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Author post-print (accepted) deposited by Coventry University's Repository

Original citation & hyperlink:

Pearson, J. , Pitfield, D. and Ryley, T. (2015) Intangible resources of competitive advantage: Analysis of 49 Asian airlines across three business models. *Journal of Air Transport Management*, volume 47 : 179-189

<http://dx.doi.org/10.1016/j.jairtraman.2015.06.002>

DOI 10.1016/j.jairtraman.2015.06.002

ISSN 0969-6997

Publisher: Elsevier

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Intangible resources of competitive advantage: Analysis of 49 Asian airlines across three business models

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Abstract:

Without sustainable competitive advantage firms have limited economic reasons to exist and will decline. Competitive advantage concerns the factors which provide competitive strength. This paper is based upon the resource-based view which considers firm resources to be heterogeneous and which believes that firms only have a small bundle of core resources irrespective of their overall performance. This research establishes the role of 36 intangible resources for 49 Asian airlines across three business models: network airlines; low-cost subsidiaries from network airlines; and low-cost carriers. It uses the VRIN framework, which examines whether resources are valuable, rare, inimitable, and non-substitutable. Research participants distribute points between their chosen seven resources according to their perceived role in firm performance. Resources which meet all four requirements of VRIN are considered core competences and sources of sustained advantage. Across all 49 Asian airlines, the top-three most important resources of advantage are slots, brand, and product/service reputation. While these core resources are predictable, they have not previously been proven within the context of airlines, let alone geographically and by airline model. Results show that the core bundle of resources vary for each model, which helps to explain the difference in performance across models, and that some resources which were expected to be high-ranking, such as organisational culture and customer focus, were not.

Keywords: Competitive advantage, resources, Asia, network airlines, low-cost subsidiaries, low-cost carriers

1. Introduction

In its 20-year forecast to 2034, IATA expects that worldwide passenger numbers will reach 7.3 billion, up from 3.3 billion in 2014 (IATA, 2014). IATA forecasts that by 2034 routes to, from, and within Asia-Pacific will carry 42% of all world traffic, with a mean annual growth rate of 4.9%, the joint-highest worldwide. Asia is increasingly at the forefront of world aviation, with Airbus (2011) suggesting that while Asia's proportion of world revenue passenger kilometres (RPKs) will grow to 34% by 2031, North America's will reduce from 27% to 24% and Europe's from 27% to 20%.

The dramatic growth in air travel to, from, and within Asia is the consequence of the central role played by air transport in tourism, mobility, and hypermobility, but, fundamentally, the by-products of economic growth, especially price, price elasticity, and income elasticity. Given the considerable number of less economically developed countries within South and Southeast Asia, and that air traffic growth is significant when large

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segments of population reach middle income (Pilarski, 2007), it is not surprising that Asia is growing so dramatically.

Traffic growth within Asia over the past decade has partially been because of the rise of low-cost carriers (LCCs), which in 2014 represented 25.7% of seats within Asia – virtually identical to the 25.9% worldwide (CAPA, 2015). This rises to 57% for Southeast Asia and 56% for South Asia (CAPA, 2015). The increased competitiveness within Asia, which will increase further following ASEAN open skies scheduled for 2015, has resulted in often significant challenges for the continent's many network airlines – and these threats are growing (Tan, 2014; Fu and Oum, 2014). Asia's network airlines have responded to LCCs in multiple ways, including – more than any other continent – in the growing use of low-cost subsidiaries, or airlines-within-airlines (see, for example, Pearson and Merkert, 2014).

It is fundamental for network airlines, their low-cost subsidiaries, and LCCs to compete effectively as this will determine their likely success or failure. Indeed, firms should have a competitive strategy that is founded upon and that leverages competitive advantage (Holloway, 2008). This is particularly vital within competitive markets, and firms – irrespective of size, location, and industry – often face an overwhelming competitive situation. Yet firms may be less likely to explicitly seek competitive advantage as competition increases from a preoccupation with more pressing matters, particularly survival.

The need for competitive advantage is heightened because it does not persist ceaselessly and so must be renewed. Barney (1991) suggested that in the future competitive advantage will become an even stronger source of a firm's strength, hence the growing need for managers, especially from firms within highly volatile markets, exemplified by the airline industry, to develop tools to effectively analyse the internal and external environments to identify the sources that create competitive advantage. This is because sustainable competitive advantage may depend upon the equilibrium between a firm's internal resources and capabilities, and the changing circumstances of its external environment (Hofer and Schendel, 1978). Thus, and given Low et al (2014) showed that intangible resources are the most important of all resources partly from being less replicable, this paper seeks to identify which intangible resources are more and less important for competitive advantage for Asia's airlines, while examining how resources vary in importance for Asia's network airlines, low-cost subsidiaries, and LCCs.

2. Existing literature

Two schools of thought try to explain the source of competitive advantage for firms: the market-based view of the firm (MBV) and the resource-based view of the firm (RBV).

In terms of the MBV, every firm operates within a multi-layered and far-reaching environment, with the external environment often changeable, complex, and uncertain (Wharton School, 1997). While such changes may not be within the control of the firm's managers, they may impact firm performance, growth, and decision-making ability, hence the imperativeness of thorough analysis of the external environment to formulate and reformulate strategy and to achieve the firm's objectives (Barney, 1997; Wit and Meyer, 1998; Grant, 2008; Henry, 2008). The MBV concerns the external environment within which firms exist, and it concerns factors which may influence competition and pricing, such as market structure and market power; the four competitive forces (threat of new entry, threat of substitutes, bargaining power of buyers, and bargaining power of suppliers) affecting competitive rivalry and market attractiveness; and political, economic, social, technological, environmental, and legal considerations. Under the MBV, all firms are considered effectively homogeneous in terms of possessed resources and capabilities (Gilbert, 2010), with firm heterogeneity unable to be sustained in the longer-term. This is because of the inherent mobility of resources, and firms within the same industry receive broadly similar information hence often virtually identical, or 'us-too', strategies (Porter, 1980). As such, competitive advantage cannot be attained.

