

Assessing Performance Implications of International Alliances in the Airline Industry

1.1 Inter-firm networks and strategic alliances – international versus regional patterns

Competitive paper

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Abstract

The airline industry is in many ways one of the most international of service industries. World airlines are in the process of forming multi-partner alliance groups in their preparation for stiffer global competition. Knowing the performance implications of alliances will be increasingly important in the future, especially in large alliance groupings, firstly, for the group to monitor overall progress in the alliance, and secondly, for individual members to see and understand all the benefits and costs related to an alliance membership. The international dimension brings certain complications to the performance assessment: legislation and policies concerning accounting practices vary from country to country, labour unions have different roles and power in different countries, labour costs vary significantly from one country to another, companies and their top management have different views on the required performance and efficiency in different countries, in some countries airlines have a government-controlled history whereas in other countries airlines have always been private or publicly listed, and airlines' image is very closely tied to their home country image.

This paper attempts to present views that are relevant in the performance assessment of an international airline alliance, focusing on multi-partner alliance groups. As research-based evidence of performance implications of alliancing is still scarce, key issues and relevant questions are raised rather than trying to provide answers. The objective of the paper is to suggest frameworks which could be used as tools when the performance of airline alliances is assessed. The paper builds on past research on strategic alliances in general and on studies of major airlines in particular. Empirical evidence has been sought through analysing annual reports of thirteen major airlines between 1988 to 1998. In addition, some three hundred articles or reports by the industry press, investment banks, etc. were analysed.

The biggest challenge for airlines appears to be in developing ways of measurement, or 'metrics', that can be used in assessing the performance implications of alliances. Particularly difficult is the assessment of the forward-looking, strategic variables and their value in alliances. It seems that analysing the performance, and the eventual financial impact of alliances for airlines, may prove significantly more complicated than in the case of alliances in most manufacturing industries. Taking into account the international dimension and the differences between airlines from different parts of the world, the development of these metrics seems even more challenging.

Key words: alliances, airlines, performance

Introduction

The airline industry is in many ways one of the most international of service industries. However, there are no dominant, truly global players in this very much international business; nevertheless, there are airlines that correspond to the trans-national corporation definition by Bartlett and Ghoshal (1995). The industry has experienced major changes in the operational environment during the last two decades as deregulation has changed the rules of competition drastically in most major markets of the world. There appears to be a strong need to consolidate the industry, but much due to government control airlines can go only halfway the consolidation path. The number of mergers and acquisitions in this industry is very small; the latest proposed merger, between British Airways and KLM, collapsed in the fall 2000. However, there are numerous co-operative agreements. In the 1990s the number of alliances has steadily grown each year, and the scene has become very unstable. A survey by Air Transport Intelligence in 1999 reported that there were a total of 513 airline alliances among 204 airlines in mid-1999, with more than 50% of actual alliance agreements having been concluded during the past three years.

Alliancing among airlines is taking place both on a regional and global scale; there are groups that have a European emphasis, but also groups that are truly, in a balanced manner global in nature. Most airline alliances are between two partners, but arrangements of more than two participants have emerged recently. World airlines are in the process of forming groups in their preparation for stiffer global competition. The largest groups *Star Alliance* and *oneworld* now have each about 20 per cent of the world international passenger markets. In 2000 there are four major alliance groups in the global airline industry. Most airlines have several alliances, including domestic and international alliances - the largest number of alliances in 1999 was by Air France with 33 arrangements, out of which all but one were

with foreign partners. The alliance scenario is in a flux - alliances are broken and new ones formed frequently. The alliance rush in the late 1990s has developed into a situation where it sometimes is difficult to categorise another airline either as a competitor or a co-operator.

Airlines have historically shown very poor financial performance, and consequently it has been suggested that airline business is not cyclical business but bad business. For instance, the combined net profit margins of U.S. airlines have typically been only about half of the Standard and Poor's 500 list of industrial, utility and transportation companies' net profit margins. For some twenty years, the airline industry has been very turbulent and has been through financial ups and downs. Alliances in the airline industry, be they truly strategic or more of a tactical nature, can partly be seen as a response to the uncertainty and risks associated with industry turbulence, i.e., alliances are seen as a way of improving performance in times of hardening competition. Knowing the performance implications of alliances will be increasingly important in the future, especially in large alliance groupings, firstly, for the group to monitor overall progress in the alliance, and secondly, for individual members to see and understand all the benefits and costs related to an alliance membership.

Assessing the performance of an alliance appears difficult as many of the objectives of alliances are very general and thus hard to measure, such as adding value to an airline's product line; reducing competitive pressure; providing access to new capabilities; and sharing and decreasing risks. There are some fundamental questions concerning the evaluation of the performance impact of alliances. First, it needs to be specified from which company's perspective is the performance evaluated; as airlines have different premises and objectives for alliances, they would then also evaluate outcomes differently. Secondly, what is the time span of the assessment? It may be that an alliance has difficult first three years, but after that

the effects on performance may be very positive. On the other hand, it may happen that an alliance has a promising start, but results later in separation, lost investments, and thus poor performance. Third, in international alliances, the starting point of airlines can be very different due to differences between legislation, practices, and cultures in various countries. Finally, the assessment of the impact on performance is difficult, because we do not know the alternate reality, i.e., what might have happened if there had not been an alliance.

This paper attempts to present views that are relevant in the performance assessment of an international airline alliance, focus being on multi-partner alliance groups. As research-based evidence of performance implications of alliancing is still scarce, key issues and relevant questions are raised rather than trying to provide answers. The objective of the paper is to suggest frameworks which could be used as tools when the performance of airline alliances is assessed.

