

Airframe manufacturers: Which has the better view of the future? – A note on airline customers and airline strategy.

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Abstract

The development of Airbus' A380 and Boeing's B787 seems to these manufacturers have differing views of future airline networks. This assesses from published sources the likely preferences of leisure and business passengers for different airline network approaches and also assesses airline strategies through the economic cycle. The manufacturers seem to have substitutable aircraft types. Both leisure and business travellers are increasingly price elastic and growth in both markets means both aircraft type will be successful aircraft meeting differing needs. However, airline market share strategies are likely to undermine the success of hub by-pass or hub-to-hub focus strategies throughout the cycle.

Keywords: Airline strategy and fleet planning, economic cycle, Leisure travellers, business travellers.

Introduction

2005 was the first year when over 2,000 new aircraft were ordered by airlines, clearly optimistic of a future where growth and new opportunities would enable them to profitably employ such large volumes of new planes. The previous order peak in was in 2000 when nearly 1,600 aircraft were ordered. This was quickly followed by an economic downturn greatly exacerbated by the 9/11 terrorist attacks, excess capacity, and four years of significant losses across the airline industry. The magnitude of the 2005 order book represents both demand suppressed during the downturn and a return in confidence in the industry.

During the poor years of the early 2000s the two main aircraft manufacturers (Boeing and Airbus) have positioned themselves to serve rather different visions of the future as somewhat simplistically described in the press (e.g. BBC, 2005): the new 550 seat Airbus A380 demonstrates Airbus' view of a future where congested hub airport capacity may be overcome by carrying passengers between these congested continental hubs in large capacity aircraft. Boeing's vision of the air transport industry in the future is evidenced by the development of a much smaller capacity 210-290¹ long-range aircraft - the B787. In this vision congested hubs are by-passed by travellers flying direct (or with fewer stops/connections) from their point of origin to their final destination.

Faced with these differing views of the future a panel session at the 9th Hamburg Aviation Conference sort to discuss the following questions:

- Are Airbus and Boeing pursuing complementary or substitute strategies?

¹ The B787-3 is a larger capacity (up to 330 seats) shorter-range variant.

- Does choice of aircraft matter less or more when markets are growing?
- Given how and which markets are growing, which combination of aircraft will be winners or fair better than others?

Boeing and Airbus' strategies – complementary or substitutes?

As one would expect when multi-billion dollar decisions have been adopted by the world's two largest airframe manufacturers, arguments can be made for logic of both strategies.

If the growth rates in air travel over the past 20 years extend into the future, the main continental hub airports, many of which are already congested, are unlikely to be able to sustain the level of growth without some way of increasing passenger throughput per aircraft movement. Both Boeing and Airbus have similar forecasts of the future market. Boeing forecast annual passenger growth of 4.8% and Airbus at 5.3% per annum from 2005 till 2024 with the worldwide fleet more than doubling with about 17,000 (Boeing, 2005, Airbus 2004). The A380, by increasing capacity on wide-body aircraft by some 20% over the 747, enables operating airlines to increase passenger numbers in city-pair markets where airport congestion or slot restrictions have curtailed growth while enjoying a reduction in seat costs. The future success of network carriers' strategy of consolidating passenger flows through principal hub airports will require such operators to increase the flow from one continental main hub to another and thus the A380 seems well suited to meeting the needs of such operators. Indeed its competitor Boeing's success over the past 30 years has been based, in no small part, on its sales of the B747. Until the development of the A380, without a competitor in the 400+ seat market, Boeing has been able to dominate the market for large inter-hub aircraft. While its research suggests that aircraft operating at hub airports have, in fact, been getting smaller by seat count (Swan, 2005) and its principal developmental efforts have been focused on the hub-bypassing B787, Boeing announced in November 2005 that it would once-again stretch its B747² so as not to cede totally the very large aircraft market to Airbus.

