Airport real estate values: What drives growth?

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Abstract

This paper offers guidance to airport managers who are evaluating their real estate and land asset management strategies. Through an international benchmark study of airport property values, it identifies the key factors of growth in land prices and rent levels, and quantifies the resulting increase in real estate values at the airport and in the surrounding airport area. The paper has three key findings. First, airport areas experience a long-term increase in property values across all land use categories, with the sharpest price increases taking place in the first ten years of development. Second, direct airport access generates a significant price premium, with commercial and industrial plots located in airport areas achieving higher property values and rent levels compared to competing locations that do not have direct airport access. Finally, eight key factors of growth that lead to long-term increases in airport property values are identified. The paper concludes with four key questions that decision makers should consider when evaluating their future real estate strategy.

Keywords

airport real estate, non-passenger revenue, airport urbanism, cargo

INTRODUCTION

Real estate has become an essential part of the airport business model, accounting for nearly one-fifth of global airport revenue.[1–4] It also acts as an 'insurance policy', providing a much needed financial cushion whenever unexpected events — such as a terror attack, an airline bankruptcy, a natural disaster, or a global pandemic — lead to an abrupt decline in aeronautical income.[5–6] Successful airports develop landside real estate to diversify their revenue sources and mitigate underlying risks that are inherent to the aviation industry.

Unfortunately, airport decision makers often lack reliable data to guide their real estate development and land asset management strategies. As they begin to prepare a feasibility study, managers run up against a common challenge. While local brokers can offer general advice on local market conditions, they are unable to provide targeted guidance (or data) on *airport* real estate. As a result, decision makers often struggle to find the appropriate benchmarks and sector-specific insights needed to successfully develop real estate in an airport environment.

This paper addresses that gap through an international benchmark study of airport area property values. It has three key objectives:

1. To assess the short, medium and long-term development of real estate values over a 30-year time span.
2. To quantify the 'value-add' of direct airport access, and the resulting premium paid for commercial and industrial plots.
3. To identify the key drivers of growth that lead to an increase in airport property values and rent levels.

The study began with a simple conjecture: that airport property values either remain stable or rise over the long term. That hypothesis was tested by conducting (1) a detailed case study of Schiphol, the main international airport of the Netherlands; and (2) a benchmark analysis of more than 20 airports in Europe, North America and Asia-Pacific.[7]

The first part of the paper introduces an in-depth case study of Amsterdam Schiphol (AMS). Schiphol is one of the world's most advanced developers of on and off-airport real estate in the world. It is also one of the oldest, making it a highly relevant reference case for evaluating the long-term evolution of airport area property values.

The investigation of Schiphol followed two vectors of analysis. First, evaluated compound annual growth rates (CAGR) were evaluated for two common airport area land uses: office space and logistics. Next, property values at Schiphol were compared with competing office and logistics locations across the Netherlands that do not have direct airport access. The purpose of this comparison was to measure the value-add of direct airport access, and to quantify the resulting price premium achieved by commercial and industrial plots in Schiphol's immediate catchment area.

The second part of the paper focuses on a benchmark analysis of airport area property values in Europe, North America and Asia-Pacific. The objectives were two-fold:

- first, to compare our findings at Schiphol with a broad cross-section of airports that differ in terms of their regulatory context, local real estate market, stage of development, and land asset management model;
- second, to test whether the data obtained at Schiphol reflected broader trends in airport area property values.

Table 1 Quantitative and qualitative research methods deployed in this study

Quantitative methods	*Qualitative methods*
• Analysis of CAGR in real estate values, based on valuation and sales records, broker reports • Residual valuation method, by which rental and lease rates are analysed to estimate property values • Comparative analysis of properties with/without direct airport access to quantify airport area price premiums	• Expert interviews with airport managers, developers, and urban planners • Structured survey, distributed as a questionnaire to participating airports • Detailed case studies of individual plots to illustrate broader price trends

The study deployed a combination of quantitative and qualitative research methods, as illustrated in Table 1.

Synthesising these quantitative and qualitative methods led us to three key findings. First, airport areas experience a long-term increase in real estate values across all land use categories. The sharpest price increases take place in the first phase of development — typically from Years 0 to 10 — thanks to catalytic events such as the re-zoning of agricultural land and the installation of basic infrastructure. Second, direct airport access generates a significant price premium for commercial and industrial plots located in airport areas. Average property values are measurably higher compared to both the national average and to competing locations without direct airport access.

Finally, eight key growth factors that produce long-term increases in real estate values were identified. Those factors include aeronautical facilities (eg air cargo throughput), managerial decisions (eg professionalisation of the airport's real estate strategy and efficiency of the development process), as well as catalytic events (eg surface access improvements, publishing a masterplan, attracting a flagship tenant). The paper concludes with three key questions that decision makers should consider when evaluating their future real estate development strategy.

AIRPORT REAL ESTATE VALUES: A CASE STUDY OF SCHIPHOL

Schiphol was founded as a military airport in 1916 and converted for civilian use in the interwar period.[8] The airport was reorganised in 1958 as Schiphol Group, an operating authority whose primary owner is the Dutch national government, with minority stakes held by the municipalities of Amsterdam and Rotterdam. In 1967, Schiphol completed a new airport terminal and debuted its 'one-terminal concept', which proved to be a crucial marketing strategy for attracting both passengers and cargo.

With the rise of the European single market, along with exponential growth in intercontinental transfer traffic, in the mid-1980s Schiphol partnered with KLM to reposition itself as the primary distribution hub for the entire European economy. Working together with the Dutch foreign investment agency, the airport encouraged North American and Japanese firms to locate their European headquarters and operational bases in the Schiphol airport area. This strategy became encapsulated in the Mainport concept, which posited Schiphol airport and the Rotterdam seaport as twin gateways to the Netherlands, and as engines of economic development for the Dutch economy.[9–11]

To that end, the national government invested heavily in road and rail infrastructure connecting Schiphol to its hinterland.