Clearly, the changeable external environment within which firms exist will greatly influence a firm's strategy, competitive advantage, and likelihood of survival. Yet many now consider the MBV of the firm to be less significant for competitive advantage than the RBV, despite that this may mean a firm is too inward-looking and unaware of what is happening around it. Irrespective, the MBV and the RBV are both crucial; after all, a firm may not possess the required resources and capabilities to compete in its chosen position and the ever-changing external environment may determine what must be done, or changed, internally. Hence "the need to connect the competitive ends (a firm's position in the marketplace) and means (what elements allow it to attain that position) is not just crucial but essential" (Barney and Hesterly, 2008, p.xvi).

The RBV is premised upon the desired consequence of managerial effort being the attainment of sustainable competitive advantage and, therefore, the achievement of above-average returns vis-à-vis industry and key competitors. This is achieved by the "superior

organisational resources and capabilities to modify the industry's structure or change the competitive game" (Barney, 1991; Prahalad and Hamel, 1990), thereby effectively utilising internal resources to outperform competition and to create sustainable competitive advantage. But resources and capabilities should also prevent losses.

Above-average firm performance does not materialise from the accumulation of potentially rent-generating resources (Hitt et al, 2014), and it does not simply concern unique bundles of resources. Instead, it necessitates more effectively using the available resources, and it requires management leadership that is creative, imaginative, entrepreneurial, and with a long-term investment in resources (Conner, 1991). Inherent in this is resource selection, with the selection and deployment of resources coexisting with strategic industry factors, particularly supplier power, competitive intensity, and industry and product market structure (Oliver, 1997), which together influence rent-generating potential. Amit and Schoemaker (1993) insist that "the challenge for managers is to identify, develop, protect, and deploy resources and capabilities in a way that provides a firm with a sustainable competitive advantage and thereby superior return on capital."

Greater profitability may be achieved either through maximising resource productivity or from deploying resources in a more profitable manner. Yet resources are not in themselves valuable or productive but rather enable a firm to perform particular activities within specific markets. Indeed, competitive advantage does not materialise from the final product or offered service but from the resources that produced them, although competitive advantage will not be sustainable unless the firm uses its resources "to enable it to produce efficiently and/or effectively a market offering that has value for some market segment or segments" (Hunt and Moran, 1995, p.6). Achieved through organisational capabilities, this indicates that firms must continually deliver customer value, hence the intrinsic role of resources in developing value-creating strategies (Porter, 1980; Barney, 1991). Indeed, the RBV suggests that managers may obtain greater advantage by "combining, developing, and utilising resources to create more valuable results than competitors" (Conner, 1991). As such, resources are merely inputs to the production process and the intermediate link between activities and advantage (Grant, 1991).

Resources are commonly categorised into three sub-groups: tangible assets; intangible assets; and capabilities.

Tangible resources are physical assets, such as property, vehicles, and machinery, that have a fixed long-term capacity and are comparatively easy to measure. However, tangible assets are unlikely to be sources of sustainable competitive advantage because they are easy

to duplicate and are therefore relatively imitable, substitutable, and mobile. In contrast, intangible resources are deemed the most important strategically (see, for example, Barney, 1991; Carmeli, 2001; Hall, 1992, 1993; Itami and Roehl, 1987; Michalisin et al, 1997). Intangible resources are based upon knowledge or information, for example organisational culture, product reputation, and a firm's brand. The capacities of intangible assets are unlimited, and the value of them may be exploited by renting them (such as licences or patents) or selling them (for example, brands).

A variety of intangible resources have been found to impact firm performance, notably tacit knowledge (Berman et al., 2002); customer relationships (Gouthier and Schmid, 2003); firm reputation and organisational culture (Hall, 1992; Michalisin et al., 1997); product reputation (Hall, 1992); cooperative capabilities (Tyler, 2001); human capital and employee knowhow (Hitt et al., 2001); and information technology (Powell and Dent-Michallef, 1997). Hall (1993) also found that the perception of quality, the ability to manage change, the ability to innovate, and the ability to work effectively within a team all contributed to firm performance.

Whether resources provide sustainable competitive advantage depends upon the type and nature of the resource, the capabilities a firm has, how these have been amassed, and how they are used. Resources provide the potential for competitive advantage but sustainable competitive advantage necessitates that resources must be scarce, unique, non-tradable, inimitable, durable, idiosyncratic, and non-substitutable (Rumelt, 1984; Barney, 1991; Mahoney and Pandian, 1992; Peteraf, 1993; and Amit and Schoemaker, 1993). An effective way to understand the sustainability of competitive advantage is offered by the VRIN framework. This comprises resources that have *value*, where resources must provide value or counteract threats posed by competitors; are *rare*, so the resources cannot be obtained and utilised by a number of competitors; *imperfectly imitable* (or nowadays *hard to imitate*), so they cannot be duplicated by competitors; and must *not have substitutes* (or nowadays be *hard to substitute*), for instance that the resources cannot be easily imitated or commonly used by competitors² (Henkel et al, 2014). Cao et al (2014) found that firms that use resources meeting the full requirements of the VRIN framework are more likely to attain a sustainable competitive advantage. Furthermore, Barney (1991) showed that such resources

² The requirement of not having substitutes is similar to resources being imperfectly imitable. As such, Barney (1997), in response to criticism from Black and Boal (1994), replaced not having substitutes with organisational process, with the VRIN becoming VRIO. However, this is seldom used in practice.

deemed core competencies and adherence to the framework explains the performance differences among firms. This can be seen within Table 1.

Table 1: Estimating the level of mean firm performance in an industry

Are the resources:						
Valuable?	Rare?	Hard to imitate?	Hard to Substitute?	Exploited by firm?	Competitive Implications	Likely firm performance
No	No	No	No	No	Competitive disadvantage	Below-average
Yes	No	No	No	Yes	Competitive parity	Average
Yes	Yes	No	No	Yes	Temporary advantage	Above-average
Yes	Yes	Yes	Yes	Yes	Sustained advantage	Consistently above-average

Source: Peng (2008).

Carmeli (2001) recognised that, irrespective of a firm’s performance, it will have only a small bundle of core resources, often five to seven.

3. Methodology

This research determines the core resources for network airlines, their low-cost subsidiaries, and LCCs within Asia. This will not only establish core resources for Asian airlines generally, but also core resources for clusters arranged by type of model.

