies'⁹ agreement, would involve route, schedule and price coordination, joint marketing, revenue sharing and codesharing.

These recently authorised agreements are in addition to a number of other agreements authorised over the past several years. These include the agreement between United Airlines and Air Canada, authorised by the DOT in November 1997, as well as the agreement between United Airlines and Air New Zealand, authorised in March 2001. Other authorised agreements include the agreement between Northwest Airlines and Malaysia Airlines, awarded antitrust immunity by the DOT in October 2000, and the agreement between Continental and COPA, awarded antitrust immunity by the DOT in May 2001.¹⁰

⁹ As noted in section 5.2.2, an 'open skies' agreement between two countries effectively allows designated airlines of each country to operate unlimited frequencies and/or capacity between the two countries.

¹⁰ Joint Application of Northwest Airlines, Inc. and Malaysia Airline System Berhad for approval of and Antitrust Immunity for a Coordination Agreement, Order 2000-10-12, served October 13, 2000, Docket OST-2000-6791; and Joint Application of Continental Airlines, Inc. and Compania Panamera De Aviacion, S.A. for approval of and antitrust immunity for an Alliance Agreement, Order 2001-5-1, served May 3, 2001, Docket OST-2000-8577.

Other proposed agreements are currently before regulatory authorities. For instance, the proposed agreement between Air France and Alitalia, which is currently being considered by the European Commission, will involve coordination of capacity and prices on flights between France and Italy. The agreement will also involve sharing of costs and benefits, codesharing, pooling of frequent flyer programs, as well as possible integration of maintenance and IT systems.

The fact that many integrated alliances have been authorised by regulatory bodies abroad – albeit that some have required undertakings from alliance members – provides recognition that these alliances may be highly effective in realising cost benefits and in generating wider efficiency benefits, significant enough to outweigh any competitive detriments. The authorisation of these integrated alliances is also consistent with the view that they provide greater scope than marketing alliances alone do for realising cost savings and other efficiencies.¹¹

Finally, the Commission's authorisations of the JSA in May 1995 and May 2000 provide recognition that integrated agreements involving price and schedule coordination are effective means of securing cost and consumer benefits for air services provided between Australia and Europe and South East Asia.

¹¹ Were integrated alliances no more effective in this respect than marketing alliances, there would presumably be a 'less restrictive alternative' that competition regulators could look to achieve the efficiencies being claimed by the parties seeking authorisation.

3 Economics of the Kangaroo Route: hub effects

While integrated alliances are capable of securing efficiencies, understanding the impacts of the JSA requires a more detailed consideration of the economics of the Kangaroo Route. Central to these economics are the effects of hub-and-spoke structures on airline costs. This section explains these effects and their significance in terms of the JSA.

Following the deregulation of the US airline industry in 1978 and the freedom offered to airlines to choose their route structures and prices, American Airlines was the first major airline to pursue an explicit strategy of 'hubbing'. Since that time, nearly all major domestic and international network carriers operating a full service or network model have adopted interlocking hub-and-spoke structures.

In a hub-and-spoke system, a limited number of hub airports function as collection and distribution centres for passengers. The routes that channel passengers to the hubs are referred to as spokes. Unless they travel between two hubs, passengers usually travel to their final destination via a hub.

In section 3.1 we set out the main benefits and costs of a hub-and-spoke network. Section 3.2 builds on this cost-benefit analysis and illustrates why the Asian and Middle Eastern carriers enjoy a significant competitive advantage as a result of having a hub at the centre of the Kangaroo Route. Section 3.3 concludes by illustrating how the JSA helps Qantas and British Airways partly counteract the Asian and Middle Eastern airlines' competitive advantage.

3.1 Costs and benefits of hub-and-spoke networks

Hub-and-spoke networks allow higher traffic densities, that is, more passengers per plane, than would be possible under a point-to-point network. Higher density is achieved by channelling passengers through the hub airport, which concentrates the passengers to each destination on a single aircraft. Higher density translates into cost efficiencies through economies of density (or more properly, of high asset utilisation).