The paper builds on past research on strategic alliances in general and on studies of major airlines in particular. A longitudinal analysis of the alliances reported in the airline industry forms the basis for the paper. Empirical evidence was sought through analysing annual reports of thirteen major airlines between 1988 to 1998. In addition to nearly one hundred annual reports by airlines, some three hundred articles or reports by the industry press, investment banks, etc. were analysed; sources of evidence are listed in Appendix 1. In the analysis, drivers, objectives and factors having an impact on alliances – and their performance – as expressed in the material, were detected and clustered into categories, and the rationale that would link drivers, action and objectives was sought.

Past research

Strategic alliances have been studied from numerous perspectives. These perspectives include those of alliance rationale (for example, Ohmae, 1989; Burgers et al., 1993; Contractor and Lorange, 1998), the processes of alliances (Ring and Van de Ven, 1994; Doz et al., 2000), the transaction costs involved (Parkhe, 1993a), their characteristics (Borys and Jemison, 1989) and complexity (Killing, 1988), partner selection and development (for example, Hamel, Doz and Prahalad, 1989; Osborn and Baughn, 1990; Sheth and Parvatiyar, 1992; Ring and Van de Ven, 1994; Brouthers et al., 1995; Doz, 1996; Singh and Mitchell, 1996; Contractor and Kundu, 1998). Alliances between competitors (Hamel et al., 1989) have also been studied, as have issues on trust and contractual arrangements (Gulati, 1995; Osborne and Hagedoorn, 1997; Contractor and Kundu, 1998), and learning (Parkhe, 1991; Lei and Slocum, 1992; Lei et al., 1997; Khanna et al., 1998; Inkpen, 1998; Anand and Khanna, 2000; Kale et al., 2000). Osborn and Hagedoorn (1997) have provided a valuable summary of different views on alliances: economics-based, corporate strategy -based and inter-organisational views. Eisenhardt and Schoonhoven (1996) presented a resource-based view of strategic alliance formation, combining social and strategic explanations. Of much relevance from the airline industry perspective today is the research undertaken by Madhavan et al. (1998), which has focused on a network perspective of alliance development.

Earlier studies particularly on airline alliances have been done from various specific perspectives, such as causes and effects of equity alliances (Youssef 1992), benefits (Park and Zhang 1997), corporate value (Park and Zhang 1998), safety implications (Button 1997), the policy implications of establishing a national carrier as an attractive senior partner in a global airline alliance network (Oum, Taylor and Zhang 1993), the effect of codesharing on

international fare levels (Oum, Park and Zhang 1996), and partner choice (Nyathi 1996). Bissessur (1996) undertook research into the critical success factors of airline alliances.

Performance measurement and value creation of alliances has been studied by, for example, Harrigan, 1986; Kogut, 1998; Parkhe, 1993 a and b; Dussauge and Garrette, 1995; Chan et al., 1997; Glaister and Buckley, 1998; Das et al., 1998; Doz and Hamel, 1998, Baum et al., 2000. In addition, performance enhancement in airline alliances was studied by Park and Cho (1997). However, performance assesment in the alliances of airlines – not necessarily the most typical of industries – has not been addressed enough by research.

Performance measurement in airlines

Before addressing the performance impact of alliances, it is worthwhile taking a look at how airline performance has been measured in general. Naturally, financial performance of airlines is measured like in any other industry, using traditional indicators such as net profit margin, return on equity and investment, and cash flow measures. However, as these indicators are all too familiar, this paper does not discuss the general financial measures but focuses on measures that are more specific to the airline industry, i.e., airline operational performance measures.

Operational performance of an airline is often referred to as productivity. Two main categories of productivity concept exist: gross (non-parametric) measures of productivity and shift (parametric) measures of technical change (Oum et al., 1992, 493). Within these categories there are many different ways to measure productivity. The choice of measurement depends on the purpose of the measurement. Productivity can be measured either in partial or comprehensive terms. Partial measures are often very simple to use, but provide only a partial

measurement of productivity. Comprehensive measures compare total outputs to total inputs; such measures are generally known as Total Factor Productivity (TFP). For TFP, overall input and output indices are created by weighing individual inputs by their share of total (or variable) costs and individual outputs by their share of total revenue for the firm (Windle & Dresner, 1992). For assessing performance implications of international alliances from an airline management perspective, the partial measures appear more applicable.

Very widely used partial measures are those related to the use of labour; often this means that some output measure is expressed on a per-employee basis. As Windle and Dresner (1992) pointed out, a major disadvantage of these labour productivity measures is that they do not account for possible trade-offs between labour and other inputs, typically capital in the form of machines. In other words, an airline with a high capital-to-labour input mix may show high labour productivity but not necessarily high overall (or total factor) productivity. It would be better to use labour costs in monetary terms, rather than simply the number of employees, as the denominator in the measures. This would also take into account the differences in wages and social payments in different countries, a key factor in capital vs. labour investment decisions. Another weakness of labour productivity measures is that they often treat all labour categories uniformly; a vice-president of finance, a pilot and a baggage handler all count as one employee, but clearly have different output and cost effects.

Of the partial labour-related measures, available ton-kilometres (ATK) per employee may be the simplest one; a comparable measure is the revenue ton-kilometres (RTK) per employee. Both measures are quite limited in value, but may be good additions in productivity assessment. ATK and RTK do not differentiate between different types of payload but treat both first-class passengers and bulk freight only on a weight basis. This clearly makes inter-

airline comparisons - and even comparisons over time - difficult, because airlines have different payload profiles. Another category of productivity measure is related to the utilisation of aircraft; a widely used measure is load factor, which can be applied to passenger seats or to the overall payload. In the application of load factor measures it is important to take into account yield measures, too; attaining high load factors through very low fares does not necessarily maximise revenues. An aircraft utilisation measure based on daily flight hours per aircraft is widely used. Just as with ATK or RTK measures, this measure should not be used in isolation from route length considerations. Aircraft that operate very short route sectors have difficulties in obtaining high daily flight-hour measures.