This paper is structured as follows. This section provides a comprehensive overview of the methodology used, while the results are then presented and discussed in section 4. Section 5 outlines the concluding remarks.

Despite its importance, defining the ‘core resources’ of a firm is a complicated task. Hoskisson et al (1999, p.442) suggested that this is “because the RBV emphasises the idiosyncratic nature of a firm’s resources and capabilities, empirical testing of the resource-based theory faces great challenges.” Yet the identification of intangible resources is crucial to determine what drives firm advantage and performance, and this is no different for airlines. As such, the ranking of resources is a fundamental requirement and commonplace method (Hall, 1992). However, the ranking of resources has traditionally been limited because of utilising the ordinal ranking system (Robinson, 2008), for it produces a ranking which are insufficiently distinguished. This therefore provides limited information between resources. As such, Carmeli (2001) used the interval rating technique which Collis and Montgomery (1995) determined as “allowing the superiority of resources to be analysed more accurately.” It is for this reason that this research into interval resources also utilises the internal rating technique.

The starting point of this analysis was the collection of data using an Excel file which was sent to participants along with a link to a questionnaire. This formed part of broader research into the competitive advantage and competitive responses of Asian airlines. Senior management in strategy, finance, and business development at 49 Asian airlines across three business models (22 network airlines, 11 low-cost subsidiaries from network airlines, and 16 LCCs) from three sub-regions of Asia (South, Southeast, and Northeast) participated in this research. These airlines can be seen in Table 2. Those who participated were primarily contacted via the professional social networking site LinkedIn, and later asked to participate.

The nature of this research necessitated a large sample of airlines from each of the three airline models in question. It is important to note that 49 airlines represent the overwhelming majority of network airlines, low-cost subsidiaries, and LCCs in the three main sub-regions of Asia, and that the vast majority of the most important are included. The three primary exceptions were Singapore Airlines, China Southern, and Japan Airlines.

Table 2: List of sampled airlines

Country	Network airlines	Low-cost subsidiaries	LCCs
India	Air India	Air India Express	IndiGo
	Jet Airways		SpiceJet
			Go Air
Sri Lanka	SriLankan Airlines	Mihin Lanka	-
Myanmar	Myanmar Airlines (MAI)	-	Golden Myanmar
Vietnam	Vietnam Airlines	Jetstar Pacific	VietJet
Thailand	Thai Airways	Nok Air	Thai AirAsia
Malaysia	Malaysia Airlines	-	Malaysia AirAsia
Singapore	SilkAir	Tigerair	-
		Jetstar Asia	
Indonesia	Garuda Indonesia	Citilink	Lion Air
			Indonesia AirAsia
Brunei	Royal Brunei	-	-
Philippines	Philippine Airlines	-	Cebu Pacific
			Tigerair Philippines
Macau	Air Macau	-	-
Hong Kong	Cathay Pacific		-
	Hong Kong Airlines	Hong Kong Express	
	Dragonair		
Taiwan	China Airlines	-	-
	EVA Air		
China	Air China	-	Spring Airlines
	China Eastern		
	Hainan		
South Korea	Korean Air	Air Busan	Jeju Air
		Jin Air	Eastar
			T'way
Japan	All Nippon	Peach	Skymark
Totals	22	11	16

Participants were given an alphabetically ordered list of 36 intangible resources. These resources were a combination of those generic to all firms (see, for example, Aaker, 1989; Carmeli, 2001; Hall, 1992, 1993; Fernandez et al (2000); Itami and Roehl, 1987; Robinson, 2008) and those specific to airlines. The list of resources is shown within Table 3.

Table 3: Resources used in this research

Ability to learn	Organisational communication
Ability to raise funds	Organisational culture
Aircraft leases	Organising
Bilateral air service agreements/traffic rights	Product/service reputation
Brand	Quality standards/professionalism
Business environment	Relationships with employees/suppliers
Customer focus	Relationships with local/national governments
Databases/information systems	Research and development (R&D)
Decision-making capabilities	Slots
Distribution system	Stable leadership
Entrepreneurial capabilities	Strategic goals/planning
Financial stability	Strategic partners
Intellectual property (trademarks, copyrights, patents, etc.)	Supply contracts
Knowhow	Teamwork
Legal knowledge	Technical experience
Managerial competence/experience	Trained/experienced workforce
Managing principles/corporate governance	Training programmes
Marketing/promotional activities/strategies	Trustworthiness/dependability

From these 36 resources, the participants were initially asked to choose up to seven resources that are possessed and valued by their airline and then to distribute 203 points between them based upon the value of each selected resource to their firm's performance. Per Carmeli (2001), the number of points to allocate among resources (203) was calculated by the number of resources (36) minus seven multiplied by seven (the number of resources to be selected). Seven is used because of the interval weighting technique which rates attributes from one to seven. It is this allocation of points between resources that conforms to the interval rating technique as opposed to respondents stating a score of one to seven for each resource per the ordinal rating technique. For example, organisational communication and organisational reputation are two commonplace intangible resources. If it was perceived that reputation was more valuable than communication, it would, when using ordinal ranking technique, receive a score of one and communication two. However, reputation may, when using the interval ranking technique, receive 46 points, while communication may receive 29 points. The relative difference between the two can then be identified.

The respondents were asked to select and to score the resources per the provided instructions. They had to distribute 203 points among the seven chosen resources based upon their value; 203 for their rareness; 203 for their inimitability; and 203 for their substitutability. While valuable resources required more than zero points, zero points could be allocated for the rarity, inimitability, and substitutability aspects of VRIN. For example, the ability to learn could receive a large number of points by a participant for being a highly valuable resource yet it could receive zero points for not being rare. Thus, a resource could receive a high or low score for value (note that a high score is required if it is to be deemed strategic) and a high, low, or zero score for rareness, inimitability, and substitutability. Those resources that meet all four requirements of VRIN are deemed strategic assets or core competencies because they are sustainable internal sources of competitive advantage.

4. Results of intangible resources as internal sources of competitive advantage

The overall rankings of each of the 36 intangible resources as sources of competitive advantage for network airlines, low-cost subsidiaries, and LCCs combined can be seen in Table 4. This is based upon the accumulated scores for each element of VRIN across all three business models. Table 4 therefore represents the rankings of intangible resources for all surveyed 49 airlines across Asia, and the rankings of resources for Asian airlines generally. That the resources in Table 4 (see Total \bar{x} scores) are ranked by their importance as sources of advantage means that resources which had fewer or even zero points are simply less important in this context. Despite this, it could be that they are still important for an airline in different respects.