The effects of hub-and-spoke network are easily illustrated. Suppose an airline provides air services between a set of n cities. Under a point-to-point system, the airline could provide these services with direct flights between each pair of cities, serving $n(n-1)/2$ routes. The same n cities, however, can be served with a hub-and-spoke network using just $n-1$ routes, reducing the total number of routes served and increasing the average traffic on each route

by a factor of $n/2$. The following diagram applies this result to a six-city network, with the point-to-point network requiring 15 routes to serve all destinations while the hub-and-spoke network requires only 5. Assuming the same number of passengers fly under both networks, the hub-and-spoke network increases traffic density by a factor of 3.

The addition of a new spoke to a hub-and-spoke network significantly increases the city pair combinations served by the network at minimal incremental cost. For example, connecting an additional city in the 6-city example necessitates 6 routes in a pure point-to-point topology while a single spoke is sufficient in a hub-and-spoke network.

Figure 1: Point-to-point and hub-and-spoke networks



Reducing the number of routes (and hence saving the fixed costs of linking two cities) and increasing traffic on the remaining routes can create significant cost efficiencies. As an airline's marginal resource cost of an additional passenger on a plane with unused capacity is very small, any arrangement that increases traffic density reduces average cost per passenger-trip.¹² Also, additional traffic can facilitate economies of scale through the use of larger aircraft with lower unit costs.

¹²

While the resource cost of carrying a passenger on an otherwise unfilled plane is slight, the private opportunity cost (to the airline) will depend on the risk that carrying that passenger creates in terms of the likelihood of not being able to carry a passenger that would be willing to pay a higher fare. The social marginal opportunity cost will reflect the difference

The economic literature provides extensive support for the importance of traffic density in determining airline cost efficiency. For example, in a study of airline comparative productivity Windle (1991)¹³ found that the largest driver of differences in productivity was traffic density.¹⁴ Brueckner and Spiller also support the importance of traffic density in their 1994 study of the economics of airline traffic density.¹⁵ McShan and Windle (1989)¹⁶ go further and estimate the importance of hub-and-spoke networks for cost savings. In their study of the impact of deregulation of the US airline industry, they found that between 1977 and 1984 hub-and-spoke routing grew by 48%.¹⁷ They estimate that for every 1% increase in hubbing there was a 0.1% fall in airline costs.¹⁸

Improved traffic density and resulting cost savings mean that routes that are not economic to serve in a point-to-point network may become viable in a hub-and-spoke network. Even on routes that would be served in a point-to-point network, additional capacity and frequency may become viable under a hub-and-spoke network. As a result, the

in valuation between the marginal passenger carried and the passenger displaced or at risk of being displaced.

¹³ Windle, Robert J. "A Cost and Productivity Comparison of the World's Airlines," *Journal of Transport Economics and Policy*, Vol. XXV, No. 1, January, 1991, pp. 31-49.

¹⁴ Windle defines traffic density as output (revenue passenger miles and freight ton miles) divided by the number of points served by the network.

¹⁵ Brueckner and Spiller, *Economies of Traffic Density in the Deregulated Airline Industry*, *Journal of Law and Economics*, Oct. 1994, 37 n2, pp. 379 et seq.

¹⁶ McShan, Scott; and Windle, Robert J. "The Implications of Hub-and-Spoke Routing for Airline Costs and Competitiveness," *The Logistics and Transportation Review*, Vol. 25, No. 3, 1989, pp. 209-230.

¹⁷ The authors argue that this growth could have been larger but was limited by constraints on airport access.

¹⁸ The measure of hubbing used is the proportion of an airline's total departures leaving from the most utilised airports (top 3%) in that airline's network. See McShan & Windle (1989) p214.

implementation of a hub-and-spoke network can improve both the breadth (number of destinations) and depth (frequencies on destinations) of services.

There is empirical support for the proposition that flight frequency is greater under a hub-and-spoke network. Brueckner and Zhang (2001)¹⁹ found that the development of hub-and-spoke networks in the US permitted an increase in flight frequency, which delivered significant welfare benefit. In addition, they concluded that the establishment of hub-and-spoke networks led to cost reductions, which contributed to the significant price decreases that occurred in the US post deregulation.

The benefits of the hub system for passengers and for airlines can interact. Thus, when economies of density are passed onto customers in the form of lower fares and higher frequencies, this results in higher demand for air travel, delivering further improvements in traffic density and yet greater achievement of economies of density.

While hub-and-spoke networks deliver benefits for both passengers and airlines in most circumstances, some additional costs and lower passenger welfare may, at least partially, diminish the net social benefit derived from air travel through hubs.

