



### Q3 2022 Turkish Property Market Overview

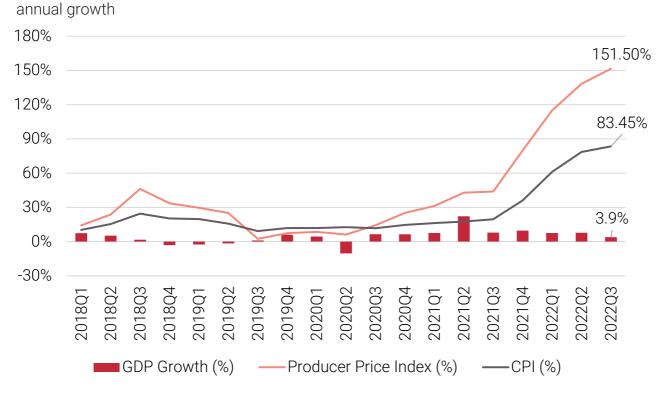
Arrangement of the antechamber of the private apartments of the Elysée Palace for President Georges Pompidou, colored transacryl, aluminium, glass and painted wood, plexiglass, paint, fluorescent tubes, stainless steel and wool, 1972-1974 by Yaacov Agam



### **Economic Overview**

#### GDP

During the 3<sup>rd</sup> quarter of 2022, **GDP grew by 3.9** % compared to the same period in 2021. When the activities constituting GDP were analyzed; total value added increased **increased by 21.6% in financial and insurance**, 13.9% in information and communication, 12.6% in professional, administrative and support service activities, 7.6% in public administration, education, human health and social work activities, 6.9% in services, 4.9% in other service activities, 4.1% in real estate activities, 1.1% in agriculture, forestry and fishing activities and 0.3% in industry respectively, while **construction sector decreased by 14.1%**.



#### Figure 1. Turkish Economy: selected indicators

Source: TURKSTAT





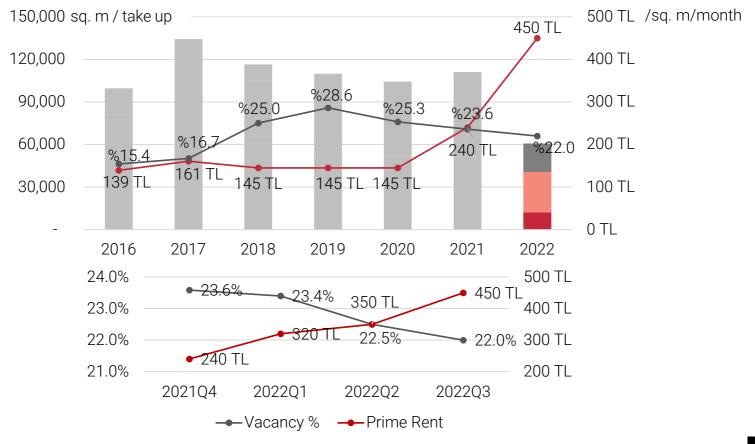
## **Istanbul Office Market**

### Demand and Supply

In the 3<sup>rd</sup> quarter of 2022, cumulative supply of **grade A office space in Istanbul** is unchanged at **5.27 million sq m**. During the 3<sup>rd</sup> quarter of 2022, **19,939 sq m take-up** was recorded, comprising 65% of overall transactions recorded in Istanbul primary office areas. 33% of the transactions were recorded in Maslak, 29% in Kağıthane and 10% in Kozyatağı-Ataşehir.

### Vacancy and Rental Level

In the 3<sup>rd</sup> quarter of 2022, average rents in Istanbul grade A office market continued to increase compared to the previous quarter. Vacancy rate in Istanbul Grade A Office Spaces fell to 22.0% in total, decreasing from 20.8% to 20.5% in European Side, and 25.0% to 24.8% in Asian Side of İstanbul. Vacancy rates occurred as 28.3% in Umraniye, 24.1% in Maslak, 22.9% in Sisli-Zincirlikuyu-Besiktas, 22.1% in Kozyatağı, and 13.5% in Levent-Etiler. Prime rent recorded in Levent-Etiler increased from 350 TL/sqm/month to 450 TL/sqm/month.



#### Figure 2. Istanbul grade A office take up, prime rent & vacancy



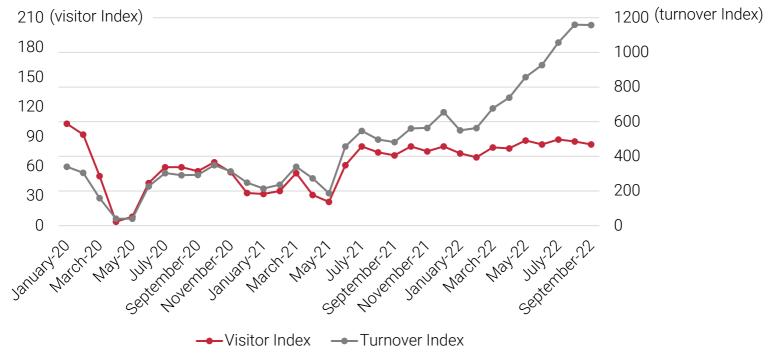
### **Turkish Retail Market**

### Demand

Based on data released by the Turkish Council of Shopping Centers (AYD) and Akademetre Research, compared to September 2021 the shopping centers sales index increased by 140.2 % to 1158 points. During the 3<sup>rd</sup> quarter of 2022, footfall index in September, increased by 15 % compared to the same period of last year. In September 2022, shopping centers' sales per leasable area (sq. m.) occurred as 5,855 TL in Istanbul, 3,453 TL in Anatolia, and 4,437 TL in Turkey.