Table 4: Overall rankings of the 36 intangible resources for Asian airlines as sources of competitive advantage

Ranking ³	Resource / airline model	INTANGIBLE RESOURCES WHICH ARE...																
		Valuable			\bar{x}	Rare			\bar{x}	Hard to copy			\bar{x}	Hard to substitute			\bar{x}	Total \bar{x} scores ⁴
		NA	LCS	LCC		NA	LCS	LCC		NA	LCS	LCC		NA	LCS	LCC		
1	Slots	16.1	21.6	30.6	22.3	18.6	27.3	29.9	24.4	20.7	23.1	28.1	23.2	20.5	20.6	32.3	24.6	94.5
2	Brand	21.5	14.3	21.7	20.0	19.5	15.5	24.0	20.1	32.9	22.5	24.7	27.9	24.0	22.8	22.2	23.1	91.1
3	Product/service reputation	26.4	10.2	7.4	16.4	36.0	9.6	7.5	20.3	17.0	6.7	5.4	10.9	28.6	8.5	8.5	17.0	64.6
4	Managerial competence/experience	12.0	14.5	17.5	14.5	17.7	19.8	19.7	18.9	9.8	16.4	20.0	15.3	9.9	19.1	17.4	14.5	63.2
5	Strategy and strategic goals/planning	15.5	17.0	13.4	15.1	15.4	15.8	12.4	14.5	13.4	13.3	15.3	13.8	13.7	12.3	12.3	12.9	56.3
6	Marketing/promotional activities/strategies	15.5	7.3	17.1	14.2	9.8	6.4	16.4	11.3	17.4	7.3	15.6	14.1	14.8	5.5	16.0	13.1	52.7
7	Bilaterals/traffic rights	10.0	11.8	14.8	10.5	12.3	17.1	14.7	14.2	12.3	18.2	11.5	11.8	8.6	11.5	9.9	9.7	46.2
8	Ability to raise funds	12.7	7.3	8.0	9.9	7.5	4.5	7.6	6.9	6.5	4.9	8.6	7.0	8.5	5.5	9.4	8.1	31.9
9	Relationships with local/national governments	11.4	4.5	2.4	6.8	10.5	6.8	3.3	7.2	13.7	2.7	3.3	8.2	13.4	4.5	6.5	9.1	31.3
10	Ability to learn	9.5	7.3	7.6	8.4	8.2	1.8	4.7	5.6	16.3	1.8	5.9	10.1	8.2	4.1	4.7	6.1	30.2
11	Trained and experienced workforce	4.6	6.5	9.4	6.6	4.2	6.6	11.1	7.1	5.7	6.3	8.4	6.7	5.6	6.0	8.0	6.5	26.9
12	Business environment	5.2	5.3	7.1	5.9	4.6	4.3	5.7	4.9	6.8	9.3	7.6	7.9	5.1	10.5	7.8	7.2	25.9
13	Teamwork	3.0	8.5	5.3	5.0	5.1	11.5	7.7	7.4	4.8	11.5	5.9	6.5	5.5	10.9	5.1	6.5	25.4
14	Distribution system	3.1	9.6	12.3	7.7	2.2	3.6	5.8	3.8	2.0	5.5	7.1	5.0	1.9	7.6	7.1	4.9	21.4
15	Quality standards/professionalism	12.3	3.6	0.0	6.2	9.9	2.7	0.0	5.0	4.4	1.8	0.0	2.8	14.6	4.0	0.0	7.3	21.3
16	Financial stability	1.0	11.4	5.3	4.7	0.6	13.7	5.9	5.3	0.8	11.8	9.3	5.3	0.0	8.1	8.5	4.7	20.0
17	Decision-making capabilities	1.8	6.0	6.0	4.2	1.6	7.7	5.0	4.1	1.1	7.6	4.5	3.9	1.1	8.5	4.8	4.0	16.2
18	Relationships with employees/suppliers, etc.	3.8	5.0	3.5	4.0	3.0	4.6	3.8	3.6	4.8	5.5	3.9	4.5	3.0	4.8	3.3	3.5	15.6
19	Trustworthiness/dependability	4.5	7.8	0.0	3.7	6.4	4.2	0.0	3.7	2.7	3.5	0.0	2.3	5.6	4.9	0.0	3.6	13.3
20	Organisational culture	1.2	5.6	1.5	2.3	0.8	4.0	1.0	1.6	1.9	7.5	2.4	3.8	2.5	10.0	3.2	4.4	12.1
21	Knowhow	2.8	4.9	1.9	2.9	2.8	6.5	2.7	3.6	2.0	5.3	1.7	2.5	1.9	4.5	1.8	2.5	11.5
22	Entrepreneurial capabilities	0.9	3.4	2.8	2.1	0.4	3.6	2.4	1.8	0.4	3.3	2.1	1.6	0.1	3.2	2.1	1.5	7.0
23	Organisational communication	0.5	4.9	0.7	1.5	0.9	2.9	0.9	1.4	1.4	4.5	1.2	1.9	1.4	4.1	1.4	2.0	6.8
24	Customer focus	0.9	0.0	1.2	0.8	0.9	0.0	2.1	1.1	0.5	0.0	1.8	0.8	0.5	0.0	1.9	0.9	3.6
25	Strategic partners	1.4	0.0	0.0	0.6	1.8	0.0	0.0	0.8	1.4	0.0	0.0	0.6	1.8	0.0	0.0	0.8	2.8
26	Research and development	0.5	0.0	0.0	0.2	1.4	0.0	0.0	0.6	0.5	0.0	0.0	0.2	1.8	0.0	0.0	0.8	1.8
27	Legal knowledge	0.8	3.1	0.0	1.0	0.0	0.0	0.0	0.0	0.5	1.8	0.0	0.3	0.1	0.5	0.0	0.2	1.5
28	Stable leadership	1.4	0.0	0.0	0.6	0.5	0.0	0.0	0.2	0.5	0.0	0.0	0.2	0.5	0.0	0.0	0.2	1.2
29	Aircraft leases	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	Databases/information systems	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31	Intellectual property	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32	Managing principles/corporate governance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33	Organising	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34	Supply contracts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	Technical expertise	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
36	Training programmes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total scores					198.1				199.4				199.1				199.7	

NA = network airlines; LCS = low-cost subsidiaries; LCC = low-cost carriers

³ The overall resource ranking is based on all 36 resources and is irrespective of the business model and level of performance. It therefore applies to Asian airlines as a whole.