At the same time, the airport authority created a real estate department and professionalised the development and marketing of what it called the 'airport city'.[12] Schiphol deployed a mix of spatial planning tools and economic incentives to attract logistics centres and corporate headquarters to the airport area. Numerous foreign companies established office buildings and warehouses around Schiphol in the decades that followed, leading to a sharp increase in rents and property values. By the early 2000s, the Schiphol area achieved the highest square-metre rents for warehouses, and the second highest rents for office spaces, in the entire country.

The success of the Mainport strategy is linked to the high level of institutional coordination between the airport authority on the one hand and local, regional and national levels of government on the other. A dedicated airport-area development vehicle — Schiphol Area Development Company (SADC) — was created for this purpose in 1987. SADC is a private company with four public-sector shareholders: the airport authority Schiphol Group, the province of North Holland, and the municipalities of Amsterdam and Haarlemmermeer.[13] Its mission is to coordinate land acquisition in the airport area, prepare the land for sale to private developers, and distribute the resulting profits among the four shareholders. In contrast to Schiphol Real Estate — a subsidiary of Schiphol Group that manages on-airport property development — SADC is solely responsible for plots located 'outside the fence', that is, in the area surrounding Schiphol airport (Figure 1).

DEFINING THE AIRPORT AREA: FOUR RINGS OF INFLUENCE

To better understand the spatial distribution of property values at Schiphol, the airport area was divided into four concentric rings of influence. The wider airport region — defined by a radius of ca. 20km from the airport itself — is sometimes referred to as the aerotropolis. By contrast, the immediate hinterland of the airport — with a radius of ca. 10km around the airport — is commonly known as the airport city.[14] These two categories can be further subdivided as follows:

- Ring 1: core airport city (<5km from airport)
- Ring 2: extended airport city (5–10km from airport)
- Ring 3: core aerotropolis (10–15km from airport)
- Ring 4: extended aerotropolis (15–25km airport)

Figure 2 provides an overview of the four rings in the Schiphol airport area and their distance to the airfield.

In each of these four concentric rings, the growth in property values was calculated over a 46-year time period for two common airport area land uses: office space and logistics. Next, rent levels and property values around Schiphol were compared to the national average in the Netherlands. This revealed both a significant price premium for airport area land, and above-average CAGRs (Table 2).

QUANTIFYING THE INDUSTRIAL PRICE PREMIUM: LOGISTICS

These data suggest that both commercial and industrial plots located in the airport area command significantly higher property values. But is that really the case? To answer that question, rents for logistics areas located around Schiphol were compared to the national average (Figure 3). Doing so enabled us to further refine the

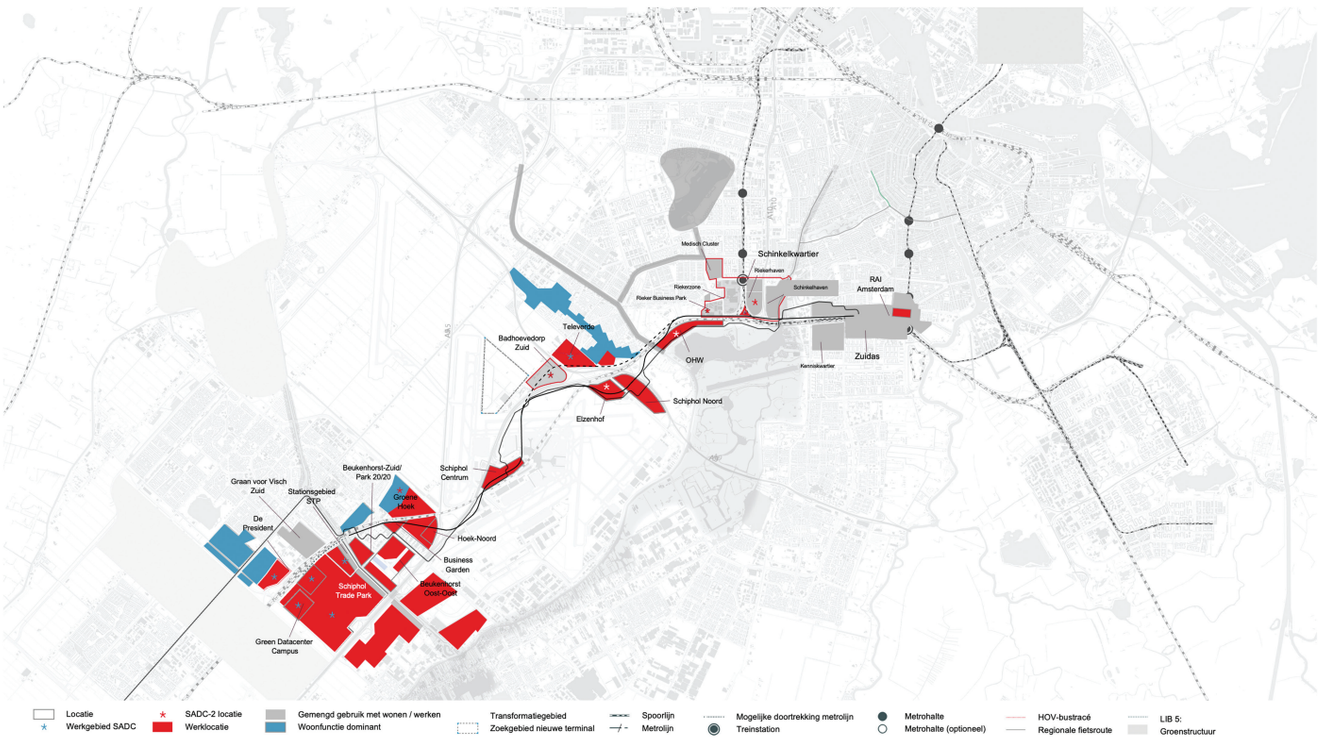

Figure 1 Land developed by SADC in the Schiphol airport area

premium paid for industrial plots with direct airport access.

