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## Tenants' Green Office Leasing Trends: an Exploratory Study of Budapest, Hungary

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### Abstract

Similarly to the international trends, tenant interest in green-certified office buildings has grown dramatically in Budapest in the past decade. By investigating the types of tenants who opt to lease office space in green-certified buildings in the Hungarian capital, this study aims to close a research gap. With using a mixed research method, results show that most of the green-certified office leasing transactions in Budapest between 2018-2022 were signed by tenants from IT, governmental and banking & finance sectors. Main reasons behind leasing green space are reputation, employee well-being and in the case of multinational companies, sustainability requirements from the parent company.

**Keywords:** green office market, tenant preferences, Hungary, green certification, office buildings

### Introduction

Making a balance between environmental, social, and economic development for both the present and the future can be characterized as the core idea of sustainability. Interest in sustainable development has increased over the past few decades in many nations due to growing environmental concerns in the building and construction industry. The idea of what "sustainability" entails is open to various, complex interpretations and perspectives, which alter over time and vary between different societies as well as countries (Bassen et al., 2011). There are more than 500 definitions of "sustainability" that are now in use (McNamara et al., 2008), and there is a lack of uniformity in what the term means to people who work in the built environment (Wilkinson et al., 2012). However, most interpretations are based on the Brundtland report's (1987) definition, which takes into account the social, economic, and environmental costs of development, or the so-called "triple bottom line" (TBL) (Elkington, 2013). The global real estate market has been actively responding to the demand for not only environmentally progressive buildings, but also for buildings that play a key role in occupier, investor, and developer strategies within a wider political agenda, in line with the expansion of how "sustainability" is defined and applied.

Improving building energy efficiency is a key priority for the European Union (EU) in its efforts to combat climate change and reduce greenhouse gas emissions. Buildings are responsible for around 40% of the EU's energy consumption (Brown & Markusson, 2019), and improving their energy efficiency can help to reduce energy consumption and save money for building owners and occupants.

The United Nations (UN) also set of 17 Sustainable Development Goals (SDGs) that aim to promote sustainable development and end poverty, protect the planet, and ensure prosperity for all. Sustainable Development Goal 11 is focused on creating sustainable cities and communities. The goal aims to make cities and human settlements safe, resilient, and sustainable, and to ensure that everyone has access to basic services and infrastructure. This strongly connects to the office markets all over the world. As environmental, social, and governance (ESG) obligations gain importance for both organizations and investors, office stock is being reevaluated in cities all over the world. Several fundamental dimensions demonstrate the growing interest in green building issues (Gluszak et al., 2021). Therefore, attention should be placed on the advancement of the focused research in this area being conducted by scientists from many regions of the world (P. Eichholtz et al., 2013; Maskil-Leitan et al., 2020; Plebankiewicz et al., 2019; Xie et al., 2020) who represent a variety of scientific disciplines, including as economics, psychology, engineering, and management.

The main elements that influence whether tenants choose to lease office space in green buildings or not and whether they are willing to pay more for them are usually unknown, especially those connected to the symbolic value of green buildings (Kim et al., 2017b). In addition, in the case of Hungary, no research was made until this time regarding the tenant preferences of green-certified office buildings that tried to answer the question: why do tenants prefer green-certified office buildings, if they do so? This study aims to close this research gap.

## Literature review

The office market in Europe is diverse and dynamic, with different trends and patterns emerging in different countries and regions. Demand for office space is driven by technology and innovation hubs (Tuzcuoğlu et al., 2022). Many European cities have become centers of innovation and entrepreneurship, attracting technology and creative companies that require flexible, modern workspaces.