As to how past research has analysed airline performance, a couple of examples can be presented. Bruning (1991) assessed relative efficiencies of internationally operating airlines through a stochastic frontier production methodology. Building on a log-linear cost function, the analysis included the following variables: total operating costs, total revenue tonne-kilometres, price of capital services, price of labour services, price of fuel, measure of the degree of competition facing an airline, percentage of government ownership, and dummy variables indicating liberal vs. non-liberal bilateral agreements and the scope of an airline's operations. It was concluded that cost disadvantages may be overcome by increasing traffic density - this conclusion supports the findings of previous research. Schefczyk (1993) analysed the operational performance of airlines through the Data Envelopment Analysis (DEA) technique. The study used the following inputs: available tonne-kilometres, operating costs, and non-flight assets. The outputs measured were revenue passenger-kilometres and non-passenger revenue. Regression analysis was used to determine the relationship between profitability and performance, and the influence of structural characteristics on both performance and profitability.

In performance assessment one needs to bear in mind that there are two sides to a coin: revenue side and cost side. As to cost side, it is important to clarify the cost areas that are most important in airline operations and which may offer the most potential for cost reduction and consequent performance improvement. Cost sources in the airline business can be categorised as follows - in a descending order of typical significance: labour; fuel; charges for landing, en-route navigation, etc.; aircraft (depreciation); other materials; ground equipment and property (depreciation); outside services expenses (ground handling, etc.); financial expenses; and other expenses. Labour costs in total account on average for about thirty per cent of airlines' total costs, being the largest cost item. Therefore, discussion on cost reduction potential often centres around utilisation of labour force, productivity of labour force, and remuneration.

Performance measurement in alliances

Earlier research suggests numerous views on how performance of alliances can be measured. However, there is no consensus as to what the correct way of measurement or the best determinants of performance would be. Research has concluded that traditional financial measures that build on the accounting systems are inadequate and that new forward-looking measures ought to be developed. It appears somewhat problematic that the assessment of alliance performance uses mostly financial feedback, which is backward looking in nature and may fail to anticipate future possibilities and challenges for alliances. Further, it has been suggested in Atkinson et al. (1997) that financial measures ignore many issues relevant to management and are solely based on historical costs providing little basis for judgement on the effectiveness of processes like personnel relation systems. Moreover, it seems that these "soft" resources, which are difficult to measure, are today's drivers of company success and are valued now more than ever. An interesting comparison is that to the Internet and new

media companies, many of which have market capitalisation many times larger than major airlines, but whose assets really are only promising ideas and concepts; many of those companies have never shown good performance when assessed by conventional financial measures.

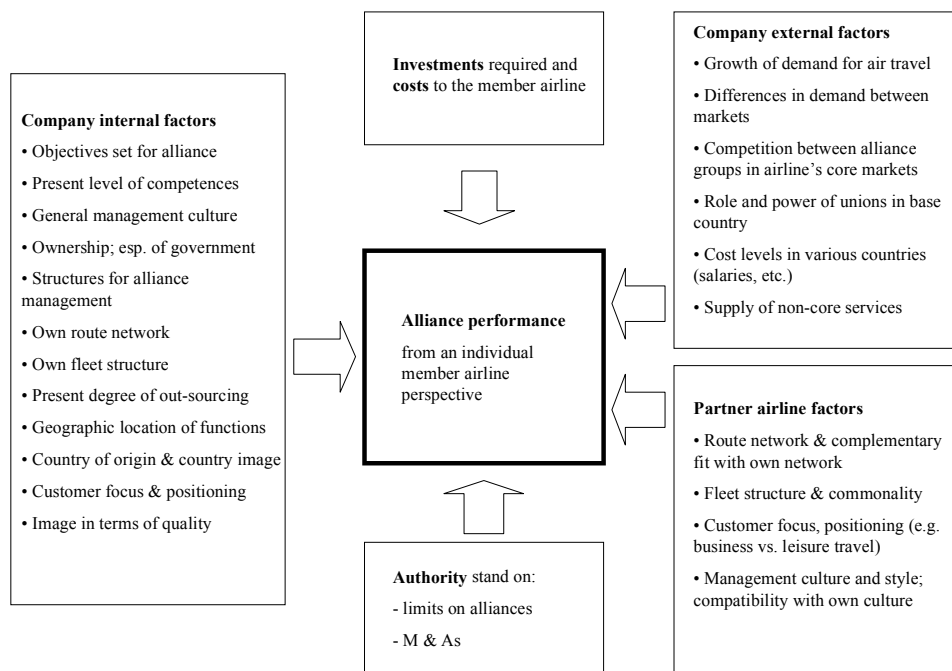
Strategic alliance performance has traditionally been measured, first, in terms of survival or duration, stability in the case of multi-partner arrangements, and stock market reactions to alliance announcements. Secondly, such measures as profitability, cost position and growth rates have been used. A third category of measures is the opinion of managers concerning performance. For instance, Dussauge and Garrette (1995) concluded that alliance performance measurement literature has used three evaluation criteria: manager opinions, alliance stability, or stock market reactions. It appears that for airline alliances in particular, performance has been measured mostly by using market share and sales volumes as proxies for performance. Research has shown that results from alliances are monitored much on a route level, comparing mostly to budgets based on market development estimates, to estimates of results if there had not been an alliance, or to results from previous years.