While Airbus has been developing the mass passenger transit A380, Boeing announced the development of a near-supersonic cruiser that was aimed at capturing money-rich, time-poor business passengers. However in the post 9/11 environment the manufacturer did not find sufficient takers for this concept and replaced it with the B787; an aircraft aimed at reducing operating and seat costs by using new technologies, materials and engines. The manufacturer set the capacity for the new aircraft based on the success British Airways and others had found by switching from B747s into the lower capacity aircraft 777. BA discovered on their North Atlantic routes that when they switched gauge to the 777, traffic that it had previously carried on a marginal revenue basis (but was essentially not profitable) could not now be accommodated and thus, although the airline carried fewer passengers that its profitability improved (BA, 2001). Rather than competing head-on with Airbus on a new super-jumbo, Boeing's view was that by placing this low seat-cost aircraft on

² The B747-8 "Intercontinental" will carry up to 500 passengers and by using some of the new technologies developed for the 787, Boeing is promising lower seat costs than the A380. To date, only the freighter version has secured orders.

thinner routes that by-passed at least one continental hub an operator could capture higher yielding passengers seeking a more direct routing. Airbus, seeing the quick uptake of the B787 (see later), has also sought to cover this area of the market and announced in 2005 the development of the A350, an evolution of the A330, placing it in direct competition with the B787³.

The development of the A350 and the B747-8 “Intercontinental” demonstrates that neither manufacturer is prepared to unilaterally cede any part of the widebody market to its competitor. Whichever view of the airline market place of the future is more likely, be it dominated by network carriers that funnel large consignments of their traffic through major hubs with very large aircraft, or one in which carriers focus on thinner but higher yielding routes using smaller sized widebodies, or some combination of these strategies, both manufacturers are positioning themselves to be able to cater for the needs of the successful airlines under both scenarios. It would seem therefore that essentially both manufacturers are pursuing substitute strategies. It is, therefore, necessary to assess the airlines’ strategies.

The 2005 aircraft order book

When committing an airline to the cost of new aircraft with a useful life of some 25 years it would seem logical that the responsible airline executives would make their decisions considering both market growth and recession.

During 2005 Airbus and Boeing took the following orders:-

Table 1: 2005 Airframe orders, Airbus and Boeing

Airbus	Boeing
918 x A320 family	569 x B737
166 x A330/340/350	15 x B767 154 x B777 235 x B787
	43 x B747
20 x A380	

Source: ATI, 2006

While much of journalistic discussion has focused on new aircraft types, 70% of the orders in 2005 were for narrow-body aircraft as the low cost carrier phenomenon spread throughout Europe and spread further a field. Some analysts have suggested the size of the 2005 order book is in no small part due to carriers attempting to secure delivery slots and for the 150-seat size aircraft the orders may represent a large part of the total requirement of the market for the next few years (Tarry, 2006).

Boeing’s launch of the B787 has been its most successful and the aircraft seems certain to have a significant impact on the structure of airline fleets for many years to come. This is also likely to be the case for the operators that select the A380 and the carriers that compete with them. To date Airbus has secured 159 orders (September

³ Although in June 2006 it was subsequently announced that the A350 would have a wider body and larger seating capacity than originally announced.

2006) for the A380. The manufacturer only sees a total market for this size of aircraft as only 1,648 until 2023 (Airbus, 2004). The orders that have been received for the A380 have come from two principal regions. The Middle East and Asia. Emirates has made the single largest order taking 43 of 49 so far ordered by middle eastern carriers. This airline's strategy is to make Dubai a one-stop transit point connecting many of the largest markets in the world. The airport has no congestion issues and the airline sees the aircraft as the best way of achieving very low cost seat costs in very large city-pair markets where it is likely to be mainly a combination 3rd/4th freedom carrier requiring it to offer discounted seats to capture traffic. The majority of the rest of the orders have come from carriers that have their principal long haul operations between Europe to Australasia (e.g. Singapore, Qantas, Malaysian) and will look to capture more traffic by increasing capacity by adopting this new aircraft.

To consider the second question regarding aircraft choice through the cycle the demand side of the industry will first be considered, looking at leisure and business travellers separately. This will be followed by considering airline strategies through the cycle.

Leisure travellers in the economic cycle

Throughout the economic cycle leisure travellers will tend to be more price elastic than business travellers.

