

The new business model

Dr. John Kasarda explains why the 'Airport City' and 'Aerotropolis' models represent the way forward for major gateways.

Airports today are much more than airports. As they transform in function, financing, management, and development impact, they are being reshaped and redefined.

In the past, airports were simply a place where aircraft, passengers, and cargo arrived and departed. This historic understanding is giving way to a much broader, more encompassing concept.

The new model recognizes the fact that in addition to their core aeronautical infrastructure and services, major airports have developed significant nonaeronautical commercial facilities, services and revenue streams. At the same time they are extending their formal reach and impact well beyond airport boundaries.

The nonaeronautical boom

No longer restricted to magazine shops and fast food outlets, passenger terminals increasingly feature brand name boutiques, specialty retail, and upscale restaurants along with entertainment and cultural attractions.

Hong Kong International, for instance, hosts more than 30 high-end designer clothing shops. Singapore Changi offers cinemas, saunas, and a swimming pool. Munich boasts its own hospital, while Las Vegas McCarran has a museum and Amsterdam Schiphol a Dutch Master's gallery.

Others doing things differently include Frankfurt – which has the world's largest airport clinic serving over 36,000 patients yearly – and Detroit Metro whose swank 420 room hotel is located on its main concourse. Beijing Capital Airport's tenants include banks while Stockholm Arlanda's intensively utilised chapel conducted over 450 weddings in 2005.

All major airports, of course, are diversifying, upgrading, and expanding their terminal retail.

Given the significantly higher incomes of airline passengers (typically three to five times higher than national averages) and the huge volumes of passengers flowing through the terminals (often in the tens of millions annually), it is not surprising that terminal retail sales per square metre average three to four times greater than shopping malls and downtown shops. As a result, terminal commercial lease rates tend to be the highest in the metropolitan area.

In addition, to incorporating a variety of commercial functions into passenger terminals, airports are developing their landside areas with hotels, office and retail complexes, conference and exhibition centres, logistics and free trade zones and facilities for processing time-sensitive goods. Consequently, many airports now receive greater percentages of their revenues from non-aeronautical sources than from aeronautical sources (e.g., landing fees, gate leases, passenger service charges).

These non-aeronautical revenues have become critical to airports meeting their facility modernisation and infrastructure expansion needs, along with their being cost-competitive in attracting and retaining airlines.

The rapid expansion of airport-centric commercial development also makes today's gateways leading urban growth generators as they become significant employment, shopping, trading, business meeting and leisure destinations in their own right. The evolution of these non-aeronautical functions and commercial land uses has transformed numerous city airports into airport cities.

New management and planning models

Consistent with their growing non-aeronautical roles and functions, airports are altering their operational management. Many airports (both public and private sector operated) have established commercial and/or real estate divisions to develop their landside areas as well as foster development beyond airport boundaries. They include UK airport operator, BAA, Aéroports de Paris (ADP), Dallas-Fort Worth International Airport (DFW), Frankfurt Airport [Fraport], Amsterdam Schiphol and Singapore Changi.

Further extending their reach, some airports are even buying and/or operating other airports through special investment management divisions.

These new operational structures offer testimony that airports are evolving from basic aeronautical infrastructures into complex multi-functional enterprises serving both aeronautical needs and profitable commercial development. The current trend in airport management and planning is therefore to complement traditional technical airport functions with revenue-generating terminal and landside commercial activities. Such activities, which give rise to the airport city, include:

- duty free shops
- restaurants and specialty retail
- cultural attractions
- hotels and accommodation
- business office complexes
- convention and exhibition centres
- leisure, recreation and fitness
- logistics and distribution
- light manufacturing and assembly
- perishables and cold storage
- catering and other food services

- Free Trade Zones and Customs Free Zones
- golf courses
- factory outlet stores
- personal and family services such as health and child day care

To many not familiar with the new realities of airports, the airport city model might appear to be a deviation from the norm, but it is fast becoming the way forward for international airports.