What makes performance measurement in alliances difficult, as opposed to that of individual airlines, is the fact that organisational politics are much more complex in alliances. Differences between organisational politics in different countries add to the complexity of measurement. Often organisational politics translate into the issues of control, either through financial or non-financial mechanisms. The control-performance relationship is evidently important, but so far research has not been able to conclude satisfactorily how much and through which mechanism control impacts alliance performance. Also, the more extensive the alliance, the more difficult it typically is to measure its impact on performance from an

individual airline's perspective. For instance, it is rather easy to monitor performance effects of a simple codesharing arrangement on a few routes. However, if the arrangement comprises codesharing on several routes, shared marketing efforts, division of work in maintenance, co-operation in flight and handling operations and perhaps joint sourcing activities, the assessment is much more complicated. In other words, on a route level the performance assessment is manageable but on a system-wide level it may be extremely difficult.

Performance assessment has to consider the company's internal factors, characteristics of partners and other external factors. Concerning partner characteristics, key factors that have a bearing on the success of an alliance include compatibility of management cultures; a recent evidence of this is the collapse of the Alitalia – KLM alliance, which was to be the mother of all airline alliances but apparently failed due to the very different styles in the management of the two airlines. Also such structural factors as the complementary fit of route networks and the commonality of aircraft fleet have an impact on the success of an alliance. Moreover, the customer segments that the partnering airlines primarily serve can affect the fit, performance and success of an alliance. Finally performance assessment is also contingent on the actions by authorities, concerning the limitations on alliances and the alternative ways to improve competitiveness or otherwise reach for the desired benefits, for instance, through mergers or acquisitions. To combine all these factors, a framework for alliance performance assessment from an individual member airline perspective is suggested in Figure 1.

Figure 1 International airline alliance performance assessment

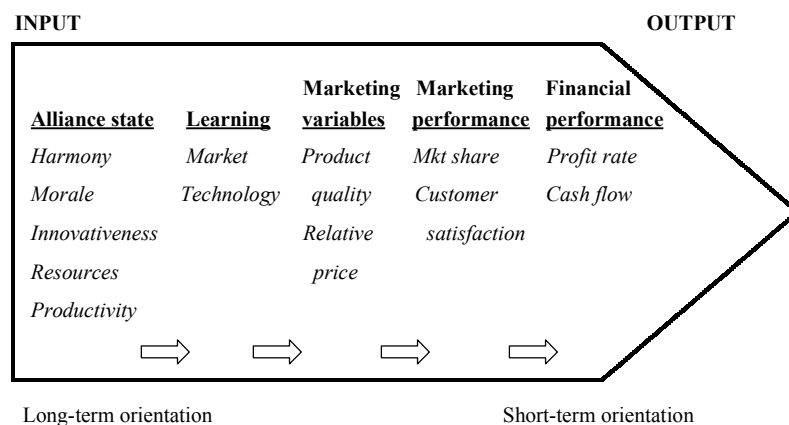


Performance assessment and time span

Dresdner Kleinwort Benson research (1999) has suggested that during the first couple of years, the benefits from an alliance are accrued almost solely from the enhanced revenues. In about seven years the share of benefits should be a 50:50 split between enhanced revenues and reduced costs, and from ten years into alliancing more than two-thirds of the benefits should be attained from the cost side. At the end of the day, alliance performance is assessed through profit rates and cash flow – of course, the ultimate goal of an alliance venture is to enhance or maximise these. However, if performance is monitored only by looking at these indicators the view is only partial and too short-termed. If the alliance is seen as a continuum of inputs and outputs, we can distinguish several variables that can be assessed for performance monitoring purposes (see Anderson 1990). At the input end there are such factors as financial resources, productivity and innovativeness of partners, and at the output end these factors are profit and cash flow. The performance should be assessed monitoring variables through the continuum, not only the factors at the output end. The output end

variables should measure short term performance, but the input end variables should communicate the condition of the alliance in order for the partners to produce high performance in the long term. Figure 2 illustrates this continuum of input and outputs.

Figure 2 Input-Output Continuum in Airline Alliances



Source: Adapted from Anderson (1990, 19-30)

Whether one should use more of the input or output end variables in the assessment of alliance performance depends on how well the results can be measured and how well the transformation process of inputs into outputs is understood; for instance, Saramaa (1998) has discussed this issue in detail. It would appear that airlines rely too much on measuring the operational indicators such as cost savings in a certain function, but suffer from the shortage of appropriate metrics for the assessment of the strategic value of an alliance arrangement. There is a need to develop suitable measures for the performance in terms of the “soft” input end or the mid-process variables, such as brand image or organisational learning and flexibility.

It is important to remember that survival of an alliance is not a goal in itself. In other words, alliances do not need to survive, they need to reach their objectives. Sometimes an alliance

can reach its objectives and serve its purpose in a short time and is no loss when dissolved. However, experience in the industry suggests that many alliances disintegrate prematurely. Research by Segil (1997) suggested that 55 per cent of alliances disintegrate within the first three years; interestingly, three airlines out of four attributed the failure to incompatibility of corporate cultures or personalities. A study by the Boston Consulting Group (1999) indicated that the overall survival rate for airline alliances between 1992-95 was 38 per cent, but between 1995-98 it was up to 68 per cent. Equity-based alliances have survived better than non-equity alliances, and domestic alliances better than regional or intercontinental alliances.

In the following, some experiences on performance implications, in the form of traffic and revenue enhancement, and cost reduction due to international alliancing are briefly presented - as reported by airlines themselves or by the industry and business press.