⁴ The higher the average resource total, the more important it is and the more emphasis has been placed upon it as a source of competitive advantage. Note that it may be affected by rounding.

From Table 4, the top-seven most important, or most emphasised, sources of sustainable competitive advantage for Asian airlines generally are slots (a total mean score 94.5); brand (91.1); product and service reputation (64.6); managerial competence and experience (63.2); strategy and strategic goals and planning (56.3); marketing and promotional activities and strategies (52.7); and bilateral agreements and traffic rights (46.2). While these core resources are obvious and predictable, both from a general business and an airline standpoint, they have not previously been proven within the context of airlines, let alone from a narrower geographic or model perspective. Interestingly, the 36 resources rank similarly in total across all four elements of the VRIN framework (mean total score 199.1; $\sigma = 0.69$), although it is curious that they score lower in total for value (198.1) than for any other VRIN element, with hard to substitute receiving the highest total marks (199.7). The contribution of these 36 resources to competitive advantage is therefore more attributable to being difficult to copy, with the comparative lack of value of these resources for advantage surprising.

In contrast to the core seven resources, some resources which logically should be important for firms, or which literature has suggested are important, received a resource score of zero or a comparatively low score, which suggests their relative unimportance as a source of advantage for Asian airlines generally. For example, technical expertise and databases of information, the latter potentially used for better-targeted marketing or the greater personalisation of services, at least for network airlines to try to increase yield and loyalty, both had a resource total of zero. Furthermore, stable leadership had a total of just 1.2 points vis-à-vis 94.5 for first-ranked slots, and research and development into new products or adaptations to existing products had 1.8 points and was ranked 26 out of 36 resources vis-à-vis ninth out of 22 by the non-aviation firms across disparate industries surveyed by Carmeli (2001). Despite the obviousness of organisational culture as a source of advantage, which has been much discussed in literature, this research found that it ranked 20 out of 36 for Asian airlines generally with a score of 12.1, and that it was nearly seven times less emphasised than slots. This result was relatively similar to relationships with customers, suppliers, and otherwise, which was ranked 18 and with a score of 15.6. The greatest difference between this research and Carmeli (2001) is that Carmeli's research found that knowhow was the number-one resource, while this research identified that, for Asian airlines, it ranked 21. That Carmeli surveyed firms across various differing industries, but not airlines, may explain this, likewise the different geographic areas. However, the considerable variation of the importance of knowhow is nonetheless notable.

Unlike Table 4, Table 5 shows the top-seven core resources for network airlines, low-cost subsidiaries, and LCCs. This is based upon accumulating all four elements of VRIN and all of the airlines surveyed from each model. Table 5 shows that each business model has a reasonably distinct bundle of core resources as the relative superiority of resources varies, the standard deviation of the resources varies, and there are different resources contained within each core bundle.

Table 5: Airline business models and their top-seven resources as sources of competitive advantage

	Mean resource score	SD
NETWORK AIRLINES		
<i>Core intangible resources of all 36 irrespective of performance</i>		
1. Product/service reputation	107.5	23.7
2. Brand	97.9	
3. Slots	76.4	
4. Strategy and strategic goals/planning	58.0	
5. Marketing/promotional activities/strategies	57.5	
6. Managerial competence/experience	49.5	
7. Relationships with local/national governments	49.0	
LOW-COST SUBSIDIARIES		
<i>Core intangible resources of all 36 irrespective of performance</i>		
1. Slots	92.7	17.6
2. Brand	75.1	
3. Managerial competence/experience	69.8	
4. Bilaterals/traffic rights	58.5	
5. Strategy and strategic goals/planning	58.5	
6. Financial stability	45.0	
7. Teamwork	42.5	
LOW-COST CARRIERS		
<i>Core intangible resources of all 36 irrespective of performance</i>		
1. Slots	121.0	29.1
2. Brand	92.6	
3. Managerial competence/experience	74.6	
4. Marketing/promotional activities/strategies	65.1	
5. Strategy and strategic goals/planning	53.4	
6. Bilaterals/traffic rights	46.5	
7. Trained/experienced workforce	36.8	

4.1 Slots as a source of competitive advantage

Slots are a fundamental way by which airlines of all models may gain competitive advantage and strength. Indeed, slots received the highest score for value of all 36 resources, including for all three models, although it received higher scores still for being rare, hard to copy, and hard to substitute. The overriding significance of slots confirms Doganis (2006, p.25), who found that “airlines that control slots through grandfather rights will enjoy major competitive advantage.”

It is not at all surprising that slots are important for advantage given that they are – like access to adequate terminal facilities, aircraft stands, airport gates, and aircraft maintenance facilities – ordinarily an inherent ‘infrastructural’ requirement. Slots are often also a traditional requirement for market access, albeit to varying degrees. The significance of slots for the surveyed Asian airlines is because, like elsewhere, they materialise principally from a shortage of them at major and congested airports given high slot possession by incumbent carriers, so resulting in a significant barrier to entry and potentially a monopolistic and anticompetitive situation (Fu et al, 2011; Narangajavana et al., 2014). While slots are typically still available for other airlines, they are often at suboptimal times and will likely present a competitive disadvantage, of some degree, to the acquirer. This further strengthens the advantage of an airline with a considerable slot portfolio.

The emphasis by Asian airlines on slots may also be because of the shortage of alternative airports serving metropolitan areas within the continent, which confirms Halpern and Graham (2013) and Duval (2014) who showed that a severe shortage of attractive slots often exists at major airports in Asia. The presence of alternative airports was how a number of European and North American LCCs initially circumvented slot possession by incumbent airlines, together with operational, cost, and at times other financial advantages. This thus fuelled their growth and contributed towards their low-cost strategic positioning. The lack of alternative airports within Asia places a disproportionate degree of importance on slots, which is likely to increase if airport infrastructure is not expanded adequately given the IATA’s considerable forecast traffic growth. The disproportionate importance on slots confirms Clayton (2010) and Hutchinson (2013) who found that passenger demand in Asia has often not been met with sufficient investment, hence continuing slot constraints and flight delays.