Coworking and flexible office space is on the rise, as the popularity of coworking spaces has been growing in Europe over the past few years, as startups, freelancers, and small businesses seek affordable and flexible office space (Appel-Meulenbroek et al., 2019; Kojo & Nenonen, 2017; Snihur, 2017). Furthermore, sustainability and wellness are becoming more important. As awareness of the environmental impact of buildings grows, companies are increasingly seeking office space that is energy-efficient and environmentally friendly (Kim & Lim, 2020). There is also a growing focus on promoting employee wellness through features such as natural lighting, green spaces, and fitness facilities (McArthur et al., 2015). Sustainable office buildings, also referred to as green office buildings, work to reduce any negative effects on both human health and the environment. They attain this by making efficient use of energy, water, and other natural resources, protecting occupant health while boosting productivity and well-being, being mindful of the community and the building's surroundings, and minimizing waste, pollution, and environmental deterioration. With the help of legislative and normative regulation changes (primarily brought on by the 2010/31/EU Energy Performance directive in the countries of the European Union), these buildings reflect not only the suggestion for cost reduction but also the requirement for a sustainable development from tenants and investors (Adamuščin et al., 2014). Around the world, there are various definitions and categories for "green buildings" (Reed et al., 2009). The first program for green building certification was called BREEAM (British Research Establishment Environmental Assessment Method), and it started in the UK in 1990. Other programs with BREEAM adaptations were implemented in South America, China, and other regions of Europe. The main green certification program established in 1994 in North America is called LEED (Leadership in Environmental and Energy Design). Other noteworthy examples include GBTool in South Africa, DGNB in Germany, HQE in France, and Green Star in Australia (Oyedokun et al., 2015). Green building certification methods are centered on the monitoring of environmental factors like energy, land, water, and materials (Doan et al., 2017). These offer the real estate industry more realistic and reasonably priced measurements than other systems known as sustainable building rating systems, which supports the argument that the term sustainability should be used instead of "green" (Berardi, 2013). Although DGNB and HQE have achieved some level of success internationally, LEED and BREEAM are said to be the two that are most widely used. While not used in the EU, the Comprehensive Assessment System for Built Environment Efficiency (CASBEE) and GREEN STAR have international counterparts and are widely utilized in other areas outside the EU (Bernardi et al., 2017).

COVID-19 has accelerated some existing trends. The pandemic has led to an increase in remote work, but it has also highlighted the importance of flexible and adaptable office space. While there will always be some degree of uncertainty regarding what is being referred to as "a return to the office," there is increasing evidence that the pre-COVID-19 workplace has changed irrevocably for a variety of good reasons that are backed by a sizable number of employers and employees (Barrero et al., 2020; Beck & Hensher, 2022). Many companies are now looking for office space that can accommodate hybrid work models, with a mix of in-person and remote work (Hensher et al., 2023).

This brings the pricing issue more into the focus. Location, height, age, and other tangible building characteristics are frequently used to determine office building leasing pricing, also in the case of green buildings. In the past decade, there has been an ongoing debate regarding the topic of the so-called green premium in the global real estate market.

Numerous researchers, such as Sayce et al. (Sayce et al., 2007) claim that there is no correlation between a property's sustainability features and a higher rent or sales price. On the other hand, several studies on commercial buildings show that energy labels and green building certification have a positive impact on rental levels, occupancy rates, and transaction prices (Clayton et al., 2021; P. Eichholtz et al., 2010, 2013; Fuerst & McAllister, 2011).

Furthermore, several studies discovered that green office buildings do command a higher rental price than the equivalent non-green office buildings using regression analysis in conjunction with other methodologies. The meta-analysis findings of Kim et al. confirm that factors like certification, location, building characteristics, and lease contract provisions have a significant impact on green buildings' rental rates (Kim et al., 2017a). The green premium is a term used to describe the additional cost that can be associated with designing, constructing, and operating a building to meet environmental sustainability standards. While green buildings are designed to be more energy-efficient and

environmentally responsible, they often require additional investment in materials, technology, and design (Onishi et al., 2021). This additional investment can lead to higher construction and operating costs compared to conventional buildings. However, green buildings can also provide significant long-term cost savings through reduced energy and water usage, as well as lower maintenance costs (Li et al., 2021; Mangialardo et al., 2019; Porumb et al., 2020; Wadu Mesthrige & Chan, 2019).