Alliance benefits through the enhancement of revenue

During the first years of alliances, the majority of benefits would appear to come from enhanced revenues. Indeed, in 1995 General Accounting Office of the USA already suggested that international alliances have generated large gains for the partners in terms of passengers and revenues. United Airlines' average number of passengers on its Chicago-Frankfurt (vv.) flights increased from 110 passengers to 212 passengers after linking with Lufthansa. For Lufthansa flights, the average boardings per flight rose from 134 to 186. It was suggested that these increases were owing wholly to capturing Frankfurt and Chicago beyond traffic, Chicago-Frankfurt O&D traffic remaining flat. Delta Air Lines reported in spring 2000 that as a result of its alliance agreements, some 2000 additional passengers are being fed onto its routes daily. In order not to forget the cargo's role, it is worthwhile noting that Morrell and Pilon (1999) studied the impact of passenger traffic alliance on the cargo service

characteristics, using KLM-Northwest alliance as a case. The study concluded that the connecting cargo services went up and cargo layover times were reduced significantly along the years of allied operations.

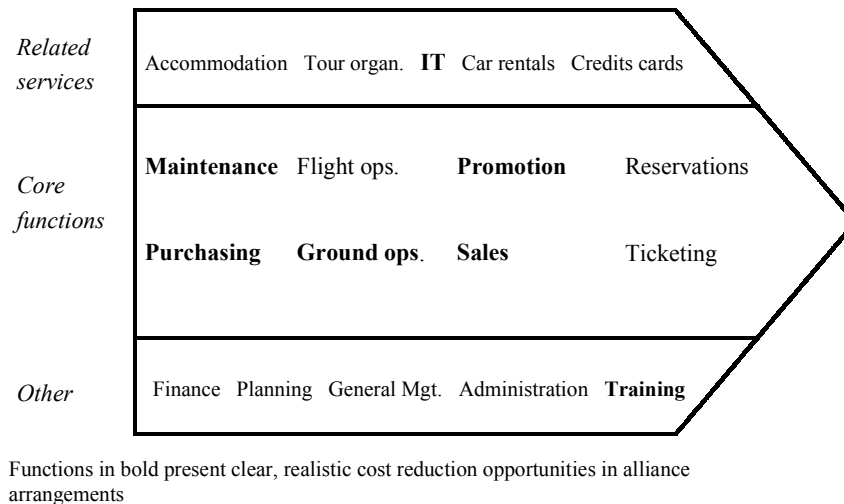
United Airlines executives expected the Star alliance to contribute an extra USD 200 million to revenues annually. SAS CEO Stenberg forecasted in 1997 that the Star Alliance would add some USD 250 million to the company's operating revenues within some three years. Air Canada has claimed that it is getting USD 270 million in additional revenues annually thanks to Star Alliance. Austrian Airlines has estimated that joining Star will produce a loss of some USD 7.5 million in the first year, but thereafter generate additional annual income of some USD 20 million. All Nippon Airways has estimated that it benefits some USD 100 million in additional revenues thanks to Star Alliance, a 5 per cent boost to international services revenue. It was estimated that Qantas enjoys a revenue increase of USD 25 million per year, owing to its codesharing agreement with British Airways. Delta Air Lines estimated in the spring 2000 that the Delta and Air France led alliance will bring Delta some USD 400 million in extra revenue in 2000.

Alliance benefits through cost reduction

One objective of alliances is to reduce costs, primarily through economies of scale or scope from joint operations. In addition, alliances may provide opportunities for individual members to use the alliance as means to internationalise cost structures, i.e., relocate some functions in lower cost countries. The extensive KLM-Alitalia venture was expected to reduce the combined annual operating costs of the partners by some USD 400 million. The key areas for cost reduction through alliances would appear to be labour, aircraft, material, ground equipment and property, and third-party service expenses. Based on past research (see e.g.

Seristö 1995) it is possible to suggest areas where performance improvement through cost reduction is most likely to occur. Figure 3 highlights areas of the airline business system that can offer clear cost reduction opportunities through alliancing.

Figure 3 Cost reduction opportunities in airline business system



Cost reduction potential is significant in the area of sourcing. For instance, it has been suggested that joint aircraft purchasing could produce discounts of some 10 per cent off the normal cost for the participating airlines. One of the early arrangements where these savings were reached - DSS World Sourcing AG established by Delta Air Lines, Singapore Airlines and Swissair in 1995 - started through the procurement of small items for cabin service and achieved marked cost savings from the very beginning. Joint sourcing of fuel, spare parts, information technology and eventually aircraft is likely to be part of alliance arrangements in the future. As to aircraft spare parts, there has long been pooling between carriers, but there appears to be room for further rationalisation of inventory. A significant cost item to airlines is payments for the use of Computer Reservation Systems (CRS). Even if airlines have vested interest in CRS providers through investments, it would seem likely that an alliance group could use its enhanced bargaining power towards CRS vendors to press for lower prices.

There is significant cost reduction potential through swapping flight crew and maintenance capacity with other alliance carriers. However, this might prove unrealistic and an arduous task due to the conservative attitude of the unions towards alliances. The emergence of Star Solidarity Alliance gives reason to believe that global co-operation between unions may increase in the future, making alliance-wide re-organising difficult. Past disputes concerning two-tier salary schemes and the use of outsourced pilots supports this argument rather strongly. So, task sharing appears realistic only in marketing, maintenance and ground operations. Route network rationalisation would result in savings in in-flight services, and joint bargaining mainly in maintenance and ground handling. Taking into account the expected and expressed opposition from the unions, and other factors that may make cost reduction nearly impossible, Figure 4 suggests areas of alliance activity where there is significant and realistic potential for cost reduction.