The possession of slots as a source of advantage is somewhat ‘artificial’ because it is derived not from internal ability or development – for example, as with a strong brand or quality, reputation, and culture – but from market dominance and market power. As such, even very unsuccessfully performing airlines, financially speaking, might be dominant in terms of slots. However, the possession of slots should lead to other sources of advantage as large-scale presence by airlines at highly trafficked airports may also achieve greater efficiency and a stronger negotiating position from a concentration of services (Havel, 2009). This may therefore further strengthen the overall advantage derived from the mere possession of slots.

Table 6 shows those network airlines, low-cost subsidiaries, and LCCs which ranked slots as their overall number-one resource in the achievement of competitive advantage, with their score for slots showing the relative superiority of this resource across the 17 airlines. These 17 airlines represented 33% of all sampled airlines, meaning that a third of Asian airlines consider slots more important than any other intangible resource in achieving advantage. For all 17 airlines, slots were an average 24.2% more emphasised than the second-ranked resource. While a function of the sample size for each model, 54.5% of low-cost subsidiaries found slots to be their top resource in comparison to 41.2% for LCCs and 18.2% for network airlines. However, it is clear that all 17 airlines are primarily based at busy and congested airports, with mean passenger traffic of 49.3 million in 2013.

It is noteworthy that four airlines across each of the three business models whose primary airport is Jakarta found slots there to be their most important source of advantage. These four airlines emphasised slots 56.2% more than their second-ranked resource, against 24.2% for the 17 airlines. That Jakarta featured so heavily confirms Citrinot (2014), who showed that Jakarta/Soekarno-Hatta was designed for 22 million passengers per annum yet is now handling 60 million. To help remedy the highly congested situation, Jakarta's old airport, Halim, was reopened in 2014 for scheduled jet operations to begin to reduce the pressure on Soekarno-Hatta while facilitating further growth (Hashim, 2014). Furthermore, three airlines whose primary airport is Manila/Ninoy Aquino found slots to be their most important. This finding corresponds to Port Calls Asia (2014), who indicated that Manila's considerable congestion has had many negative implications, including an extra \$156 million in fuel consumption. A third runway at Manila was announced in December 2014 by the Philippine President (Manila Bulletin, 2014).

Table 6: Airlines which ranked slots as their number-one resource for competitive advantage

	The primary airport by total seats⁵	Airport passenger traffic in 2013⁶	Airline score for slots	Percentage of slots from second-ranked resource
NETWORK AIRLINES				
Garuda Indonesia	Jakarta	59.7m	212	26.3
Philippine Airlines	Manila	32.9m	178	40.2
Air India	Delhi	36.7m	164	11.6
Air China	Beijing	83.7m	154	2.7
LOW-COST SUBSIDIARIES				
Citilink	Jakarta	59.7m	193	66.4
Jetstar Asia	Singapore	53.7m	178	19.5
Tigerair	Singapore	53.7m	177	22.1
Hong Kong Express	Hong Kong	59.9m	170	3.0
Jetstar Pacific	Ho Chi Min City	19.0m	162	4.5
Jin Air	Jeju	20.1m	159	13.6
LOW-COST CARRIERS				
Indonesia AirAsia	Jakarta	59.7m	280	110.5
AirAsia Malaysia	Kuala Lumpur	47.5m	240	29.0
Lion Air	Jakarta	59.7m	193	21.4
Spring Airlines	Shanghai/Pudong ⁷	47.2m	185	1.9
Tigerair Philippines	Manila	32.9m	177	22.1
VietJet	Ho Chi Minh City	20.0m	157	1.3
Cebu Pacific	Manila	32.9m	138	14.5
<i>Mean results</i>		49.3m	183	24.2

Despite the predictability of the importance of slots, it is surprising that they are the most significant source of sustained advantage across Asian airlines. However, this importance varies by business model, with LCCs finding slots on average 28.4% more important⁸ (mean score 121.0) than both low-cost subsidiaries (92.7) and network airlines (76.4). Given slot entrenchment is often considered to be the preserve of well-established airlines, which are normally network airlines, this result was not expected. Indeed, LCCs did not commence within Asia until 2001 (BBC, 2010) and low-cost subsidiaries from 2003 (CNN, 2003), and already they deem slots to be a greater source of advantage than network airlines. This is perhaps because it is LCCs and economic growth which have over the past ten years led many Asian airports to become very congested. Thus, LCCs, and low-cost subsidiaries to a

⁵ Its main airport by number of seats offered by each airline in the week commencing 22nd September 2014, according to the airport profiles section of CAPA.

⁶ Based upon passenger numbers in 2013 within the airport profiles section of CAPA.

⁷ Shanghai/Pudong has just 6.4% fewer seats than another very busy airport serving the Shanghai metropolitan area, Shanghai/Hongqiao, and Spring Airlines has significant bases at both facilities. Including both airports, passenger traffic at Spring Airlines' primary airports increases to 82.8m.

⁸ Based upon accumulating valuable, rare, hard to copy, and hard to substitute for each business model.

lesser degree, have diluted the dominance held by network airlines as a percentage of an airport's total, and they realise that newcomers will find it harder still to acquire them. Indeed, in the week starting 5th January 2015 LCCs now have over 30% of seats at a host of major Asian airports, including Kuala Lumpur (51.3%); Jakarta (48.7%); Mumbai (45.7%); Delhi (44.5%); Manila (42.3%); Osaka/Kansai (35.5%); and Singapore (30%) (CAPA, 2015). The simplified value propositions and perceived lower quality of LCCs, as reflected in their core seven resources, suggests that it perhaps should not be quite as surprising as it may be.