Airports from Amsterdam to Zurich and from Beijing to Seoul have embraced this model to develop their terminals and landside areas as a pivotal means to financing airport operations while contributing to their profitability and competitiveness. To note just a handful:

- Beijing is rapidly proceeding with its highly ambitious Capital Airport City, whose Masterplan takes an expansive definition of appropriate functions including, among others, shopping, entertainment, education, sports and leisure, light manufacturing, finance, trade and housing.
- ADP established a real estate division in 2003 to act as the developer, general contractor and construction project owner and manager of landside commercial properties at Paris Charles de Gualle and Orly international airports.
- DFW's management is aggressively expanding its real estate development business, leasing airport land to a wide variety of commercial tenants.
- Hong Kong International Airport's SkyCity is opening a one million square metre retail, exhibition, business office, and hotel and entertainment complex near its passenger terminal. The first major phase will be in full operation by the end of 2006.
- Kuala Lumpur International Airport's new airport city is commercially anchored by its large Gateway Park that, in addition to retail and office development, includes motor sports, an automotive hypermarket and leisure venues drawing on the local as well as aviation-induced market.
- Incheon's 'Winged City' encompasses international business areas, logistics zones, shopping and tourism districts, as well as housing and services (e.g. medical) for airport city workers and residents.
- The new Bangkok International Airport (Suvarnabhumi) is expected to open in late 2006. Its Masterplan includes the development of an airport city within airport boundaries to include an international business centre, international conference and exhibition complex, shopping mall, office buildings, hotels, car-parks, hospitals, restaurants, entertainment centre and an international resident community.

- Dubai World Central is a US\$32 billion airport city under development 25 miles south of downtown Dubai. Cornerstoned by a massive multimodal air logistics hub, the airport city will include office towers, hotels, a megamall, golf course, and housing for 40,000 on-site workers. Its airport, commercial and residential zones will be connected by an internal light rail system.
- Amsterdam Schiphol, through its Schiphol Real Estate Group, has been involved for well over a decade in landside commercial development. These developments include business office complexes, hotels, meeting and entertainment facilities, logistics parks, shopping and other commercial activities branded under the AirportCity name. Nearly 58,000 people are employed at Schiphol, which integrates multi-modal transportation, regional corporate headquarters, retail shopping, logistics and exhibition space to form a major economic growth pole for the Dutch economy.

Other international airports, not quite the scale of Amsterdam Schiphol or Seoul's Incheon, have given commercial development a high priority in their master planning (e.g., Brisbane, Vienna, Calgary, Zurich and Stockholm-Arlanda). The majority of these have implemented the airport city concept in their strategic development, either explicitly or implicitly.

The upshot is that airports are undergoing a metamorphosis, taking on many of the commercial functions of a metropolitan Central Business District (CBD). With the growing number of boutiques, restaurants, consumer services, meeting facilities and entertainment and cultural attractions, passenger terminals resemble parts of downtown.

Many airports also have the density of highway and rail connections that are usually associated with CBDs. This is reinforcing their new roles as drivers of business location and urban development over an extended area.

The rise of the 'Aerotropolis'

With the airport itself serving as a region-wide multi-modal transportation and commercial nexus, strings and clusters of airport-linked business parks, information and communications technology complexes, retail, hotel and entertainment centres, industrial parks, logistics parks, wholesale merchandise marts and residential developments are forming along airport arteries up to 20 kilometres outward.

This more dispersed airport-linked development is giving rise to a new urban-form – the 'Aerotropolis'. Similar in shape to the traditional metropolis, made up of a central city and its commuter-linked suburbs, the aerotropolis consists of an airport city core and extensive outlying areas of aviation-oriented businesses and their associated residential developments. A synthesised model of the Aerotropolis based on development features around major international airports is illustrated in Figure 1.

Reflecting the new economy's demands for connectivity, speed and agility, the aerotropolis is optimised by corridor and cluster development, wide lanes and fast movements. In other words, form follows function. Airport expressway links (aerolanes) complemented by airport express trains (aerotrails) bring cars, taxis, buses, trucks and rail together with air infrastructure at the multi-modal commercial core (the airport city). Aviation-linked business clusters and associated residential developments radiate outward from the airport city, forming the greater aerotropolis.

Aerotropolises are emerging because of the advantages airports provide to business in the fast-paced, globally networked economy. Today's most competitive manufacturers, for example, use advanced information technology and high-speed transportation to provide fast and flexible responses to customers' unique needs. Such firms build agile production systems that connect them to their suppliers and customers, allowing them to source parts and ship assembled products as needed.