An analysis of historical data from 1974 to 2021 indicates that rents for warehouses and other logistics properties in the airport area corresponded roughly to the national average until the mid 1980s — that is, until the introduction of the Dutch government's Mainport policy and Schiphol Group's airport city strategy. This divergent trajectory continued into the 1990s, when the success of the airport city led to higher prices for logistics spaces in the airport area — the highest, in fact, in the entire country. As the airport city reached maturity, prices for these industrial plots peaked, and CAGRs began to move in sync with the national average. The global financial crisis led to a brief decline in prices between 2008 and 2010, after which they remained stable. The most recent data indicate an increase in prices and growth rates, which can be attributed to the outbreak of COVID-19 and the associated increase in e-commerce activities. While COVID-19 had a devastating effect on Schiphol's overall financial performance, it did increase demand for logistics space in the airport area.

If we compare current rents in the airport area to eight competing logistics centres across the Netherlands, it becomes clear that Schiphol achieves the highest prices in the entire country. In Figure 4, the column at the far right represents the Schiphol airport area, while the second and third columns from the right represent the two municipalities located closest to the airport. In 2020, average rents for

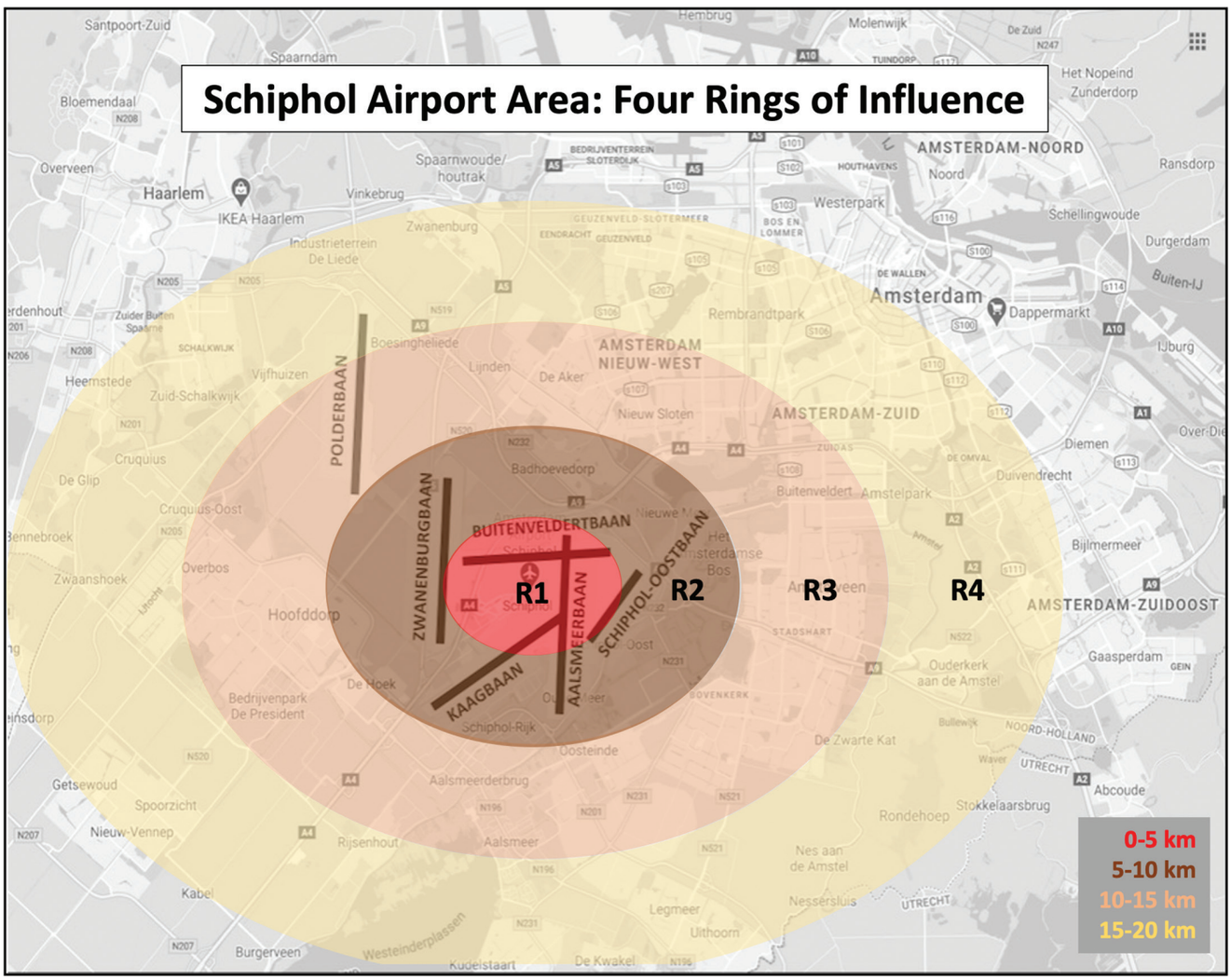

Figure 2 The four rings of influence illustrate the spatial distribution of property value in the Schiphol airport area

Table 2 Commercial and industrial price premiums in the Schiphol airport area

Land use category	*Avg. national rent level*	*Avg. national prop. value*	*Airport premium Ring 1*	*Airport premium Ring 2*	*Airport premium Ring 3*	*Airport premium Ring 4*	*Avg. national CAGR*	*Airport area CAGR*
Logistics	€45	€200	+125%	+74%	+71%	+56%	2.2%	3.3%
Offices	€125	€450	+152%	+42%	+18%	n/app	0.7%	2.0%