4.2 Brands as a source of competitive advantage

At just 3.7% less emphasised than slots, for Asian airlines brand as a source of competitive advantage is almost as important. This is despite the value of brands being lower than rare, hard to substitute and, in particular, being hard to copy. This research found that, of the 49 surveyed airlines, 40 airlines (82%) ranked brand within their core top-seven resources. For these 40, brand featured in the core resource bundle for 18 of 22 network airlines (81.8%), seven of 11 LCS (64%), and 13 of 16 LCCs (81%). Given the surveyed airlines are overwhelmingly commercial enterprises, the significance of brands for them should come as no surprise. This is because Choe and Zhao (2013) found that brands are considered a vital way by which firms achieve differentiation and, in turn, achieve competitive advantage and profitability. There is also a clear relationship between brand equity and brand preference and the purchase intention of customers (Chen and Chang, 2008). Together with conveying the extent of quality, credibility, and experience, brands add value to a product and thereby assists in achieving a price premium. This research confirms previous research and managerial practice, albeit in different industries, which typically contend that brand equity constitutes one of a firm's most valuable resources (Vomberg et al, 2014).

Of the 40 airlines which ranked brand within their core resource bundle, six airlines ranked brand as their number-one resource. These can be seen in Table 7. That only six airlines ranked it such yet brand achieved almost the top overall score for a resource indicates that many airlines placed much emphasis on it, and typically within their top-three resources. For example, AirAsia Malaysia and Cathay Pacific, both with well-managed and internationally known brands, ranked their brands as their second most important source of advantage. In contrast, of all surveyed airlines ten (20.0%) didn't rank brand within their core resources. These are: Thai Airways; China Eastern; EVA Air; Hainan Airlines; Jetstar Asia; Tigerair; Lion; Golden Myanmar; VietJet; and Tigerair Philippines. These airlines

deem other resources to be more important than branding in the attainment of competitive advantage.

Table 7: Airlines which ranked brand as the number-one resource for competitive advantage

	Score for brand	Percentage of brand from second-ranked resource
NETWORK AIRLINES		
All Nippon	190	37.7%
Korean Airlines	170	14.9%
Air China	154	2.7%
Hong Kong Airlines	185	1.1%
LOW-COST SUBSIDIARIES		
<i>None</i>		
LOW-COST CARRIERS		
Jeju Airlines	163	5.8%
Spring Airlines	185	1.1%
Mean results	175	11.0%

Of the six airlines in Table 7, all are from Northeast Asia, where there is far less LCC competition than South and Southeast Asia: while LCCs had 11.5% of all seats in Northeast Asia in 2014, they had 56% in South Asia and 57% in Southeast Asia (CAPA, 2015). The presence of Northeast Asian airlines corresponds with the Brand Directory (2014) finding that, for the top-20 airline brands in 2013 by value, seven of the eight listed Asian airlines were from Northeast Asia. Given the lack of international exposure by, and recognition of, the two LCCs in Table 7, at least in the West, the emphasis on brand is presumably based upon what is crucial: branding in their own served and core markets.

The very strong ranking of brands is somewhat surprising for airlines because of the stress placed upon the growth of commoditisation of the airline product in economy class and short-haul markets (see, for example, Elia and Cook, 2013 and Kay et al, 2012). However, the reverse may be more logical: the greater the sameness of the economy product across airlines, airline models, and geographies, the greater the need for stronger branding to distinguish between airlines. Indeed, despite the many possible consequences arising from growing commoditisation, Shaw (2007, p.263) insists that “airline brands can bring airlines very worthwhile advantages, and make a real contribution to the achievement of satisfactory profits.”

4.3 Product and service reputation as a source of competitive advantage

Given the airline industry is a service industry, it is logical and expected that reputation derived from service or product would be a crucial resource in the attainment and sustainment of competitive advantage. This research confirmed this widely held belief, for reputation achieved the third-highest resource total across all Asian airlines of 64.5. Surprisingly, the value of reputation is the second-lowest scoring for all the VRIN elements, and reputation is disproportionately influenced by the much lower scores from both LCCs and low-cost subsidiaries.

Despite the highly significant score of reputation across Asian airlines, reputation was nearly half as important as slots and brand. However, the ranking of reputation, vis-à-vis all 36 analysed resources, confirms literature as to the role of reputation for competitive advantage across firms and industries, including in the context of the airline industry (Barrett, 2009). That branding was found to be so highly important partly further explains why reputation was also so important, for a brand builds reputation. It is thus expected that the two resources coexist. Through its lifecycle model, Board and Vehn (2014) established that reputation is also intricately linked with quality, for firms invest into their quality and thereby their reputation. However, this research found that quality standards and professionalism for Asian airlines, while not necessarily entirely related to quality of product and service, was ranked 15 out of 36 resources, with a mean resource total of 21.3, or two-thirds less important than reputation, with network airlines ranking it much higher than low-cost subsidiaries and LCCs. Competitive advantage from service or product reputation may also have incidental advantages, especially in terms of higher price-equity, lower cost of capital, and stronger market value (Eccles et al, 2007).

From Table 5, it is clear that network airlines across Asia placed a significantly greater emphasis on product and service reputation as a source of advantage than both LCCs and LCS. Indeed, network airlines ranked it as their number-one resource, with an average resource score of 107.5. This is 9.8% more important than their second-ranked slots, and more than double as important than the seventh-ranked relationships with national and local governments, which ranked seventh in their core resource bundle. Of all 22 network airlines, 14 (63.6%) ranked product and service reputation within their core bundle, with five – Cathay Pacific, All Nippon, Royal Brunei, EVA Air, and SriLankan – ranking it as their number-one source of advantage. Eight network airlines did not rank reputation within their top-seven

resources: Malaysia Airlines; Thai Airways; Hong Kong Airlines (but brand was number-one); China Airlines; China Eastern; SilkAir; Air Macau; and Hainan Airlines.

The significance of reputation for network airlines is predictable because of their strategic positions, based to varying degrees on differentiation, and because of their complex and expensive products and value propositions which they have developed over many years. The cost of maintaining relative service quality and reputation is therefore high, although Pearson and Merkert (2014) found that a limited relationship exists between airline service levels and profitability. While reputation scored considerably lower for being hard to copy than for all other elements of the VRIN framework, it would be worrying if network airlines did not place such importance on reputation as it would call into question their entire existence. It may be assumed that the network airlines themselves *perceive* reputation to be of such significance for advantage given their investment in service attributes, which constitute sunk costs, and the emphasis, to varying degrees, on superior quality to lower-cost competition, but this was not really found to be the case. Indeed, it was found that a Spearman's rank correlation of 0.67 (p -value 0.0041) exists between the individual scores given by airlines⁹ for product and service reputation and the award, out of five stars, given to each airline after comprehensive analysis by SkyTrax¹⁰.