A manufacturer's ability to meet customer demand also depends on the existence of a comprehensive ground-to-air shipping network of air cargo carriers, trucking companies, freight forwarders and logistics providers. This network has been strengthened as demand for time-sensitive manufacturing and distribution grows. Made possible primarily by proximity to an airport, a ground-to-air shipping network allows manufacturers to minimise their inventories, shorten production-cycle times and quickly access novel inputs for custom products that create additional value.

Like time-sensitive goods processing industries, the service sector has increasingly found airport areas to be an attractive location. Airports have become magnets for regional corporate headquarters, conference centres, trade representative offices and information-intensive firms that require executives and staff to undertake frequent long-distance travel. Business travellers benefit considerably from quick access to hub airports, which offer greater choice of flights and destinations and more flexibility in rescheduling as well as often avoiding the costs of overnight stays.

Firms specialising in information and communications technology and other high-tech industries consider air accessibility especially crucial. High-tech professionals travel by air at least 60% more frequently than other professionals, giving rise to the term "nerd birds" in the US for commercial aircraft connecting "techie" capitals such as Austin, Boston, Raleigh-Durham and San Jose. Many high tech firms are locating along major airport corridors, such as those along the Washington-Dulles Airport access corridor in Northern Virginia and the expressways leading to Chicago's O'Hare International Airport. In this sense, knowledge networks and air travel networks increasingly reinforce each other.

Lastly, commercial services of all types have begun relocating to airport areas in order to attract a dual customer base of travellers and locals. Airports now offer on-site or nearby hotels, restaurants, shopping, fitness centres and entertainment facilities. As these offerings grow, areas within five kilometres of major airports are adding jobs considerably faster than suburbs located at similar distances from downtown city

centres, but not near an airport. Such job growth stimulates residential projects – further fuelling aerotropolis development. And airports regions are even developing their own brand image to promote themselves, examples of which include ‘the DFW Area’ and ‘the O’Hare Area’.

In summary, by offering speedy distant market connectivity to aerotropolis businesses, the airport provides important value to these businesses. Aerotropolis businesses, in turn, generate additional passengers and cargo for the airports, resulting in reciprocal benefits. Figure 2 illustrates these reciprocal benefits for Amsterdam Schiphol’s airport city and its greater Aerotropolis.

Although airport cities initially evolved in western countries, the broader Aerotropolis is emerging most vividly around Asia’s newer international gateway airports. This can be seen in developments at and near Hong Kong, Incheon and Beijing Capital airports and others planned for Bangkok’s new Suvarnabhumi gateway.

The future Aerotropolis

To serve the economic demands of connectivity, speed, and agility, the aerotropolis will require localised infrastructure planning of unprecedented scale. To date, most have evolved largely spontaneously, with growing highway traffic and nearby development often creating arterial bottlenecks. In the future, strategic infrastructure planning could reduce this congestion.

Dedicated expressway links (aerolanes) and high-speed rail (aerotrains) should efficiently connect airports to business and residential clusters near and far. Special truck-only lanes should be added to airport expressways, as should improved highway interchanges to reduce congestion. Multi-media technologies should produce themed electronic public art along airport transportation corridors that highlight the culture, history and economic assets of the region the airport serves.

Regional marketing through informative and tasteful public art should likewise characterize the airport’s terminals. By setting both the first and final impressions for many air travellers, the airport and its aerolanes represent an area’s official welcome and send-off.

Global information and communications technology (ICT) networks will also help shape the aerotropolis. Advanced information processing technologies and multi-media telecommunications systems served by high-density fiber-optic rings and satellite uplinks and downlinks will evolve around airports, instantly connecting companies to their global suppliers, distributors, customers, branch offices and partners.

Companies that require the fastest possible networking will thus have an additional reason to locate in the aerotropolis. This ICT infrastructure is appearing not only around major passenger airports like Incheon and Washington-Dulles but also around US air express hubs such as Memphis (which serves global shipper FedEx) and Louisville (which serves United Parcel Service).

As multi-modal transportation and advanced communications infrastructure further develops at and near airports, businesses will have even more reason to move to an aerotropolis. The principal determinant of land value, lease rates, and the type of commercial use on a given property will be the cost of moving people and products to and from the airport and, via the airport, to distant markets.

This value/cost proposition will be measured primarily in time to the airport – a function of the site's place on local transportation arteries, and not necessarily of spatial distance. For example, a site 10 kilometres away, but one stop on a high-speed train line from the airport, will be worth more than a site five kilometres away with poor road and rail connections. To put it another way, the three A's – accessibility, accessibility, accessibility – will become the critical component of the three L's – location, location, location – in aerotropolis real estate value.