Figure 4 Cost reduction potential in international alliances

<u>Cost item</u>	<u>Alliance activity</u>		
	Task sharing	Route network rationalization	Joint bargaining
• Marketing	★	★	
• Passenger service		★	
• Aircraft crew		★	
• Engineering overheads	★		
• Direct engineering	★		★
• Station & ground	★	★	★

★ = there is significant, realistic cost reduction potential

Productivity implications of alliances

So far it has been almost impossible to find compelling evidence on the overall productivity effects of alliances. Even in the future it will be difficult to say which proportion of productivity improvement is actually from the alliances and which is owing to other factors. In 1998 Lufthansa and SAS projected productivity increases of 4-5 per cent thanks to the Star Alliance. This is perhaps a typical estimate of overall productivity improvement due to an extensive alliance. Airlines are rather reluctant to talk about labour restructuring following alliances, perhaps due to union opposition. Estimates on labour force reduction effect of alliances range widely; some say there will only be insignificant effect, others have forecasted at least 30 per cent decrease in the world wide airline workforce due to alliancing.

When pursuing higher labour productivity through shared operations, a major challenge is personnel loyalty. When everything runs according to schedule, let us say in ground handling or line maintenance, shared operations may work fine and every airline is treated equally. However, if for some reason there is an overload of work, employees will need to decide on either which carrier to serve first or whether they can cut compromise quality. In the first case it is likely that loyalty towards the company takes precedence, therefore it is one's own carrier that is handled or serviced first, leaving the partner carrier at the bottom of the priority list. In the latter case, both carriers may suffer if employees decide to opt for lower quality in order to simultaneously serve both airlines as scheduled. The question remains, what the overall performance implications of shared operations in the alliance are.

Fleet structure rationalisation may be possible within alliances, providing for an opportunity to reach higher aircraft productivity. Fleet rationalisation typically requires changes in the route structures; this might mean, for instance, that a smaller partner concentrates on

operating within a continent, gives up intercontinental traffic and thus has a chance to dispose of its wide-body fleet. However, estimating aircraft productivity improvement in monetary terms is very difficult. Guidance can be sought in past research, which has suggested that if a medium-sized European carrier can reduce the number of aircraft types in the fleet from five to two, this reduction would offer cost reduction similar to a 6-7 per cent cut in employee salaries or an increase of 1.3 percentage points in load factors. (Seristö, 1995, 201) However, the final, long-term distribution of benefits among the alliance members is by no means straight-forward.

Conclusions

This paper has discussed the important issues and points of view in assessing the performance implications of international alliances between airlines, with emphasis on strategic alliances rather than on simple co-operative arrangements. Also, this paper has focused on the benefit side of performance assessment, and left the cost side with little attention; this has appeared justified as the airlines are in practice more interested in the benefits of alliancing, and apparently will worry about the costs later. The paper, however, does not suggest that the costs of participating in alliancing are unimportant – quite the contrary.

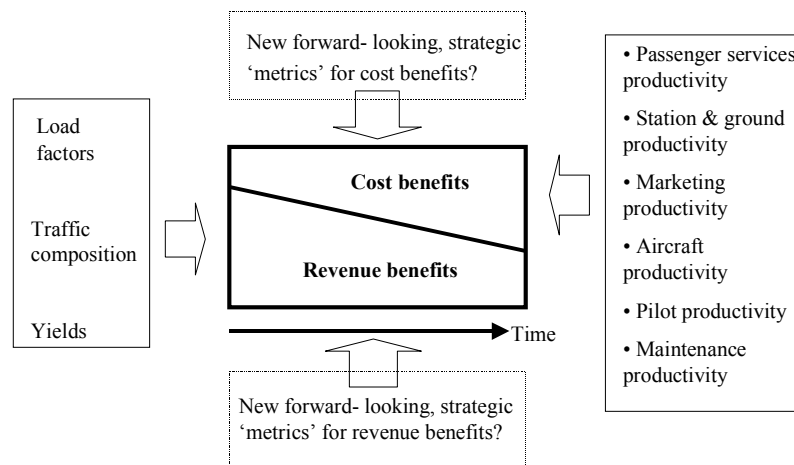
The paper has suggested frameworks that could be used in tackling the performance assesment challenge. The international dimension of alliances, as most alliances are between airlines from different countries, has not been emphasised but taken as a premise. However, the international dimension as such brings certain complications to the performance assesment: legislation and policies concerning accounting practices vary from country to

country, labour unions have different roles and power in different countries, labour costs vary significantly from one country to another, companies and their top management have different views on the required performance and efficiency in different countries, in some countries airlines have a government-controlled history whereas in other countries airlines have always been private or publicly listed, airlines' image is very closely tied to their home country image, and so on. These are some of the factors that deserve a closer look in the future studies of the topic.

Through alliances, airlines aim at improving their financial performance. Along with enhanced revenues and better productivity, the profitability of airlines in an alliance is expected to rise. But it is very difficult to find evidence on the cause-and-effect relationship between a particular form of co-operation in an alliance and its profit improvement. It is even more difficult to put any figures on profit improvement through a particular measure or function in an alliance. What makes this assessment difficult is the fact that airlines are now experiencing mostly revenue-related improvements in profitability, and the cost-related benefits are only gradually showing. At this early stage of development in alliances, the best source of information may be the estimates given by airlines.

Building on past research of airline productivity and performance we can propose a framework for assessing the overall benefits of alliances, including the cost and revenue impacts (Figure 5). As this framework presents the accrued benefits, one must again remember that performance assessment must take into account all the alliance related costs, too. These costs include direct investments in new information systems and equipment, but more important is the time that the company management spends on alliance issues, and this should be duly allocated to the cost side of alliance assessment.