During good economic times people will tend to earn more money and therefore will also have higher disposable incomes. Recently the world economy has enjoyed a period of sustained low interest rates and generally good economic growth. These low interest rates mean that people tend to have higher disposable incomes as interest payments on borrowings, particularly mortgages, are low. Not only do low interest rates increase people's disposable income, they also reduce the incentive to save money and therefore recent years have seen a number of large countries, particularly in North America and Europe develop into high consumption economies. For the airline industry people's increased propensity to spend combined with the development of low cost airlines has meant a rapid growth in leisure travel. Travellers have increased the number of leisure trips they make each year as they have embraced the low cost carriers. For example in the UK short haul leisure travel rose at nearly 15% per annum between 1998 and 2003 shifting the proportion of leisure trips from 50% to 68% of all trips during the five year period (Mason, 2005). This growing leisure market has led fledgling and recently established airlines to make significant orders for B737s and A320s. Recent years have also seen a growing monied middle classes in high growth markets such as China, India and Russia and this has led to high growth from modest levels in leisure travel.

While the leisure market has seen sustained growth due to good economic conditions, and the development of low fare airlines in many markets, leisure travel by air is also a substitute for many other ways people can spend their disposable income. In short haul markets surface modes, particularly the car and high-speed rail compete with air for passengers. Low cost carriers have captured market share away from these modes in recent years due to very low fares, however, should relative prices go up due to

reduced competition, or perhaps new environmental taxes air could lose traffic back to these other modes. Leisure time is limited the amount of free time people have to take holidays cannot be increased thus placing a barrier on the growth of leisure travel. As low cost carriers in Europe have grown there is evidence that shows leisure travellers are taking more frequent, shorter-duration holidays (Graham, 2006). However, the increase in multiple holidays is limited by the number of annual days holiday people can take. Leisure travel also competes with other ways of spending disposable income. In recent years home computers, iPods, hi-fi systems and high definition flat screen televisions have all grown in popularity and vie for leisure travellers' disposable consumption (Graham, 2000).

During periods of economic downturn lower disposable income, lower consumer confidence, higher job insecurity, and higher precautionary savings are likely to dampen the demand for leisure travel.

For airlines, economic downturns means lower yields and lower demand. For the low cost carrier segment in Europe, following a period of intense development and start-ups any economic downturn will increase the rate of consolidation as weaker carriers fail or are acquired. This may also lead to cancellations of aircraft orders and a lower uptake of options. Ryanair and easyJet both benefited from poor post-9/11 economic conditions to drive very good deals for large aircraft orders with Boeing and Airbus respectively. It is likely that if these two players survive in the medium term, which is expected, that they will await another period of harsh economic conditions before they place any new orders.

In longer haul markets leisure travellers will seek the best prices thereby pushing down yields for all airlines operating in the market. The three main airline alliances; Star, oneworld, and SkyTeam all compete strongly in markets where intermediate stops are necessary. For example a customer travelling from New York to Singapore can use the Star Alliance transiting over Frankfurt, oneworld transiting over Heathrow or SkyTeam transiting over Paris. With similar elapsed journey times and similar on board products the airline alliances will compete on price for this customer pushing the airlines toward discounting. The presence of 6th freedom and 3rd and 4th freedom combination operators that are also found in many markets further depress fares in a bid to win consumers. In such depressed market, airlines will have to encourage customers to spend their more limited disposable income on leisure travel rather than save their money, or switch to cheaper surface modes of transport (especially the car). This will mean that the principal airlines operation in each market will have to fight hard to achieve a profitable operation.

Business travellers in the economic cycle

Changes in world Revenue Tonnes Kilometres (RTKs) tend to move in a reasonably direct relationship to changes in global Gross Domestic Product (GDP). As business people and entrepreneurs seek new opportunities and make new deals with partners and clients in remote locations they travel to have meetings, sign contracts and implement business plans. As new economic activity is created airlines benefit from greater levels of business travel. Conversely, as economies move toward recession, business confidence is reduced, fewer economic opportunities are available, and thus

business people and entrepreneurs travel less, and their companies seek to reduce the costs associated with conducting business and employ alternative methods of communication.