The level of green premium can vary depending on a number of factors, including the building's location, size, and design, as well as the level of certification sought. For example, a LEED Platinum-certified building may require a higher investment than a LEED Certified building due to the increased number of sustainable design features required (Gluszak et al., 2021; Singh et al., 2011). According to Bond and Devine, a building's environmental certification attracts a 4% premium (Bond & Devine, 2016). According to a research from 2014, tenants of green office buildings pay about 20% more in rent than tenants of non-green buildings in the same neighborhood (Chegut et al., 2014).

Furthermore, according to Fuerst and McAllister (Fuerst & McAllister, 2011), certification results in a 2% increase in building costs. Dwaikat and Ali (Dwaikat & Ali, 2016) tested 13 building projects, and for 12 out of the 13 projects, the cost premium for green buildings varied between 0.4% and 21%. Out of the 13 projects, only 5 had a cost premium between 0% and 5%. Even yet, the 13th project in their research had a 46% cost premium.

While the green premium can be a barrier for some developers or tenants, many see it as a worthwhile investment in the long-term benefits of sustainability, including energy and cost savings, enhanced reputation, and improved health and well-being of building occupants (Abbaszadeh et al., 2006; Huizenga et al., 2006).

Many tenants today have a strong preference for green office spaces and are willing to pay a premium for buildings that are designed and operated with environmental sustainability in mind. Based on the available literature, main reasons why tenants prefer green office spaces include environmental responsibility, health and wellness benefits, long term cost savings, corporate social responsibility, employee recruitment and retention reasons and reputation (Gluszak et al., 2019; Kim et al., 2017b, 2019; S. Robinson et al., 2016; S. J. Robinson & Simons, 2019; Wilkinson et al., 2012).

Based on Kim et al. (Kim et al., 2017b), in the past decade the tenants' choices were influenced by a variety of push and pull factors. Tenants were drawn to green buildings over their non-green counterparts by a variety of financial and non-financial benefits (such as increased productivity, a better corporate image, and energy cost savings), as well as by regulatory requirements like building codes and environmental legislation. Based on the results, while tenants desired to benefit from living in "green" spaces, barriers like perceived higher initial costs made them hesitant to choose green buildings (Kim et al., 2017b).

In line with a green or sustainable company philosophy, many tenants of commercial buildings also view buildings as venues to promote their environmental stance. Beyond the tenants' direct corporate profit, corporate social responsibility (CSR) policies can encourage tenants to reap social benefits from green buildings (P. Eichholtz et al., 2009).

Other studies stated that the ability to attract investors more quickly and at higher market rates may be made possible for businesses by leasing green office space (Milgrom & Roberts, 1986). According to several empirical studies, businesses with a strong commitment to the environment are able to achieve higher credit ratings, which lowers the cost of borrowing (Bassen et al., 2011). Additionally, there is evidence that these companies may have a reduced implied cost of equity (Barnea et al., 2005).

The types of companies that are most active on the office leasing market vary depending on the location and economic conditions of the region. Generally, the largest occupiers of office space are companies in the financial services, technology, professional services, and healthcare sectors. These industries tend to have a high demand for office space due to the nature of their operations, and the need for highly skilled and specialized employees (Nowak, 2020).

In financial services, companies such as banks, insurance companies, and investment firms often require large and centrally located office spaces to accommodate their operations (Celka, 2011). Similarly, technology companies such as software developers, hardware manufacturers, and internet-based businesses often require modern and flexible office spaces with high-speed internet access and advanced technological infrastructure (Appel-Meulenbroek et al., 2019).

Professional services firms such as law firms, consulting firms, and accounting firms also tend to be active in the office leasing market. These companies often require well-designed and professional-looking office spaces to project a positive image to their clients (Lee et al., 2017).