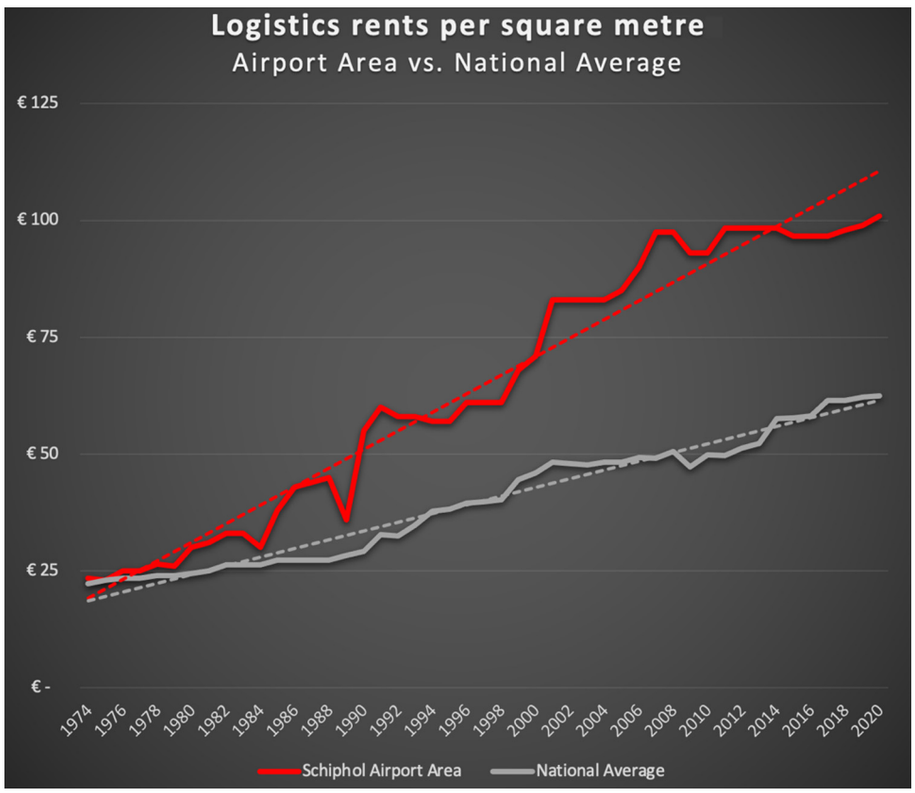

Figure 3 Logistics areas' rents in the Schiphol airport area compared to the national average

logistics spaces in the airport area were more than double the national average (€95/m² vs. €45/m²).

Moreover, a fine-grained analysis of the four concentric rings surrounding Schiphol indicates significant differences in rents within the airport area itself: ranging from €70/m² in the extended aerotropolis (Ring 4) to €101/m² in the core airport city (Ring 1). A locational analysis of logistics facilities near Schiphol reveals a distinct correlation between proximity to the airport and square-metre rents. Simply stated: the closer the logistics space is located to the airport itself, the higher the price it can command.

Finally, the long-term analysis of Schiphol reveals another distinct correlation between air cargo throughput, flight movements, and the value of logistics spaces in the surrounding airport area.

The growth in air cargo volumes and enplanements at AMS was compared to the average rents for warehouses located in close proximity to Schiphol, using historical data over a 40-year time span from 1980 to 2020 (Figure 5). The resulting correlation points to one of the key factors leading to growth in airport real estate values: the more cargo and planes that flow through the airport, the higher the value of logistics properties in the surrounding airport area.

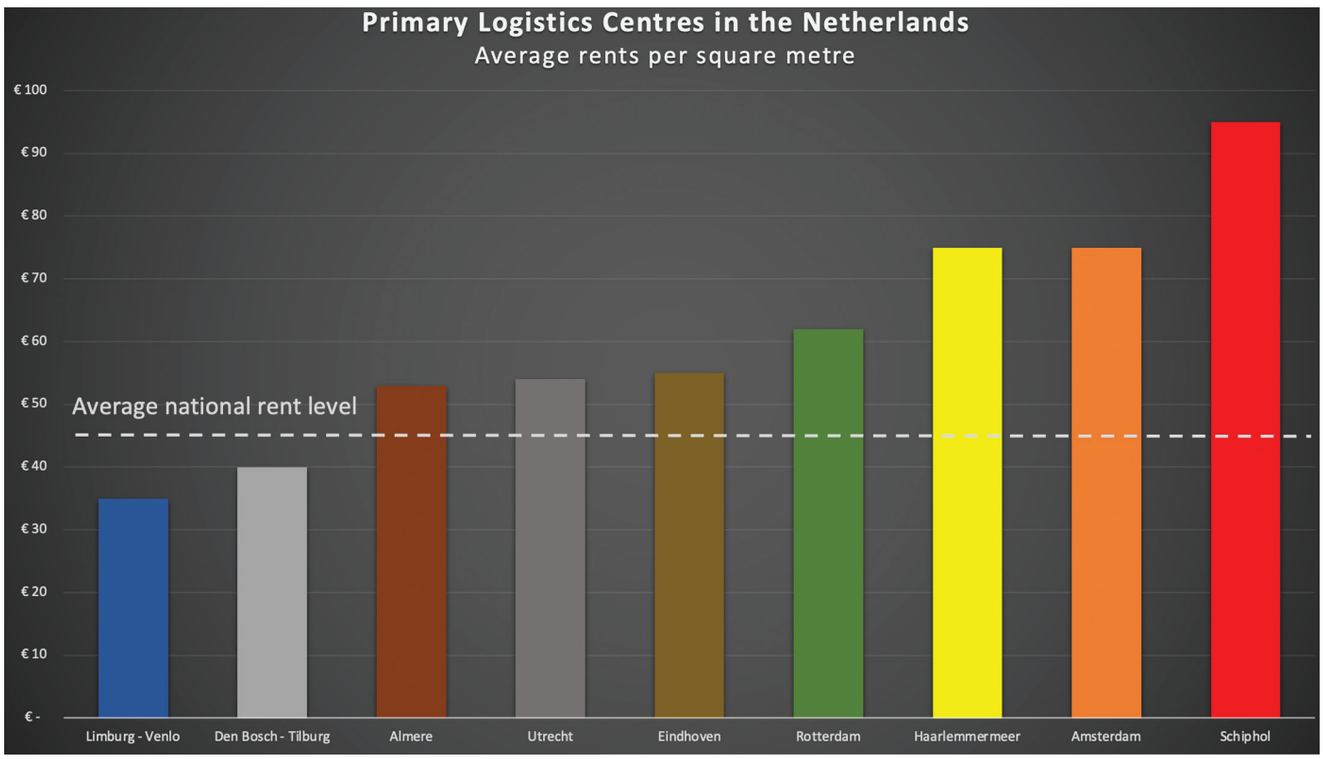

Figure 4 Average rents per square metre in the Netherlands' primary logistics centres

QUANTIFYING THE COMMERCIAL LAND PREMIUM: OFFICE SPACE

A long-term analysis of rent levels for commercial office spaces in the Schiphol airport area indicates similar patterns to those observed for industrial plots (Figure 6).