### Supply

During the 3<sup>rd</sup> quarter of 2022, Turkey's shopping center supply unchanged at **13.70 million sq. m**., and GLA/1,000 inhabitants were **calculated as 161.86 sq. m** in Turkey. Moreover, Istanbul has the highest rate of GLA/1,000 inhabitants as 332.20 sq. m, which is followed by Ankara and Bolu with 301.42 sq. m and 273.95 sq. m per 1,000 inhabitants, respectively.



#### Figure 3. Turnover & Visitor Index

Source: AYD and Akademetre Research

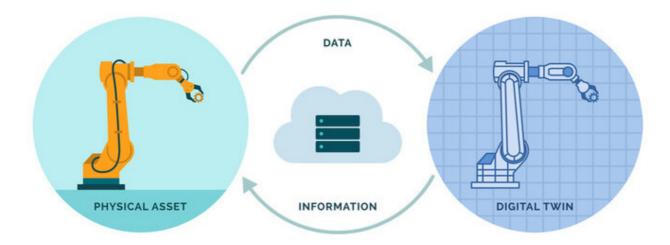


# **Digital Twin**

What is Digital Twin (DT)?

A digital twin is defined as the virtual representation of a physical asset that collects and sends real-time information. A digital twin collects data from the physical asset in real-time and uses this data to create a virtual model of the physical object.

This data is then relayed to a **processing system and applied to the digital copy**. Once informed with such data, the virtual model can be used to run simulations, study performance issues and generate possible improvements, all with the goal of generating valuable insights — which can then be applied back to the original physical object.



The idea of digital twin technology was first voiced in 1991, with the publication of Mirror Worlds, by David Gelernter. However, Dr. Michael Grieves (then on faculty at the University of Michigan) is credited with first applying the concept of digital twins to manufacturing in 2002 and formally announcing the digital twin software concept. Eventually, NASA's John Vickers introduced a new term – "digital twin"— in 2010.

However, the core idea of using a digital twin as a means of studying a physical object can actually be witnessed much earlier. In fact, NASA pioneered the use of digital twin technology during its space exploration missions of the 1960s, when each voyaging spacecraft was exactly replicated in an earthbound version that was used for study and simulation purposes by NASA personnel serving on flight crews.

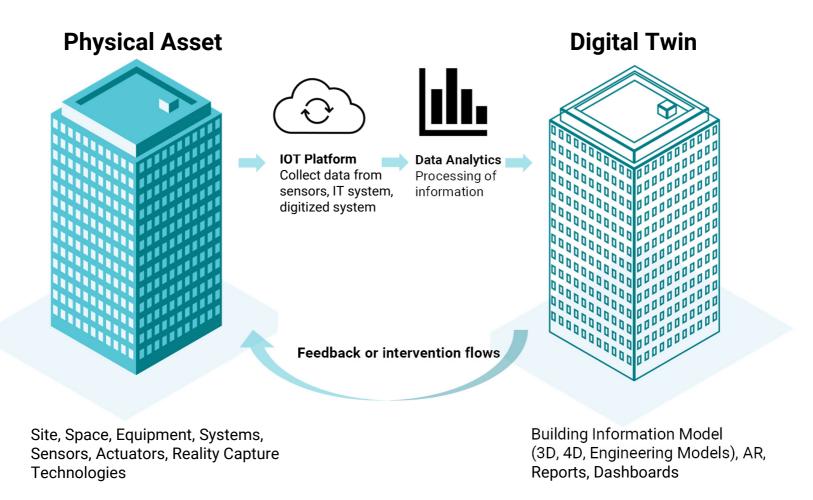


# **Digital Twin**

### What is Digital Twin in Real Estate?

Achieving smart building asset management is considered a complex and pressing issue for 0&M, since the costs of **operation and maintenance represent 50-70% of the total annual facility operation costs**, while around 85% of the entire lifecycle costs of built assets are spent on the facility asset management. It is a challenging task, with large numbers of assets and a mass of data and documents for consideration.