First, while it is correct that travellers benefit from higher frequencies and a larger number of destinations, their actual travel time is usually longer through a hub as compared to a direct flight. Since travellers prefer shorter total flight durations, a hub-and-spoke network imposes a cost—in the form of lower convenience and hence welfare—to travellers going through a hub. Travel time can also be longer via a hub than via a direct flight because the likelihood of being delayed is greater. This is not only because there are additional travel sectors but also more importantly because of a ‘domino effect’—a delay in the first sector may cause passengers to miss their connection, creating further delays.²⁰

¹⁹ Brueckner and Yimin Zhang “A Model of Scheduling in Airline Networks: How a Hub-and-Spoke System Affects Flight Frequency, Fares and Welfare,” *Journal of Transport Economics and Policy* (May 2001).

²⁰ Alternatively, the airline may hold up the connecting flight, so as to allow connecting passengers to make their connection. This imposes a delay cost on all the passengers on that flight.

Second, even if airlines achieve substantial cost-saving thanks to a hub-and-spoke network, there are also some offsetting cost increases. Operating a hub creates additional costs due to the greater complexities of passenger and baggage flows and the operational complexity of flight scheduling. Further, the hub-and-spoke system typically results in a concentration of flights in peak hours in congested airports. There may therefore be some additional costs associated with the congestion of slots, ground crews and handling equipment.

The extent of these offsetting costs is a matter of some debate. On shorter routes, airlines seem to be moving away from highly centralised hub-and-spoke networks. Indeed, value-based airlines, such as SouthWest in the US and EasyJet in Europe, operate essentially point-to-point networks. Although some connectivity can be, and increasingly is, provided for in these networks, these airlines typically do not provide for extensive interlining and seek to avoid the costs that the management of interdependent traffic flows across their networks would otherwise create.

On longer hauls, where additional travel time due to hubbing has less significance,²¹ hubbing will remain an important feature, though the major aircraft producers take somewhat differing views as to its further growth. Boeing has argued that on many routes in the near future the additional costs of hub-and-spoke networks may outweigh the benefits.²² Airbus, Boeing's key competitor, takes an alternative view and is focusing on building bigger planes to operate on hub-and-spoke networks thereby reducing congestion at hub airports.

²¹ The idea being that an extra hour of travel time on a 23 hour flight is less important for the passenger than an extra hour on a 2 hour flight.

²² See Boeing Frontiers Online, Volume 01 July 2002. Available at <http://www.boeing.com/news/frontiers/archive/2002/july/mainfeature.html>.

3.2 The competitive advantages of Asian and Middle Eastern airlines

Direct, non-stop service is not an option on the Kangaroo Route and is not likely to be one for a considerable time to come.²³ The distance between Europe and Australia requires all flights to stop en route for technical reasons principally, to refuel, to relieve crew and to service the aircraft. Given that such a technical stop must be made, the additional costs associated with operating a hub (described in section 3.1), such as congestion costs and passenger delay, are largely irrelevant on the Kangaroo Route. As such, a mid-point hub operator will be better placed to operate the service profitably than will an operator that does not control a hub at the stopover point.

Before analysing the competitive asymmetry that arises from the need for a stopover, it is important to note that the need for a stopover almost inevitably increases the extent of competitive pressure on a route. Specifically, because passengers must transit through a point located between Australia and Europe, they will have a greater range of airline options open to them, since they can choose between any of the carriers servicing either of the end-points through any intermediate point. While not all of these options will have equal value to customers, the result will nonetheless be to expand the choices open to the travelling public and, in this more competitive environment, to reduce the fares that can be charged. Margins and unit revenues, which are generally lower on longer sectors, will consequently be lower still on sectors that involve transit through a mid-point.

At the same time as unit margins are being compressed, the need for a technical stop compounds the difficulty airlines without a mid-point hub face in trying to operate the route profitably.

To see this, it is useful to note that making a stopover has impacts on operating costs and on revenues. We will deal with each of these impacts in turn.

In terms of operating costs, there is clear evidence, from Qantas' own cost data, that costs rise when a stop must be made. Thus, while unit costs otherwise decline reasonably

²³ Non-stop flights are technically possible, but at such low loadings as not to be commercially viable.