In the 1970s, there was little price differentiation for office space across the various business centres of the Netherlands. However, prices diverged significantly from the early 1990s onwards, when Schiphol Group brought its airport city strategy to market. Commercial office spaces at Schiphol achieved the highest rent levels in Holland from 1994 to 2006, when Amsterdam's central business district (CBD) assumed the top spot. Schiphol remains in second place to the present day, achieving an average rent in 2020 that far exceeded the national average (€238/m^2 vs. €125/m^2; see Figure 7).

A detailed locational analysis of office spaces around Schiphol indicates a correlation between airport proximity and square-metre property values: the closer the office is located to the airport, the higher the price. Compared to the logistics properties discussed above, this pattern has a higher peak at the centre of the airport area — that is, adjacent to the terminal — but does not extend as far into the surrounding hinterland.

Moreover, a fine-grained analysis of the four concentric rings surrounding Schiphol again highlights notable differences in rents within the airport area: ranging from €315/m^2 for office space in the core airport city (Ring 1) to €178/m^2

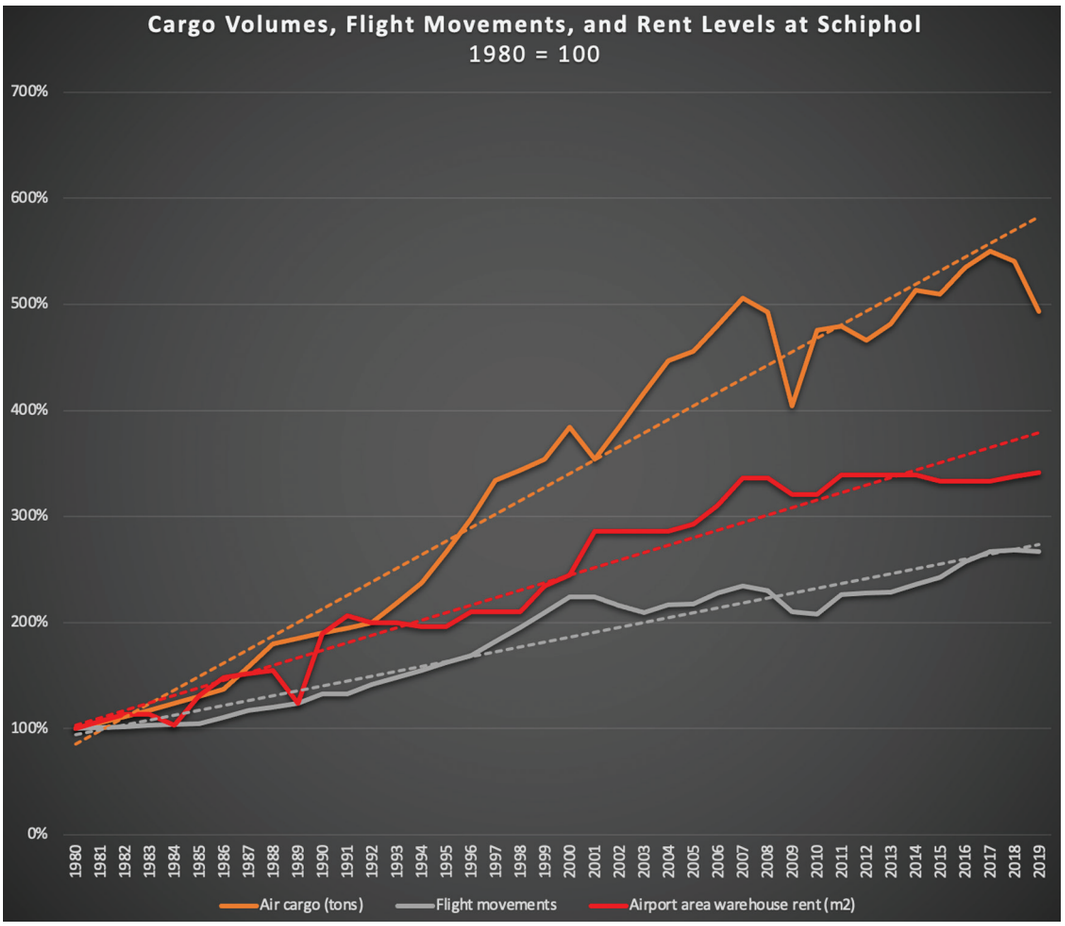

Figure 5 Increase in air cargo volumes, flight movements and warehouse rents at Schiphol, 1980–2020

in the extended airport city (Ring 2). Further out, rents decrease moderately to €148/m² in the core aerotropolis (Ring 3); while in the extended aerotropolis (Ring 4), they are broadly in line with the national average.

INTERNATIONAL BENCHMARK ANALYSIS: THREE GLOBAL TRENDS

This detailed case study of Amsterdam Schiphol revealed long-term increases in commercial and industrial property values. It also highlights the positive impact of policy innovations, infrastructure improvements and professionalised property development. However, as a top-tier global passenger and cargo hub located in the heart of a densely populated urban region, Schiphol enjoys certain comparative advantages that cannot easily be replicated elsewhere. That poses an important question: to what extent is Schiphol an anomaly, and to what extent is it indicative of broader trends in airport property values?