At first glance, one might misconstrue aerotropolis land uses as simply additional sprawl along main airport transportation corridors. In reality, the aerotropolis grows according to a rational system based on time-cost access gradients radiating outward from the airport.

Constructing appropriate multi-modal ground transit and locating commercial facilities consistent with the form and function of the aerotropolis will contribute substantially to the emerging needs of business, more efficient cargo and passenger flows and the future competitiveness of urban areas.

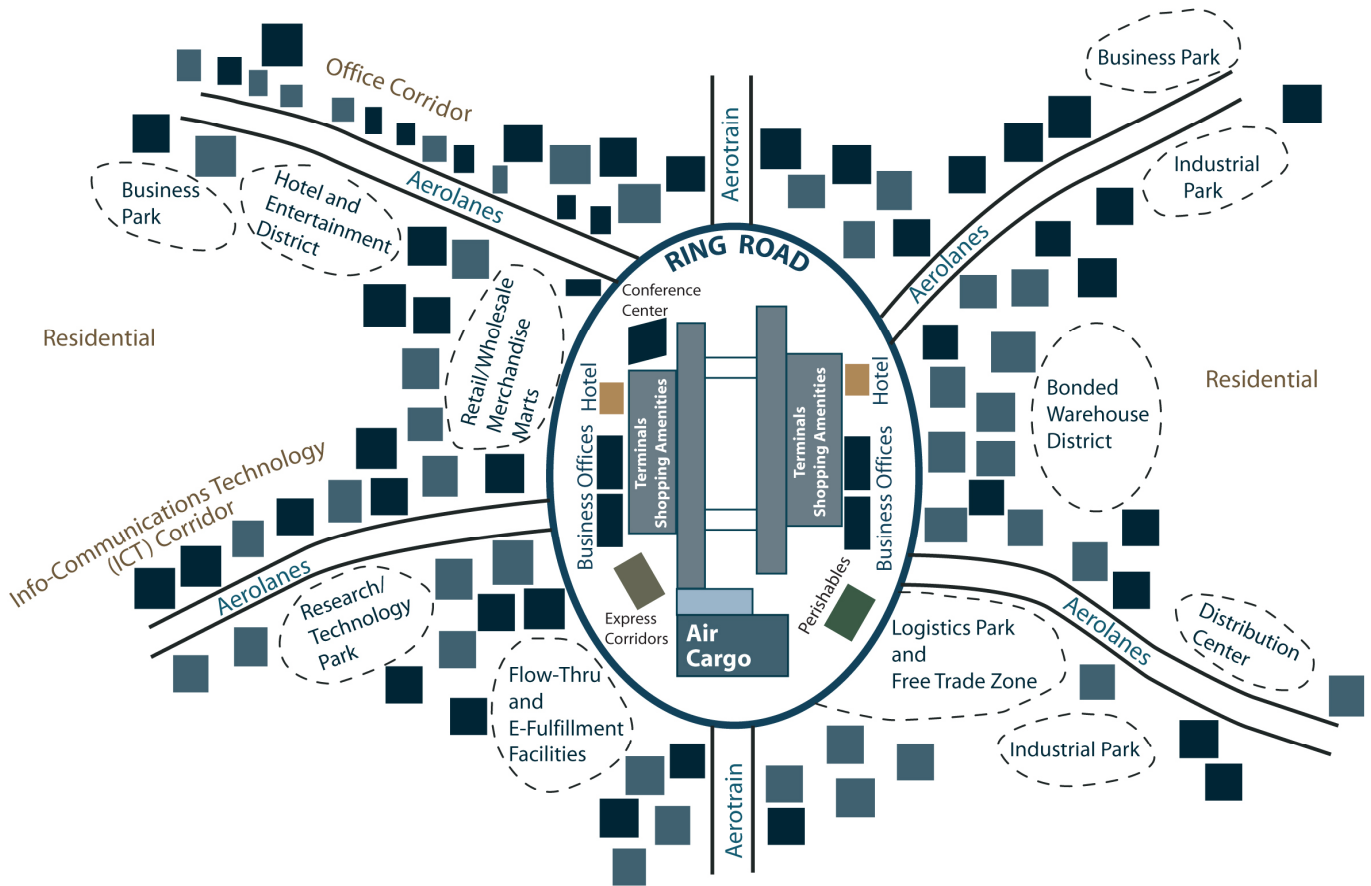
These outcomes will not occur spontaneously, however. Aerotropolis optimisation will require bringing together airport planning, urban planning, and business site planning in a synergistic manner so that development is economically efficient, aesthetically pleasing and environmentally sustainable.