Figure 5 Alliance benefit framework for performance assessment



The framework includes some conventional operative airline performance criteria, i.e. productivity measures. As to developing alliance performance assessment, the biggest challenge for future research, and for airlines and financiers too, appears to be in developing ways of measurement, or 'metrics', that can be used in assessing the performance implications of alliances. Particularly difficult is the assessment of the forward-looking, strategic variables and their value in alliances. Further, if one includes inherent risks of alliances in the analysis and tries to give them some sort of a quantified value, developing appropriate metrics becomes a mighty task, indeed. Overall it seems that analysing the performance, and the eventual financial impact of alliances for airlines, may prove significantly more complicated than in the case of alliances in most manufacturing industries. Taking into account the international dimension and the differences between airlines from different parts of the world, the development of these metrics seems even more challenging.

List of references

- Anand, B. and Khanna, T. 2000. Do firms learn to create value? The case of alliances. *Strategic Management Journal*, 21 (3), 295-316.
- Anderson, E. 1990. 'Two Firms, One Frontier: on Assessing Joint Venture Performance', *Sloan Management Review*, vol. 31, no. 2, pp. 19-30.
- Atkinson, A., Fleenor, C. and Toh, R. 1997. 'A Stakeholder Approach to Strategic Performance Measurement', *Sloan Management Review*, vol. 38, no. 3, pp. 25-37.
- Bartlett, A. & S. Ghoshal. 1995. Transnational Management - texts, cases, and readings in cross-border management. 2nd edition. Irwin, Chicago.
- Baum, J., Calabrese, T. and Silverman, B. 2000. Don't go it alone: Alliance network composition and startup's performance in Canadian biotechnology. *Strategic Management Journal*, 21 (3), 267-294.
- Bissessur, A. 1996. The identification and analysis of the Critical Success Factors of strategic airline alliances. Unpublished PhD dissertation, Cranfield University, Bedford, UK.
- Borys, B. & D. Jemison. 1989. Hybrid arrangements as strategic alliances: theoretical issues in organisational combinations. *Academy of Management Review*, 14:2, pp. 234-249.
- Boston Consulting Group. 1999. In an article in *Avmark Aviation Economist*, May 1999.
- Brouthers, K., L. Brouthers & T. Wilkinson. 1995. Strategic alliances: choose your alliances. *Long Range Planning*, Vol. 28, no. 3, pp. 18-25.
- Bruning. 1991. 'Operating Efficiency in International Airline Industry', *International Journal of Transport Economics*, October 1991.
- Burgers, W., C. Hill & W. Kim. 1993. A theory of global strategic alliances: the case of the global auto industry. *Strategic Management Journal*, vol. 14, no. 6, pp. 419-432.
- Button, K. 1997. International Air Safety in a World of Alliances. Conference Proceedings of the 1997 Air Transport Research Group of the WCTR Society, vol. 3, no. 1. University of Nebraska at Omaha.
- Chan, S., J. Kensinger, A. Keown & J. Martin. 1997. Do strategic alliances really create value? *Journal of Financial Economics*, vol. 46, pp. 199-221.
- Child, J. and Faulkner, D. 1998. Strategies of Cooperation. Managing Alliances, Networks, and Joint Ventures. Oxford: Oxford University Press.
- Contractor, F. & S. Kundu. 1998. Modal choice in a world of alliances: analyzing organisational forms in the international hotel sector. *Journal of International Business Studies*, vol. 29, no. 2, pp. 325-358.
- Contractor, F. & P. Lorange, editors. 1988. *Co-operative strategies and international business*. Lexington, Mass: Lexington Books.

- Das, S., P. Sen & S. Sengupta. 1998. Impact of strategic alliances on firm valuation. *Academy of Management Journal*, vol. 41, no.1, pp. 27-41.
- Doz, Y. 1996. The evolution of co-operation in strategic alliances: initial conditions or learning processes? *Strategic Management Journal*, special issue 17, summer 1996, pp. 55-84.
- Doz, Y. & G. Hamel. 1998. *Alliance Advantage: the Art of Creating Value through Partnering*. Boston: Harvard Business School Press.
- Doz, Y., Olk, P. and Ring, P. 2000. Formation processes of R&D consortia: Which path to take? Where does it lead? *Strategic Management Journal*, 21 (3), 239-266.
- Dresdner Kleinwort Benson. 1999. Air Transport World, February 1999.
- Dussauge, P. & B. Garrette. 1995. Determinants of success in international strategic alliances: evidence from the global aerospace industry. *Journal of International Business*, 26:3, pp. 505-530.
- Eisenhardt, K. & C. Schoonhoven. 1996. Resource-based view of strategic alliance formation: strategic and social effects in entrepreneurial firms. *Organization Science*, vol. 7, no. 2, pp. 136-150.
- Glaister, K. & P. Buckley. 1998. Measures of performance in UK international alliances. *Organization Studies*, vol. 19, nr. 1, pp. 89-118.
- Gulati, R. 1995. Does familiarity breed trust? The implications of repeated ties for contractual choice in alliances. *Academy of Management Journal*, 38, pp. 85-112.
- Hamel, G., Y. Doz & C. Prahalad. 1989. Collaborate with your competitors - and win. *Harvard Business Review*, 67, pp. 133-139.
- Harrigan, K. 1986. Joint Ventures: Linking for a leap forward. *Planning Review*, Vol 14:4, pp. 10-14.
- Inkpen, A. 1998. Learning, Knowledge Acquisition, and Strategic Alliances. *European Management Journal*, 16(2), April 1998, 223-229.
- Kale, P., Singh, H. and Perlmutter, H. 2000. Learning and Protection of Proprietary Assets in Strategic Alliances: Building Relational Capital. *Strategic Management Journal*, 21 (3), 217-237.
- Khanna, T., R. Gulati & N. Nohria. 1998. The dynamics of learning alliances: competition, cooperation and relative scope. *Strategic Management Journal*, vol. 19, no. 3, pp. 193-210.
- Killing, J. 1988. Understanding alliances: the role of task and organisational complexity. In Contractor, F. and P. Lorange (eds.), *Co-operative strategies and international business*, pp. 55-67, Lexington Books, Lexington, Mass.
- Kogut, B. 1988. Joint Ventures: Theoretical and empirical perspectives. *Strategic Management Journal*, Vol. 9:4, pp. 319-332.
- Lei, D. and Slocum, J. 1992. Global Strategy, Competence-Building and Strategic Alliances. *California Management Review*, 35(1), 81-91.
- Lei, D., Slocum, J. and Pitts, R. 1997. Building Cooperative Advantage: Managing Strategic Alliances to Promote Organizational Learning. *Journal of World Business*, 32(3), 203-223.