To answer that question, an international benchmark analysis of airports located in Europe, North America, and Asia-Pacific was conducted. To test

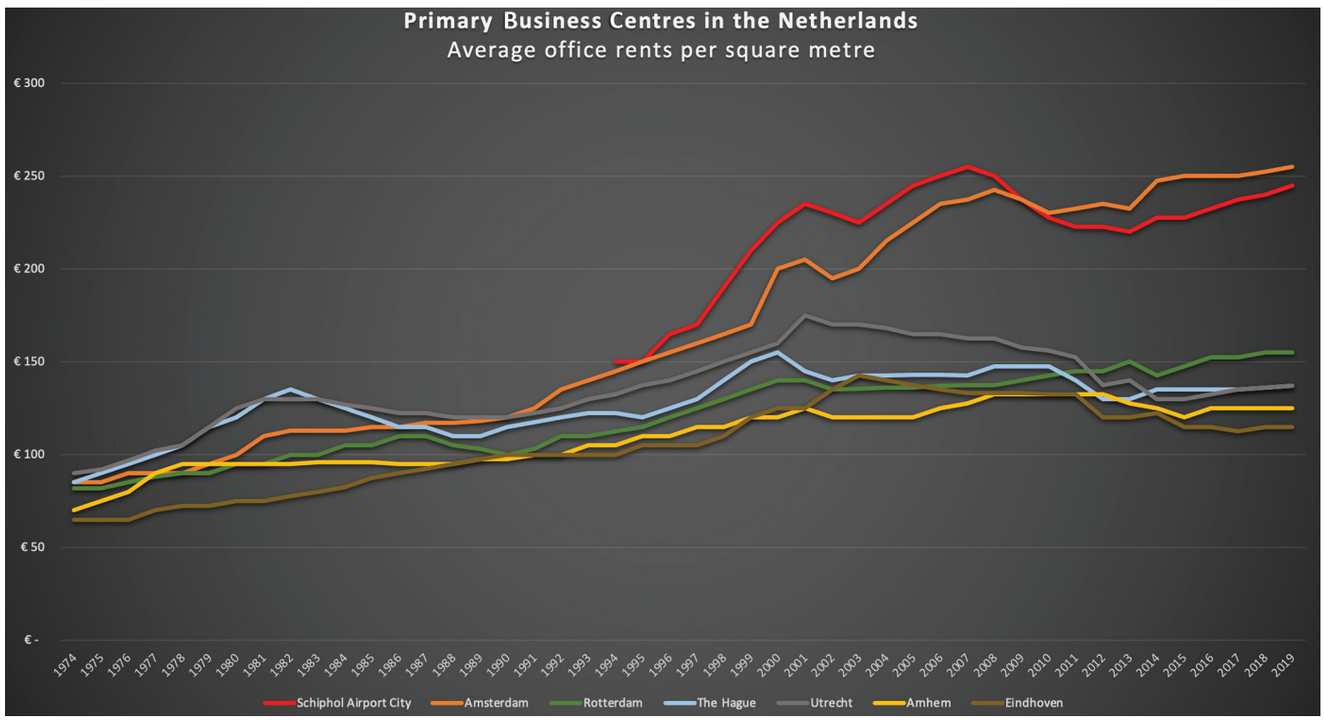

Figure 6 Average office rents in the Netherlands' primary business centres, 1974–2019

whether the data obtained at Schiphol reflect — or diverge from — broader price trends in airport areas, the evolution of property values across a broad cross-section of airports was investigated.

In the first phase of analysis, 22 airports that could serve as potential benchmarks were identified. A shortlist was then created according to three selection criteria:

1. Diversity of airports that differ in terms of their regulatory context, local real estate market, stage of development and land asset management model.
2. Availability of property valuation and sales records over a time period of ten or more years.
3. Willingness of the airport and/or local authorities to share data.

Seven airports were shortlisted (Table 3). A questionnaire was then distributed and expert interviews with airport managers, real estate developers and urban planners were conducted at six of the shortlisted airports. Using a semi-structured approach, these discussions aimed to identify the key factors leading to growth in airport area property values.

Synthesising the international benchmark analysis and the case study of Schiphol revealed three global trends in airport area real estate values.

1. An increase in commercial and industrial property values. Both at Schiphol and the international benchmarks, the analysis focused on two types of land use: commercial (office, hotels, retail) and industrial (logistics, manufacturing). It revealed an increase in the value of both asset classes at