Just as the findings concerning network airlines are not surprising, it is also predictable that product and service reputation for both low-cost subsidiaries and LCCs would be considerably less important as a source of advantage. This is because their core customers seek good enough products or services at low prices, hence simplified and straightforward products and value propositions. Thus, it is reasonable that they should place less emphasis upon reputation as a means of achieving and sustaining advantage. Table 6 shows that product and service reputation did not feature in the core bundle of resources for both Asian low-cost subsidiaries and LCCs. In contrast to network airlines, such reputation was two-thirds lower for low-cost subsidiaries (a score of 35 against 107.5) and three-quarters less important for LCCs (28.8). Interestingly, while reputation did not appear within the top-seven resources for low-cost subsidiaries and LCCs, branding and, for LCCs, marketing and promotional activities and strategies did. This indicates the areas on which low-cost subsidiaries and LCCs deem worthy of attention and investment, although they are somewhat

⁹ This is based upon 16 of the 21 airlines which ranked product and service reputation within their top-seven resources, and then based upon the availability of a starred ranking for the airlines by SkyTrax.

¹⁰ SkyTrax's star system is based upon analysis of more than 800 different items across an airline's front-line product and staff service standards, and applied to the airport and cabin service environments.

interconnected. That LCS collectively emphasised product and service reputation to such a lower degree than network airlines provides a different view to a finding of Graf (2005), who identified that a main negative implication of LCS is that their products and branding is insufficiently differentiated from the parent network airlines.

Of all 11 sampled low-cost subsidiaries, only three (27.3%) – Air Busan, Jin, and Nok – ranked reputation within their top-seven resources, with Air Busan ranking it number-one. Interestingly, Air Busan and Jin Air are from service-orientated South Korea. Of all 16 LCCs, only four ranked reputation within their core bundle, with T'way – also from South Korea – and Malindo ranking it number-one. Given that Malindo is more of a hybrid operator with more comprehensive key product features than AirAsia Malaysia and perceived superior value to Malaysia Airlines, it is not surprising that it ranked reputation so highly, with a 23.1% greater emphasis than AirAsia (a score of 160 against 130).

5. Conclusion

This paper establishes for the first time the relative importance of an array of intangible resources to Asian airlines while crucially showing how this importance varies by airline model. This paper therefore enables a generalised understanding of the role of intangible resources for competitive advantage.

With a forecast 3.1 billion people likely to fly to, from, and within Asia by 2034, and how a mature Europe and North America will represent a lower proportion of world traffic, it is clear that Asia is increasingly representing the new order of world aviation. And with a significant LCC penetration in 2014 of 25.7%, up from 1.1% in 2001, Asia is becoming increasingly competitive and this will continue.

Every firm has a core bundle of resources which, according to the RBV, accounts for their competitive advantage from an internal perspective. Of the core seven resources for the 49 Asian airlines, the top three resources for competitive advantage were found to be slots, brand, and product and service reputation. While these resources are predictable, they have not previously been proven for airlines, let alone for those within Asia.

That slots was the number-one resource in the achievement of advantage is not particularly surprising given a lack of alternative airports and the high degree of congestion at major airports across Asia. However, it was more surprising that LCCs found slots to be more important, although this can represent a significant barrier to entry to newcomers or smaller airlines wishing to expand. Interestingly, the importance of slots is despite this resource being somewhat 'artificial' because it is derived not from internal ability or

development, which is perhaps supported by slots possessing a lower score for value than for the other elements of VRIN. This suggests that the primarily intangible resource for Asian airlines is based not on the value that it offers but that they are rare and cannot be substituted except through normal trading.

It was found that a very high degree of importance was placed by Asian airlines generally, but especially network airlines and LCCs, on brands as a source of competitive advantage. Across Asia, it is airlines from Northeast Asia which placed particular emphasis upon brands for advantage, with this sub-region having a considerably lower LCC penetration while airlines from this sub-region often possess higher unit revenues. The lower importance of brands for advantage for low-cost subsidiaries is notable but understandable because of their generally lower public awareness vis-à-vis major LCCs. As brands and product and service reputation are closely related, the importance of reputation for Asian airlines generally was anticipated given the service industry within which airlines operate. As expected, it was shown that Asian network airlines place a considerably higher degree of importance on reputation than both low-cost subsidiaries and LCCs.

Unexpectedly, all 36 resources across all Asian airlines scored less overall for value than for being rare, hard to copy, and hard to substitute. This suggests that, for all resources, intangible resources provide less value or may be less effective in counteracting the threats from competitors. Instead, the resources on an overall basis received the highest score for being hard to substitute, which suggests that they cannot be easily imitated or commonly used by competitors. Given the idiosyncratic nature of many of the resources, and the required time, knowledge, and experience to develop them, this is not particularly surprising. The difficulty of resource substitution is especially acute for slots, brand, product and service reputation, relationships with government, business environment, and quality standards and professionalism. Somewhat reassuringly, strategy and strategic goals and planning was the most valuable of the core seven resources.

Asian network airlines, low-cost subsidiaries, and LCCs each have reasonably distinct core resource bundles which account for their competitive advantage, both in terms of the difference in importance of the resources which are shared and the resources which only one model included as being core. While Asian network airlines ranked product and service reputation as their most important resource for competitive advantage, low-cost subsidiaries and LCCs both ranked slots as their first resource. Indeed, various resources are disproportionately affected by the inclusion of low-cost subsidiaries and particularly LCCs,

but especially product and service reputation, relationships with governments, and quality standards and professionalism

Crucially, all three models found managerial competence and experience to be within their core bundle of resources for advantage, with LCCs finding this resource to be more important than the other two models. This suggests that low-cost subsidiaries and network airlines should place a greater emphasis upon managerial competence and experience. Overall, it is clear that the sources of competitive advantage, whatever they are, must be strengthened and renewed as appropriate, especially given the increasing competitiveness within Asia.

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