

**Even in today's rocky economic times, airports and their immediate environs are becoming 21st-century commercial anchors, taking on many features of destination retail and urban centers.**

PASSENGER TERMINALS ARE morphing into shopping malls as well as artistic and recreational venues. No longer restricted to offering magazine stands, fast-food outlets, and duty-free shops, airport terminals now house brand-name boutiques, specialty stores, and upscale restaurants. Larger airports in Asia and Europe are going further, incorporating gallerias, shopping streets, and gourmet and culinary clusters, as well as meeting, entertainment, arts, and cultural venues.

Hong Kong International Airport, for instance, has a galleria with more than 20 high-end designer clothing shops. Singapore Changi Airport includes cinemas, saunas, and a tropical butterfly forest, and Amsterdam Airport Schiphol is home to the Rijksmuseum, displaying the work of Dutch masters. Dubai International's terminal has a 0.6-mile- (1-km-) long shopping corridor that last year racked up \$1.1 billion in duty-free sales alone.

# AIRPORT CITIES



SkyCity is the core of an evolving airport city adjacent to the main passenger terminal of Hong Kong International Airport. Phase I of the development includes more than 1 million square feet (93,000 sq m) of retail space, offices, and hotels; a nine-hole golf course; and a 1.5 million-square-foot (139,000-sq-m) exhibition and trade center.



Other airports taking on destination functions include Frankfurt Airport, which has the world's largest airport clinic serving more than 36,000 patients yearly, and Dallas/Fort Worth (DFW) International, which has a terminal-linked Grand Hyatt hotel that serves as a fly-in virtual corporate headquarters for a number of U.S. businesses. Beijing Capital Airport's tenants include banks. Stockholm-Arlanda Airport's chapel conducted 500 weddings last year.

### Consumer Powerhouses

The economic influence of airports is far greater than that of transit-oriented development, such as projects near downtown train stations. An increasing number of airports employ more than 50,000 workers, which qualifies them as metropolitan central cities by the U.S. Census Bureau definition. When the hundreds of thousands of daily flyers are added—plus those greeting passengers—the consumer populations of airports are larger than most medium-sized cities. For example, more than twice as many people pass through Atlanta's Hartsfield-Jackson International Airport terminal each year—more than 90 million in 2008—as visit Disney World, Graceland, and the Grand Canyon, combined.

Given the significantly higher incomes of air passengers, which typically are three to five times the national average, and their high



number—30 million to 90 million people visit large airports each year, compared with 8 million to 12 million for a large mall—it is not surprising that major airport retail sales per square foot are up to six times greater than those for shopping malls and downtown shops. Terminal-based stores at major U.S. airports in 2007 generated sales from just under \$600 per square foot (\$6,500 per sq m) to over \$2,500 (\$27,000 per sq m), according to *Airport Revenue News*. This compares with \$450 per square foot (\$4,800 per sq m) for nonanchor tenants in the average U.S. mall that same year, according to the International Council of Shop-

**Purchases of everything from powdered milk to Rolex watches by passengers inside Dubai International Airport (top left) accounted for more than \$1.1 billion in retail sales last year, up by 23 percent from 2007. Amsterdam Schiphol airport (top right) has a variety of cultural and entertainment venues, including a branch of the Rijksmuseum, where air passengers can view paintings by Dutch masters. Singapore Changi Airport (above) includes cinemas, saunas, and a tropical butterfly forest.**

ping Centers. New York's John F. Kennedy International Airport was tops in the United States in concessions revenue last year with \$442 million, up from \$405 million in sales in 2007, de-



**New Songdo City, a \$30 billion mixed-use project located near Incheon International Airport, is expected to be the largest private sector development in the world.**

spite the deep recession and air traffic declines. Second was Atlanta's Hartsfield-Jackson at \$349 million, up from \$337 million in 2007.

Some airports in Asia and the Middle East substantially trump U.S. hub airport commercial revenues. South Korea's Incheon International Airport, for example, had over \$1 billion in retail revenues in 2008. With retail sales growing at 17 percent per year, Incheon aims to have \$3 billion in sales by 2015. Dubai International's billion-dollar-plus terminal-generated retail sales have been rising even faster, exceeding 20 percent annual growth in recent years. In December 2008 alone, the airport reported a record \$110 million in duty-free sales.