During good economic conditions it is expected that business travellers would tend to be price inelastic and demand increased service on the ground and in the air, however during the recent sound economic conditions the market has not behaved in this fashion. During the post 9/11 economic downturn there was an increased degree of price elasticity that became apparent in the market. The growth of greater competition in the form of alliance groupings for long haul and low cost carriers in short haul markets seems to have introduced a profound change in the elasticity of the market. There seems to be a diminishing proportion of business class and first class passengers (Mason, 2005), and the business travel market seems to be separating into two groups. For the majority of business travellers travel in first or business class cabins has become rare. In the post-9/11 days the least price sensitive most time sensitive passengers started making greater use of executive jet services where they could avoid long security delays and fly more directly. Following recent terrorist threats in the UK on US bound aircraft, the US National Business Aviation Association has seen rapid rise in demand from its current \$2.6bn level. The association forecasts a doubling of private jets to a fleet of more 5,000 by 2011 (ABTN, 2006). However, this group of price insensitive travellers seems to be reasonably small. A Delphi study conducted for the European Union suggested that network carriers would only lose a small (if financially significant) number of passengers to the executive jet market (EU, 2005). For short haul travel only the proportion of business travellers that use business class has fallen to 15% from about 60% in the late 1990s. For long haul travel the proportion has fallen to around 40% (BA SOURCE). In short haul markets business travellers have become more price sensitive as low cost carriers have become commonplace. This is partially due to the companies that employ business travellers which for many years have defined when a traveller can use business class or first class services but have become have made these definitions more strict and more effective in controlling travellers and enforcing travel policy. For the proportion of travellers that are allowed to use business class, lower cost alternatives direct services seem to becoming attractive. EOS and MAXjet both offer business-only services from an secondary London airport (Stansted) to New York and seem to have established themselves successfully in this highly competitive market. Lufthansa's PrivatAir business-only service also to New York has also successfully operated for two years. The development and growth of direct business-only services that bypass hubs are likely to have a detrimental impact on the economics of hub-to-hub business class services. These direct services are likely to draw passengers away from the mainline operators and also provide downward pressure on business class prices for the network operators. As the A380 enters service some operators have indicated a upgraded services for business-class and first-class passengers, it would seem unlikely that these services be sufficient to retain business travellers if lower fare, direct business-only service alternatives are available.

While airlines struggle to retain the proportion of the business travel market that still use business class, they also must address the larger part of the business travel market. The part of the market that have become serial down-graders; those business travellers that primarily travel in either premium economy, or economy class cabins,

or frequently use low cost airline services. While this group of price conscious business travellers tended to be those that worked for small and medium enterprises, more people that work for large companies have moved into this segment of the market as companies get better at enforcing travel policies aimed at reducing travel expenditure. Indeed a survey of more than 350 travel managers found that 23% of companies mandated that travellers travel at the “lowest available cost” and for a further 52% of companies it this was “stated company preference”⁴ (BTRC, 2006).

In a bid to arrest some of the revenue decline with business travellers downgrading while presenting themselves as offering “value for money” products, some network carriers are beginning to unbundle their product elements. Airlines such as Air Canada and British Airways have started offering travellers the ability to mix and match the class of service and level of ticket flexibility they purchase on out-bound and in-bound sectors. On out-bound sectors business travellers are less likely to need to change their flight arrangements if client/sales meeting are fixed, but travellers may need to travel in business class comfort to ensure they are well rested before meeting clients/customers. On in-bound sectors these same travellers may need a flexible ticket as meetings may overrun, however the company they work for are less concerned their employees arriving well rested. Therefore the airlines have begun to offer travellers the ability to combine a non-flexible, business class out-bound ticket with a flexible, economy class in-bound ticket. This unbundling trend begun as low cost carriers introduced the concept of passengers only paying for those services that they wish to use and is now likely to be more widely adopted by network carriers.

In larger companies the past few years has seen greater management control in the business travel purchase decision. The more widespread use of self booking tools that incorporate all the companies travel policy that forces policy compliance will mean this trend will continue. This is likely to lead companies to make travel purchase decisions on a return on investment (ROI) basis. This may well lead to increased substitution of less essential travel by other forms of communication, and real time appraisal of the likely value that a particular trip will bring to the company. As Corporate Social Responsibility increases in importance to companies many might begin to make purchase decisions that incorporate the environmental costs of the trip.

Airline strategies through the economic cycle.

To examine the aircraft choice for airlines the adopted strategies need to be assessed. While standard management tools are rarely particularly useful in the aviation business, application of Porter’s generic strategies of diversification and cost leadership (Porter, 1980) can both be seen in the industry. By focusing on meeting the needs of higher yield passengers and developing brand messages that create a belief of a premium service some carriers can be viewed as having adopted the first strategy (e.g. Singapore, Virgin, British Airways, etc.). In recent years low cost carriers have attempted to follow a cost leadership strategy (e.g. Ryanair, AirAsia). For network carriers that adopt strategies that give sustainable seat cost advantage over their competitors, cost leadership is also a key strategy.