About the author

John Kasarda, PhD, is Kenan distinguished professor of management and director of the Kenan Institute of Private Enterprise at the University of North Carolina's Kenan-Flagler Business School. He advises airports and government officials around the world on airport city and Aerotropolis development.

Figure 1

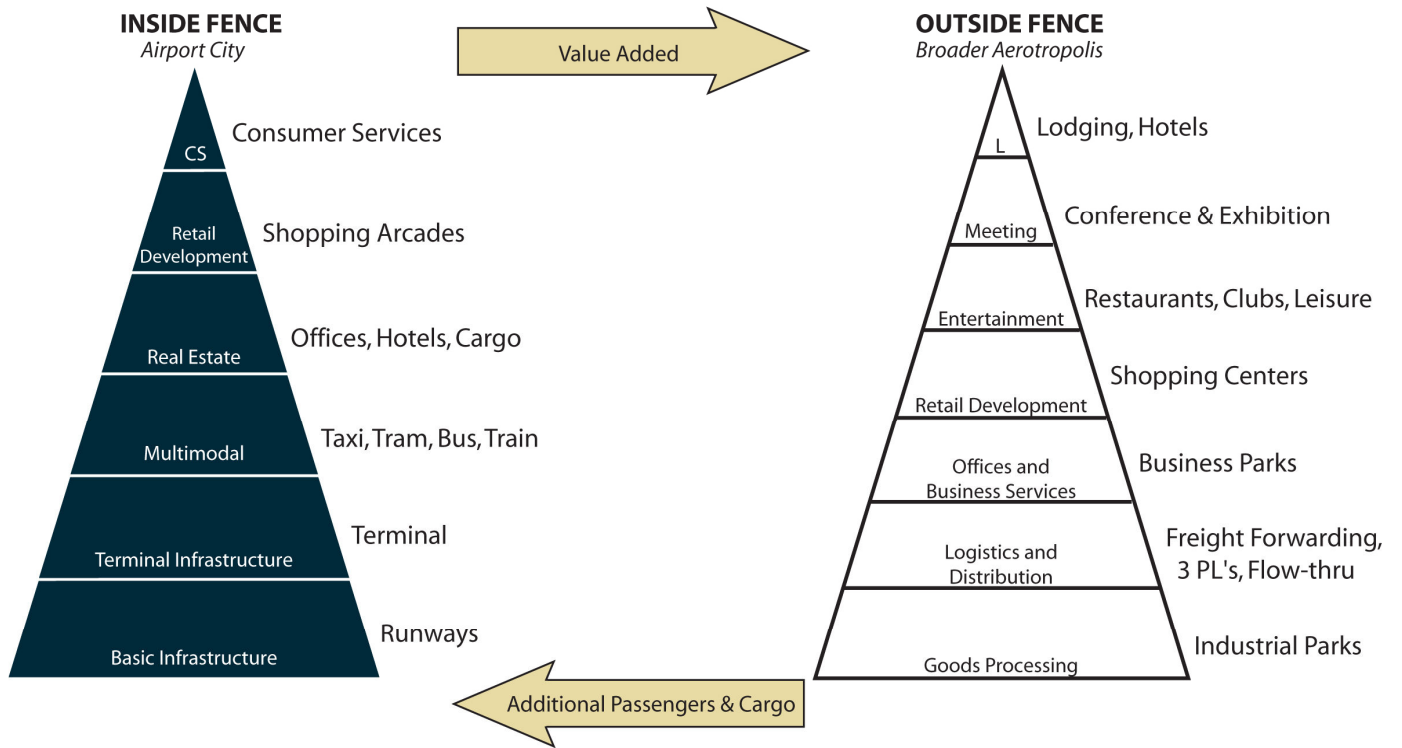
Aerotropolis Schematic



John D. Kasarda

Figure 2

Amsterdam-Schipol Airport City – Aerotropolis Synergies



Source: Schiphol Group and Dr. John D. Kasarda