The possibility that such sales growth will be sustained this year seems doubtful. Yet, when the global economy and aviation sector recover, as they inevitably will, it is anticipated that strong terminal retail growth will resume.

### The Rise of the Airport City

In addition to incorporating an expanding variety of shopping and leisure venues into passenger terminals, airports are developing their public access property with hospitality, entertainment, and recreation clusters; office and retail complexes; conference and exhibition centers; and facilities for processing time-sensitive goods.

The largest concentration of hotel rooms on the U.S. West Coast is at Los Angeles International Airport. London Heathrow's Sofitel

Lux Le Grand hotel measures up in design and guest amenities to any downtown London five-star facility, attracting wealthy international and extended-stay business travelers to its suites, which have rates as high as €3,000 (\$3,870) per night. With 45 meeting rooms, a 180-seat theater, and a convention center accommodating 1,700 delegates, the airport hotel is the third-biggest conference venue in the U.K.

Incheon International is developing a large tract near its terminal as Air-City with a medical and wellness village, Disney-scale amusement complexes, and Fashion Island, a billion-dollar project complete with luxury fashion outlets, state-of-the-art convention facilities, hotels, and shopping malls. Hong Kong International's SkyCity is being developed in a similar vein with office, retail, entertainment, hotel, and exhibition complexes.

Such rapid expansion of airport-linked commercial development is making today's air gateways leading generators of urban growth. In the process, these gateways have become as much destinations as places of departure. This evolution in form and function has transformed many city airports into airport cities.

### The Aerotropolis Age

With the airport area serving as a regionwide multimodal transportation and commercial nexus, strings and clusters of airport-linked shopping centers, business parks, information and communications technology complexes, hotel and entertainment centers, industrial parks, logistics parks, wholesale merchandise

markets, and mixed-use developments are forming up to 20 miles (32 km) outward along airport corridors.

Airport-oriented edge cities are also evolving as new anchors of postmodern suburban development. For example, the city of Las Colinas, just east of DFW, is the global headquarters of four Fortune 500 companies and 2,000 other firms, as well as signature residential, shopping, hospitality, and recreational complexes.

Amsterdam Zuidas, located six minutes from Schiphol's terminal, has more than 20 million square feet (1.86 million sq m) of Class A office, retail, and hospitality real estate, plus 9,000 multifamily residences. It also houses the world headquarters of ABN Amro and ING banks, along with numerous European corporate headquarters.

New Songdo City, located near Incheon International Airport, is being developed by New York City-based Gale International and South Korea's POSCO E&C as a 1,500-acre (600-ha), \$30 billion mixed-use project, expected to be the largest private sector development in the world. It is second in overall scale to Dubai World Central, a \$33 billion urban complex being developed from scratch around the new Al-Maktoum International Airport.

Airport edge cities, together with substantial other airport-centric commercial development occurring around the globe are giving rise to a unique 21st-century urban form—the *aerotropolis*. Reflecting the new economy's demands for connectivity, speed, and agility, the aerotropolis form follows function, with corridor and cluster development, wide lanes,

and fast movement. Airport expressway links (aeroplanes), complemented by express trains (aerotrains), bring cars, taxis, buses, trucks, and rail together with air infrastructure at the multimodal commercial core—the airport city. Aviation-linked business clusters and residences radiate from the airport city, forming the airport-integrated urban region.

In the aerotropolis, destination shopping mall complexes, office parks, exhibition centers, and merchandise marts leverage airport connectivity and capitalize on local and regional surface access. In some cases, such as the Mall of America (MOA) near Minneapolis–St. Paul International Airport (MSP) and the Dolphin Mall near Miami International Airport, a substantial portion of shoppers come from as far away as Asia, Europe, and South America.

Canada's Triple Five Group, developer of the 4.2 million-square-foot (390,000-sq-m) Mall of America, has forged a close relationship with the airport and its hub airline, Delta/Northwest, to bring in more than 1 million international passengers annually. At the mall, visitors shop, dine, are entertained, meet, and sleep at the mall's associated hotels, and attend its conference centers and

leisure attractions. A light-rail line brings air passengers from airport terminals to the mall.