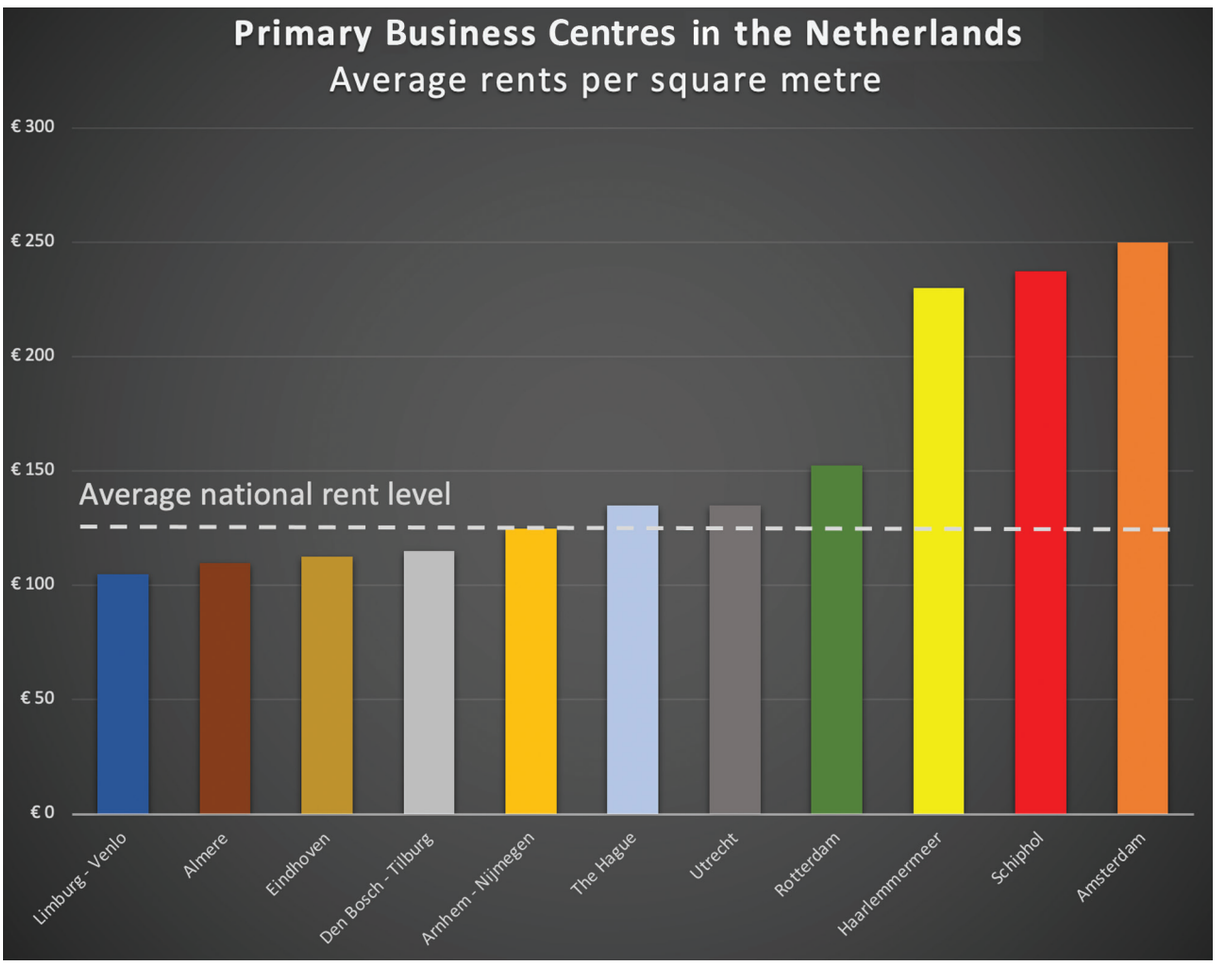

Figure 7 Average office rents in the Netherlands' primary business centres in 2020

all airports under investigation. (Table 4) indicates low, median and high CAGRs.

2. Sharpest increases occur during the first phases of development. Every product undergoes a life cycle made up of distinct stages: beginning with conception and design, continuing with manufacture and delivery, and culminating in either life-extending maintenance or disposal. Airport real estate is no exception. Indeed, the benchmark analysis revealed that the airport property life cycle can be divided into four distinct phases:

- Phase 1: Introduction
- Phase 2: Growth
- Phase 3: Maturity
- Phase 4: Decline and/or product extension

Figure 8 provides a schematic overview of the four development phases and the current position of the airports analysed in the study.

The data indicate that CAGRs in property values are typically higher for early-phase airport areas (Phase 1 and 2) compared to late-phase airport areas

Table 3 The international benchmark analysis focused on seven airports in North America, Europe and Asia-Pacific

Airport	*Code*	*Profile*
Charlotte-Douglas	CLT	US hub with 50.1 MAP (2019) and dominant home carrier (American). Publicly owned airport authority with proactive land acquisition and commercial development strategy for the airport area.
Helsinki-Vantaa	HEL	Northern European hub with 21.8 MAP (2019) and dominant home carrier (Finnair). Aviapolis, a transit-orientated, mixed-use airport city with a significant residential component, is located at the airport entrance.
Incheon	ICN	ICN was planned as a greenfield replacement airport for Seoul, and as the anchor of an economic development strategy for a multi-city region. As part of that strategy, a mixed-use airport city developed around ICN, including an international business district, residential new town, and multimodal cargo hub.
Mid-sized hub	NNN	Mid-sized airport with rapid growth in intercontinental freight traffic. The operator agreed to share data on the condition that it not be identified in the research study.
Western Sydney	SWZ	Greenfield airport with 82 MAP target capacity. Priority project of national government. Substantial landside urban development aims to reduce pressure on Australia's primary city, stimulate population growth and employment opportunities in Sydney's underdeveloped western suburbs.
Vienna	VIE	Central European hub with 31.6 MAP (2019). Development of mixed-use airport city with 82,000m^2 office, 8,000m^2 retail and hospitality, and extensive cargo facilities at the intersection of air, road and high-speed rail network.
Edmonton	YEG	Canadian hub with 8.1 MAP (2019) located far from CBD in a rural area with large land supply. Core development focus on aerospace, agriculture, pharmaceuticals and cargo.

Table 4 Increase in value of both commercial and industrial land at all airports investigated

Land use	*CAGR low*	*CAGR median*	*CAGR high*
Commercial	2%	8%	48%
Industrial	3%	11%	29%

(Phase 3 and 4). CAGRs also significantly exceed the national average during Phases 1 and 2. In contrast, growth rates tend to converge with the national average in Phases 3 and 4.

The marked difference in growth rates can be attributed to the fact that the market for commercial and industrial land uses typically matures or reaches a saturation point in late-phase airport areas. On the other hand, property values experience sharp growth in early-phase airport areas thanks to one-time catalytic events, such as the re-zoning of agricultural land and the installation of basic road, energy, water and ICT infrastructure.