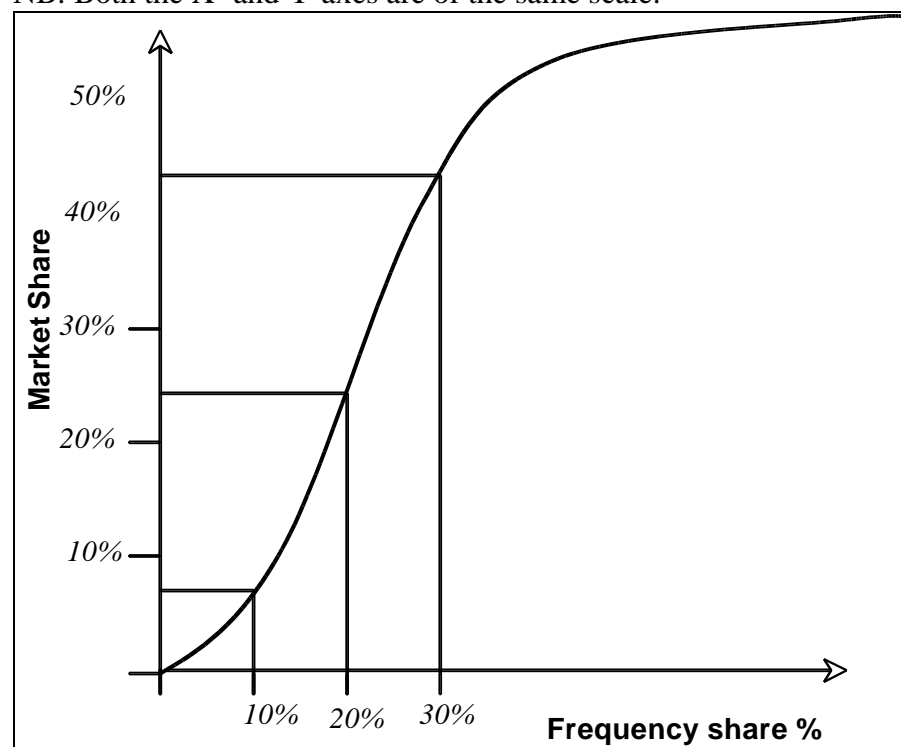
⁴ These percentages are provisional as the survey is, as yet, not complete.

The development of new aircraft by Boeing and Airbus that seem to serve different airline route and network strategies has led to an examination of which strategy is best suited to the airline business cycle. An airline operating an A380 would seem to be following a multi-stop/hub-to-hub/consolidation/lowest seat cost strategy. An airline that purchases the B787 may be adopting a non- or one-stop/hub by-pass diversification strategy aimed at capturing higher yielding passengers. It is the airline strategy not the aircraft manufacturers' strategies that should be assessed as the manufacturers strategies are substitutes and interchangeable – each offer a comparable aircraft in all sizes and ranges.

Perhaps the most detrimental strategy adopted by the airline managements irrespective of their underlying generic strategy and geographic location is one of market leadership in each city-pair market served. The strategy of pursuing market share is based on the S-Curve model as shown below. The S-Curve strategy argues that below a certain frequency (or seat capacity⁵) share that the airline will capture less market share than the frequency/capacity share it supplies – thereby “underperforming” its supply (Alamdari, 1997). The shape of the S-Curve will depend on the market, the number of players operating in the market, the nature of the city-pair market route and the number of alternatives routings.

Figure 1: The Frequency/Market Share S-Curve

NB: Both the X- and Y-axes are of the same scale.



⁵ Frequency share is the more logical metric to use for the analysis although it can be calculated using either frequency or seat-capacity share.