The extended commercial reach of airports is likewise illustrated by Dallas Market Center, located on the Interstate 35 corridor to DFW. This cluster of four large buildings, containing 5 million square feet (465,000 sq m) of display space for high-fashion clothing and home furnishings, is the world's largest wholesale merchandise mart. Developed by Trammell Crow, Market Center attracts buyers from all 50 states and 84 countries who in 2008 conducted an estimated \$8 billion in transactions.

Airport areas are also proving attractive to the business services sector as they draw regional corporate headquarters, conference centers, trade representative offices, and information-intensive firms that require executives and staff to undertake frequent long-distance travel. Business travelers benefit considerably from quick access to hub airports, which offer a greater choice of flights and destinations and flexibility in rescheduling; they also help travelers avoid the costs of overnight stays. Chicago's O'Hare Airport area is the second-largest office market in

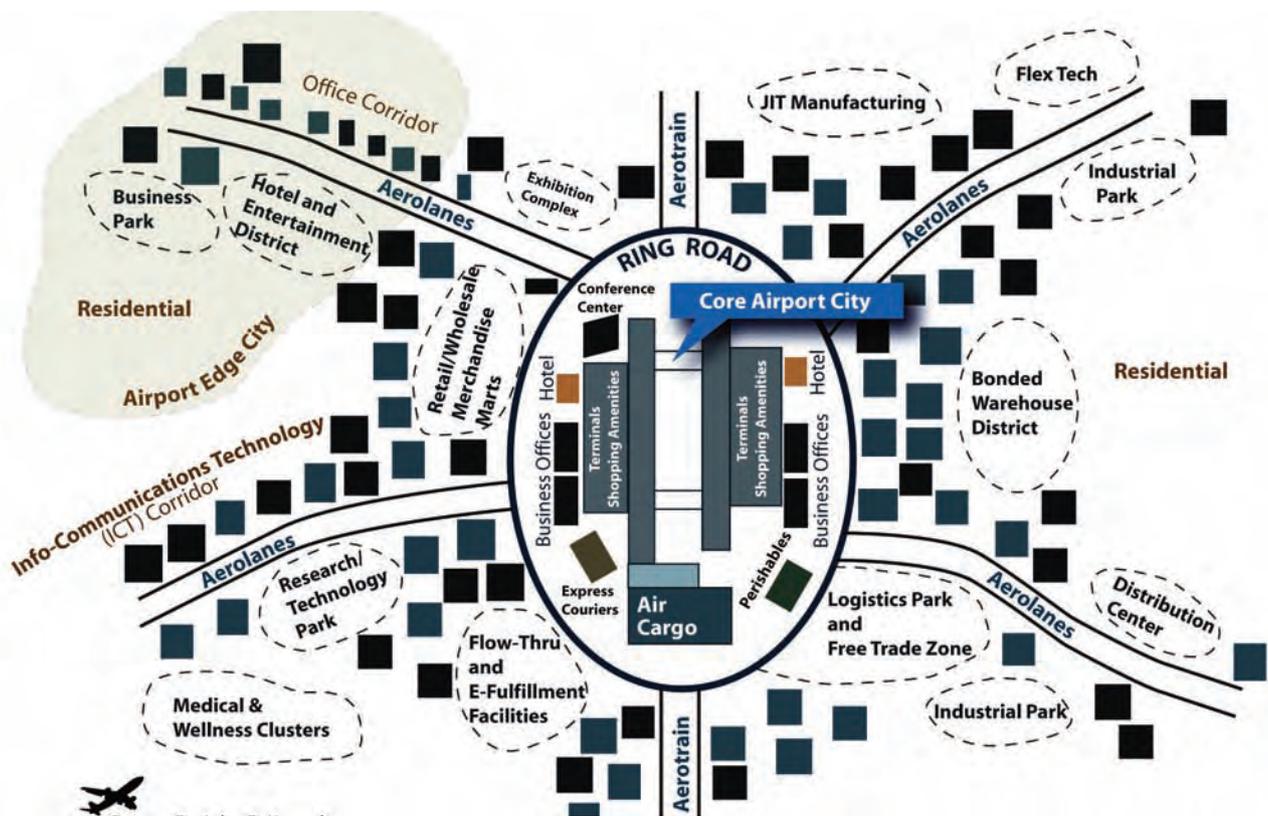
the Midwest, while the Washington Dulles region, stretching out from Washington, D.C.'s Dulles International Airport in the northern Virginia suburbs, contains more Class A office and retail space than does downtown Washington, D.C.