A comparison of two airports located at opposite ends of the development spectrum illustrates these phase-specific growth trends. As a greenfield airport in an early stage of development, Western Sydney (SWZ) is currently in Phase 1. Increases in property values can be achieved rather easily through re-zoning and enabling works. In contrast, AMS has engaged in targeted real estate development for nearly four

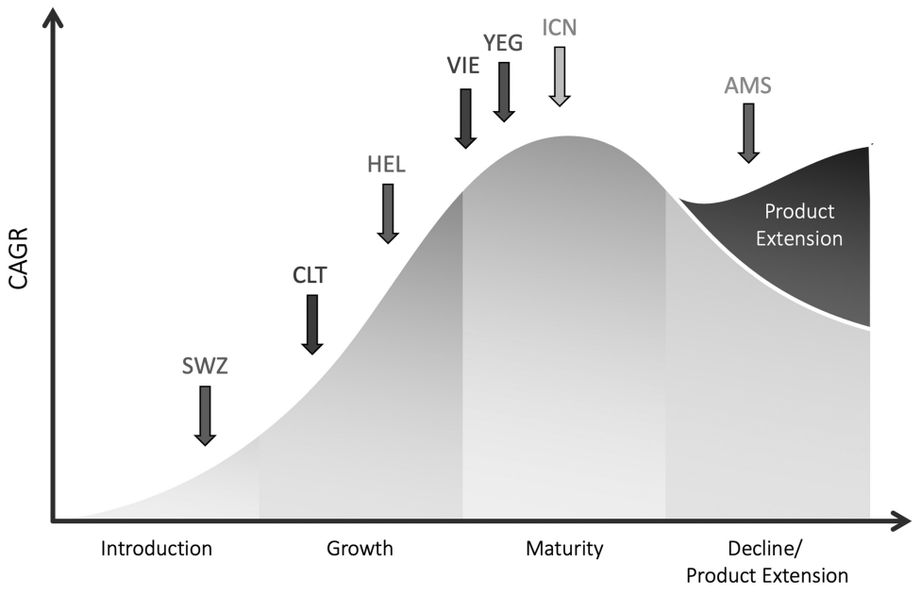

Figure 8 The four phases of the airport property development cycle

decades. The Schiphol airport area has already reached maturity, and decision makers must now deploy product extension and redevelopment strategies in order to remain competitive. As such, AMS is currently in Phase 4.

3. Eight key factors of growth. We identified eight key factors of growth that lead to a long-term increase in property values. They include aeronautical factors (eg throughput), managerial decisions (eg professionalisation of real estate strategy), as well as catalytic events (eg surface access improvements). Table 5 provides an overview of these factors, the mechanisms used to quantify their effect on property values, and selected examples from the airport areas under investigation.

CONCLUSION: PREPARING FOR SUCCESS

Around the world, airports own enormous amounts of land — in fact, it is one of the industry's most valuable assets. Yet many airports struggle to make informed decisions about how to unlock the value of their real estate due to a basic lack of reliable data. The same can be said for local governments tasked with developing the airport area. Their troubles are often compounded when external real estate advisers propose inappropriate benchmarks: suggesting, for example, that a regional airport with modest passenger and cargo volumes should benchmark itself against a top-10 intercontinental hub. The absence of industry-wide property valuation standards, along with inconsistent record keeping of historical data, likewise present significant challenges.

This paper seeks to address these gaps by offering a long-term, comparative perspective on airport property values; and by benchmarking airports that differ in terms of size, geography and regulatory complexity. Moreover, by combining qualitative and quantitative research

Table 5 Eight key drivers of growth lead to a long-term increase in airport property values

	Growth factor	*Effect assessment method*	*Example(s)*
AC	Better airside connectivity: increase in throughput, enplanements, and non stop destinations	Longitudinal comparison of air traffic volumes and land values over 30-year time span	AMS: increase in air cargo volumes and flight movements from 1980 to 2020 (see Figure 5)
AI	Better airside infrastructure: new passenger terminal, runway, cargo facility	Compare property values (1) before investment is announced; (2) at ground-breaking; (3) after completion	ICN: Airport Phase 1 announced (1992), construction commenced (1996), and completed (2001) NNN: Launched leading-edge cargo hub (date not identified)
DF	Efficient development framework: airport area masterplan, special purpose development vehicle, expedited planning and permitting processes	Compare property values 5 years before and after improvements are introduced	AMS: Schiphol Area Development Company founded (1987) CLT: Airport Area Strategic Development Plan (2017) HEL: Aviapolis Framework Plan (2016)
PS	Professionalised development strategy: boosting in-house real estate capability and/or partnering with external experts, coordinated marketing of airport area, guidance for international investors	Compare property values 5 years before and after improvements are introduced	VIE: AirportCity rebranded (2015) YEG: recruited real estate team, launched investment attraction strategy (2014–15)
FI	Flagship investments: attraction of an anchor tenant, developer and/or investor	Assess increase in value of adjacent plots (1) before and after investment announced; (2) at completion of construction	CLT: partnership with Amazon (2018) YEG: B2B and B2C anchor tenants (2017, 2019)
LI	Better landside infrastructure: improved airport ground access, increased ICT and energy supply	Compare property values (1) before investment is announced; (2) at ground-breaking; (3) after completion	HEL: airport-to-city rail connection completed (2015)
LU	Changes in permitted land uses: re-zoning from agricultural to commercial/industrial uses, plot densification, increase in maximum GFA	Compare property values before and after changes in land use plans	Many
QE	High-quality urban environment: investments in everyday amenities, public space, and last-mile transport	Compare property values 5 years before and after improvements are introduced	AMS: mixed-use redevelopment of commercial office blocks (2011) HEL: Aviapolis urban design guidelines (2016)

methods, our goal has been to pinpoint the key factors leading to successful real estate development — and to quantify their effect on airport area property values.

Taken together, the findings point to four crucial questions that decision makers should ask themselves as they evaluate — or re-evaluate — their real estate strategy:

1. Does the airport have enough know-how to professionalise its real estate strategy? If not, how can the airport boost its capabilities through training, recruitment and/or strategic partnerships?
2. Is the real estate strategy supported by a compelling development vision? How will the airport build support for that vision among key stakeholders (eg regulators, local government, local community)? And how will it position that vision to attract investors and end users in a competitive market?
3. Is the real estate strategy supported by a solid business case and financial model? How does the airport calculate the fair market value of its land assets, and how does it calculate the costs required to develop those assets?
4. Is the airport's real estate strategy supported by an efficient project delivery model? Where are there opportunities to expedite the development process?

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