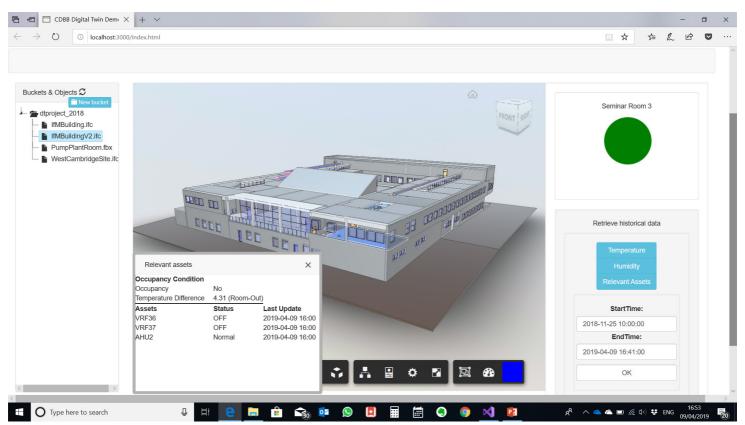
A digital twin is a realistic digital representation of assets, processes and systems within the built environment. It provides a two-way connection between the physical world and the digital world, supporting the cyber physical strategy that is emerging worldwide. Data from the physical world informs the digital twin. The digital twin enables asset owners and operators to make better operational, maintenance, investment and planning decisions to create value, increase resilience and secure sustainability.





## **Digital Twin**

### Case Study - West Cambridge Digital Twin Facility



The West Cambridge project is highlighting how digital twins can harness data from multiple sources to inform better building management, while improving productivity and wellbeing.

The West Cambridge Digital Twin Research Facility comprises digital twins of three University buildings and the surrounding environment at the campus site including the Institute for Manufacturing (IfM) in the Alan Reece Building; the Civil Engineering Building; and Department of Computer Science and Technology at the William Gates Building.

The digital twins were designed to offer information useful to the Estates Division at the University of Cambridge which is responsible for a portfolio currently valued at £3 billion and featuring buildings from 800 years old to the present day.

At the outset, the researchers identified three key tasks: data collection, data management and data for better decision-making

Source: https://www.cdbb.cam.ac.uk/news/research-profile-west-cambridge-digital-twin-facility



### Definitions

Office

**Istanbul Primary Office Regions:** Pamir & Soyuer office database covers only Grade A office buildings which have total floor area larger than 3,500 sq m and located in the primary office areas (Maslak, Levent-Etiler, Şişli – Zincirlikuyu - Beşiktaş in the European side and Kozyatağı, Ümraniye and Ataşehir in the Asian side).

**Net Absorption:** The amount occupied at the end of a period minus the amount occupied at the beginning of a period and takes into consideration space vacated during the period.

New supply: Total level of new office space to be built or under construction, with construction permit.

Average rent: Expressed in TL/sq m/month excluding tax and charges. The average rent represents the average rents of all deals, weighted by their total surface area.

**Prime rent:** Expressed in TL/sq m/month excluding tax and charges. The prime rent represents the average value in the first quartile of all deals and excludes extreme values.

**Prime yields:** Expressed as a percentage, between rents and the capital value of assets. The prime yield represents the lowest yield observed in a given period of time and excludes extreme values.

Vacancy rate: Represents the immediately available supply over the existing office stock.

#### Retail

**Definition and Classification of Retail Centres:** Retail centres are defined as purpose built, shopping developments with over 5,000 sq. m gross leasable area (GLA) excluding supermarket area and comprising of 30 or more retail units. Database covers all operating retail centres. The additional or expanded space is considered as a new retail centre floor space.

Principal types of retail centres are classified using British Council of Shopping Centre (BCSC) definitions as follows:

Town Centre Malls: are shopping centres located in a town centre or the central business district of a city.

District Shopping Centres: are located outside of the town centre proper but still within the urban area.

**Outlet Centres:** are defined as centres where the majority of retailers sell branded merchandise at a substantial discount to the recommended retail price.

**Retail Parks:** are purpose-built centres solely comprised of at least three retail warehouses of not less than 1,000 sq. m and have common parking.

Average retail rents are calculated taking into consideration small to medium-size units' (MSU) rents, excluding anchor tenants.

#### Disclaimer

This report should not be relied upon as a basis for entering into transactions without seeking specific, qualified, professional advice. Whilst facts have been rigorously checked, Pamir & Soyuer can take no responsibility for any damage or loss suffered as a result of any inadvertent inaccuracy within this report. Information contained herein should not, in whole or part, be published, reproduced or referred to without prior approval. Any such reproduction should be credited to Pamir & Soyuer.

## Who We Are

Pamir & Soyuer was established in 1993 by Ali Pamir and Firuz Soyuer to provide real estate advisory services to corporate clients and HNWI.

Mr. Pamir and Mr. Soyuer both started their careers in investment banking and have been active in Turkish real estate since 1986 primarily through Pamir & Soyuer or related entities. Collectively they have over 50 years of residential and commercial real estate experience, and have transacted over USD 1 billion in real estate investment sales.

Headquarters of Pamir & Soyuer is located in Istanbul with a liason office in Bodrum.

## What We Do

Pamir & Soyuer is active in both residential and commercial real estate, and provides the following services:

- Investment Advisory & Sales
- Development Advisory & Management
- Project Marketing
- Tenant Representation
- Agency/Owner Representation
- Marketing & Feasibility Studies
- Valuation

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