Firms specializing in information and communications technology and other high-tech industries consider air accessibility to be especially crucial. High-tech professionals travel by air much more frequently than do most other workers, giving rise to the term "nerd birds" in the United States for commercial aircraft connecting technology capitals such as Austin, Boston, Raleigh-Durham, and San Jose, California. Many high-tech firms are locating along major airport corridors, such as along the Washington, D.C.–Dulles airport access corridor.

Restaurants, superstores, factory outlets, and consumer services of all types likewise are locating along airport corridors to attract a dual customer base of air travelers and local residents, further fueling aerotropolis development. Athens International Airport in Athens, Greece, for example, has a large IKEA and a Kotsovolos megastore, as well as a major factory outlet complex in an airport retail park lo-



High-tech office buildings along Washington Dulles International Airport's connecting highway corridor in Fairfax County, Virginia, form a key component of the Dulles aerotropolis, with its corridor and cluster development, wide lanes, and fast movement.



A composite schematic of the aerotropolis, an airport-integrated urban economic region anchored by a multimodal airport city core and nearby commercial development, illustrates how aviation-oriented businesses span up to 20 miles (32 km) outward along airport expressway corridors (aerolanes) and airport-linked passenger rail lines (aerotrains).

created less than two miles (3.2 km) from its main terminal.

Airport regions are even developing their own place identities such as the “Amsterdam Airport Area,” or “Dulles.” The airport region as an urban realm, commercial destination, and branded location clearly has arrived.

### Aerotropolis Planning and Development

To date, most aerotropolis areas have evolved largely in a spontaneous, haphazard, and sometimes unsightly manner. Growing highway traffic associated with airports and airport area developments often create arterial bottlenecks. Strategic infrastructure and business site planning and development are required to reduce congestion and environmental problems while generating greater returns to businesses and the region.

High-quality aerotropolis development 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 and socially sustainable. Accomplishing these objectives will require not only good physical infrastructure, but also the creation of an effective aerotropolis working and living environment.

The physical and social environment created should do the following:

- ▷ facilitate seamless multimodal surface connectivity among the airport and both the downtown and major commercial nodes throughout the region;
- ▷ align businesses in proximity to the airport in relation to their frequency of use of the facility;
- ▷ locate commercial and residential developments that are sensitive to noise and aircraft emissions outside high-intensity flight paths;
- ▷ emphasize aesthetics and cluster development rather than encourage strip development, and provide green space between the clusters; and
- ▷ create mixed-use commercial/residential communities where airport and airport-area employees can commute easily to work while residing in affordable, human-scale environments that are supported by retail and service businesses and community facilities.

The airport city and its broader aerotropolis are still in their earliest stages of evolution. Management, planning, and development strategies are just beginning to catch up to what has largely been an organic process. The

challenge now becomes to design and implement future airport city and aerotropolis development in a manner that brings about the greatest returns to the airport, its users, businesses, and the larger community it serves.

To this end, regions around such cities as Detroit and Memphis have established cross-jurisdictional, public/private aerotropolis development entities. Also, cities such as Atlanta, Philadelphia, Taipei, and Manchester, England, have begun strategic visioning workshops to lay the groundwork for coordinated planning and action to generate high-quality airport city and aerotropolis development.

These and other urban regions around the globe recognize that despite the current economic slump and corresponding dip in air travel, commercial aviation in time will rebound strongly and continue to drive economic development. They are therefore positioning their airports as critical infrastructure for their regions to compete and attract investment in this age of the aerotropolis. **UL**

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