The strategy implied from the S-Curve model is that an airline will naturally seek to gain market share. Above a certain share of the frequency (circa 15%) the steep gradient of the curve implies that the airline will capture a larger proportion of the market share than its contributed share of supply. By so doing, it can be argued that the more prominent in a market an operator is the more likely it is to win more passengers. If a carrier can dominate the frequency in the market then it will also take the lion's share of the passengers. It is also more likely to attract higher-yielding business passengers who are attracted to higher-frequency services so that should the need arrive they can more easily alter their travel arrangements. Once in a position of dominance the airline is in a position to dictate prices, push out competitors and deter entrants by having the best listings in the key distribution channels in the market and by having the most attractive FFP programme offering as it has the best network on which passengers can earn and burn FFP points.

However there are some flaws in the concept. Firstly, for longer haul city-pair markets, the multiple routings available to consumers (e.g. in the London-Sydney market passengers can connect over Dubai with Emirates, over Bangkok or Singapore with Star Alliance, over Hong Kong with Cathay and British Airways, etc.) means that market share cannot be easily protected in any one routing. Secondly, there is an implicit assumption that all passengers along the Y-axis are of the same value to the airline. This is clearly not the case as it includes passengers from the highest paying first class passenger to the customer carrying the most highly discounted ticket. Thirdly, the argument that higher frequency will lead to higher yields may not hold true as low cost airline pricing strategies become adopted by traditional airlines. EasyJet has introduced flexible ticketing on a "pay-as-you-go" basis and as previously noted, Air Canada and British Airways and other network carriers have begun unbundling ticket flexibility from their inclusive prices. It is likely, as this practice becomes more widely adopted, that passengers will continue to favour airlines that offer higher frequencies but this will not necessarily lead to a significant premium for those airlines.

In the growth phase of the economic cycle airlines tend to adopt a market share strategy following the Boston Consulting Group Portfolio strategy that argues in fast growing markets a company should invest heavily to ensure that once the market matures the company enjoys a large market share and can subsequently take significant abnormal profits without any significant competition. However as growth slows or as markets enter a downturn airlines generally do not face the market conditions as suggested by the BCG matrix. Under the BCG Matrix theory a company that dominates market share in a slow growing mature market should adopt a strategy of drawing as much profit from this market (Kotler, 1988). In the airline industry the frequent presence of alternative routing 6th freedom services on long haul markets and low cost carrier competition in short haul markets means that such a strategy is hard to execute. Faced with a low growing market, the dominant market share leader will not be able to draw out significant profits. In a downturn, as all airlines begin to suffer, the ones with the larger market shares defend their position in the hope that carriers with less market share will not be able to survive the downturn and eventually withdraw from the city-pair market. In these conditions the airline with the more direct routing and the smaller carrier will most likely capture higher yielding passengers. The carrier with the larger aircraft size may lose passengers

unless they drop fares, and even if it does it may have too much capacity for a contracted demand and make losses.

Discussion

This note set out to address three questions. In response to the first, it has been concluded that Airbus and Boeing have substitute strategies with both manufacturers attempting to provide products across the seat capacity and range spectrum. In respect of the second question; does choice of aircraft matter less or more when markets are growing? The paper has attempted to examine consumer behaviour and airline strategies throughout the cycle and concluded that leisure travellers are generally price elastic throughout the cycle, but more so in the downturn, and that although the presence of low cost carriers boosts demand, there is a limit to the number of holidays they can take during the year. Business passengers are increasingly price sensitive and value driven throughout the cycle as corporate involvement and self-booking tools become more prevalent in the market. As both segments of the market are increasingly price elastic, it would seem that the lowest cost/lower fare airline will be best situated throughout the cycle. In good economic conditions and in very dense and congested markets the A380 will provide the additional capacity to increase revenues for operating airlines. However, in the downturn, airlines with excessive capacity may well lose money even with very low seat costs as they struggle to fill their capacity. With a market of increasing elasticity, seat costs are clearly very important and the A380 will enjoy a seat cost advantage over the B787 but use of the latter is likely to attract the higher yielding element of the available traffic. It has been argued that throughout the cycle airlines tend to pursue market share strategies, sometimes at the cost of profitability. This rather leads onto the final question; given how and which markets are growing, which combination of aircraft will be winners or fair better than others? This question more than the others is impossible to answer in a general or theoretic manner. The answer will depend on the geographic location of the airline, the routes served, the regulatory environment and the competition faced. Both the A380 and the B787 will have roles to play in the future aviation market and it is hoped that a more liberal regulatory framework of the future will better encourage airlines to adopt strategies that employ them profitability to create a wealth generating industry.

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