- Madhavan, R., B. Koka & J. E. Prescott. 1998. Networks in transition: How industry events (re)shape interfirm relationships. *Strategic Management Journal*, vol 19, pp. 439-459.
- Morrell, P. and Pilon, R. 1999, 'KLM and Northwest: a Survey of the Impact of a Passenger Alliance on Cargo Service Characteristics', *Journal of Air Transport Management*, no. 5, pp. 153-160.
- Nyathi, M. 1996. Strategic Alliance Partner Choice in International Aviation. Doctoral Dissertation, Institute of Transport Studies, Graduate School of Business, The University of Sydney.
- Ohmae, K. 1989. The Global Logic of Strategic Alliances. *Harvard Business Review*, March/April 1989.
- Osborn, R. & C. Baughn. 1990. Forms of interorganizational governance for multinational alliances. *Academy of Management Journal*, 33, pp. 503-519.
- Osborn, R. & J. Hagedoorn. 1997. The institutionalization and evolutionary dynamics of interorganizational alliances and networks. *Academy of Management Journal*, vol. 40, no. 2, pp. 261-278.
- Oum, T., J. Park & A. Zhang. 1996. The Effect of Airline Codesharing Agreements on Firm Conduct and International Air Fares. *Journal of Transport Economics and Policy*, May 1996, pp. 187-202.
- Oum, T., A. Taylor & A. Zhang. 1993. Strategic Airline Policy in the Globalizing Airline Networks. *Transportation Journal*, Spring 1993.
- Oum, T., Tretheway, M. and Waters, W. 1992. 'Concepts, Methods and Purposes of Productivity Measurement in Transportation', *Transportation Research*, no. 6(1992).
- Park, J. & A. Zhang. 1997. Effects of intercontinental alliances: cases in the North Atlantic market. Conference Proceedings of the 1997 Air Transport Research Group of the WCTR Society, vol. 3, no. 1. University of Nebraska at Omaha.
- Park, J. & A. Zhang. 1998. Strategic alliance and firm value: a case study of the British Airways / USAir alliance. Paper presented at the 1998 Air Transport Research Group of the WCTR Society Conference, Dublin, Ireland.
- Park, N. & D. Cho. 1997. The effect of strategic alliance on performance: a study of international airline performance. Conference Proceedings of the 1997 Air Transport Research Group of the WCTR Society, vol. 1, nr. 1. University of Nebraska at Omaha.
- Parkhe, A. 1993a. Partner nationality and the structure-performance relationship in strategic alliances. *Organization Science*, vol. 4, no. 2, pp. 301-324.
- Parkhe, A. 1993b. Strategic alliance structuring: a game theoretic and transaction cost examination of interfirm cooperation. *Academy of Management Journal*, 36:4, pp. 794-829.
- Ring, P. and Van de Ven, A. 1994. Developmental Processes of Co-operative Interorganizational Relationships. *Academy of Management Review*, Vol. 19 No. 1, pp. 90-118.
- Saramaa, T. 1998. *Strategic Alliance Performance Measurement*, Helsinki School of Economics and Business Administration Press, Helsinki.

- Schefczyk, M. 1993. 'Operational Performance of Airlines: an Extension of Traditional Measurement Paradigms', *Strategic Management Journal*, vol. 14, pp. 301-317.
- Segil. 1997. in an article in *Aviation Week & Space Technology*, November 17th, 1997.
- Seristö, H. 1995. *Airline Performance and Costs: an Analysis of Performance Measurement and Cost Reduction in Major Airlines*, Helsinki School of Economics Press, Helsinki.
- Sheth, J. & A. Parvatiyar. 1992. Towards a theory of business alliance formation. *Scandinavian International Business Review*, vol. 1, no. 3, pp. 71-87.
- Singh, K. & K. Mitchell. 1996. Precarious collaboration: business survival after partners shut down or form new partnerships. *Strategic Management Journal*, vol. 17, Evolutionary Perspectives on Strategy Supplement, pp. 99-115.
- Windle, R. and Dresner, M. 1992. 'Partial Productivity Measures and Total Factor Productivity in the Air Transport Industry: Limitations and Uses', *Transportation Research*, no. 6.
- Youssef, W. 1992. Causes and effects of international airline equity alliances. PhD dissertation, series UCB-ITS-DS-92-1, Institute of Transportation Studies, University of California, Berkeley.

Appendix 1

Airline annual reports analysed for the study

Air Canada
Air France
American Airlines
British Airways
Canadian Airlines (PWA Corp.)
Delta Air Lines
Finnair
Iberia
KLM
Lufthansa
Qantas Airways
SAS
Swissair
Thai Airways International
United Airlines

Key Sources of Information

Air Transport Intelligence Online News Service (<http://www.rati.com>)
Air Transport World
Airfinance Journal
Airline Business
Airwise Online News Service (<http://news.airwise.com>)
Asian Business
Aviation Week & Space Technology
Brandweek
Business Week
The Economist
Financial Times
Flight International
Forbes
Marketing
Marketing Week
Pointcast and Entrypoint online news services (<http://www.entripoint.com>)
Transportation and Distribution