The empirical findings also demonstrate that renting green office space is quite common among governmental and government-affiliated organizations, for whom non-financial usefulness may be more significant (P. M. A. Eichholtz et al., 2011).

Finally, healthcare companies, including hospitals, medical clinics, and pharmaceutical companies, also require significant office space to support their operations, research and development, and administrative functions (Miller, 2014).

Overall, these sectors are often the most active on the office leasing market due to their need for high-quality office spaces to support their operations and their highly specialized workforce.

Based on the international literature, office users' preferences are diverse. According to Remøy and van der Voordt (Remøy & van der Voordt, 2014) and Adnan et al. (Adnan et al., 2015), preferences for the building's location and amenities can differ depending on the industry sector—for example, IT, oil and gas, art and media firms, or banking and financial services. Cultural, climatic, and geographic considerations can all be implicated in variations in office user preferences. Previous research indicates a considerable variance in expectations for and perceptions of office quality across various property market sectors, such as agents and tenants (Leishman et al., 2003). Based on the results of Rymarzak and Siemińska (Rymarzak & Siemińska, 2012), the number of factors that influence tenants' and users' decisions about where to locate their offices can be grouped into three general categories: location, accessibility, and neighborhood; office building attributes; and lease agreement clauses and conditions.

Based on the available literature, the types of companies that are most active on the green office market are those that prioritize sustainability and environmental responsibility in their operations (P. Eichholtz et al., 2009; Mudjiyanti et al., 2020). Typically, these are companies that are committed to reducing their carbon footprint, increasing energy efficiency, and promoting a healthy and sustainable workplace for their employees. Many of these companies operate in sectors such as technology, finance, and professional services, which are often at the forefront of sustainable business practices (Bansal & Roth, 2000; P. Eichholtz et al., 2009, 2011; Simons et al., 2014). However, there is also growing interest in green office spaces among companies in other sectors, as sustainability becomes an increasingly important issue for businesses and their customers.

## Methodology

As more than 95% of the modern office stock of Hungary is concentrated in the capital, it is a logical conclusion to examine the office market of Budapest in the case of the country. The main goal of this research was to answer the following questions:

- How many leasing transactions were signed in green-certified offices in Budapest in the past 5 years compared to traditional office buildings?
- What are the main reasons behind choosing green-certified office buildings by the tenants?
- What kind of tenants sign the largest amount of leasing contracts in green-certified office buildings in Budapest?

The economic literature has discussed factors affecting office tenants' decisions. Prior research has combined qualitative and quantitative techniques. While the latter covers a wide range of analytical techniques, such as multi-criteria decision making (MCDM) methods (Adnan et al., 2015) or conjoint experiments (Gluszak & Zięba, 2016), the former includes in-depth interviews, the Delphi method and statistical analyses (Adnan & Daud, 2010; Ho et al., 2005).

Based on the previous experiences and literature review, a mixed method research was chosen for this study. Mixed method research refers to a research approach that combines both quantitative and qualitative research methods to collect and analyze data. This approach allows researchers to gain a more comprehensive understanding of a research problem or question by using multiple methods to investigate different aspects of the issue (Johnson & Onwuegbuzie, 2007). Mixed method research can also help researchers to overcome some of the limitations of each method, such as the potential for bias in qualitative research or the limited scope of quantitative research (Timans et al., 2019).

Within the framework of this research, a detailed statistical analysis was made by using Budapest office market data from 2018 to 2022 with nearly 3,000 office leasing transactions, collected from the Budapest Research Forum (BRF), office market agents, landlords, the Hungarian Green Building Council (HuGBC) and real estate asset managers.

Based on the results of the statistical analysis, six interviews were made with the key lease decision-makers from top 'green-renting' industries to get some clarification regarding their office preferences.

## Findings

Based on the statistical database, the following table shows the general, modern office market<sup>1</sup> data of Budapest between 2018 and 2022:

**Table 1. General office market data of Budapest between 2018-2022**

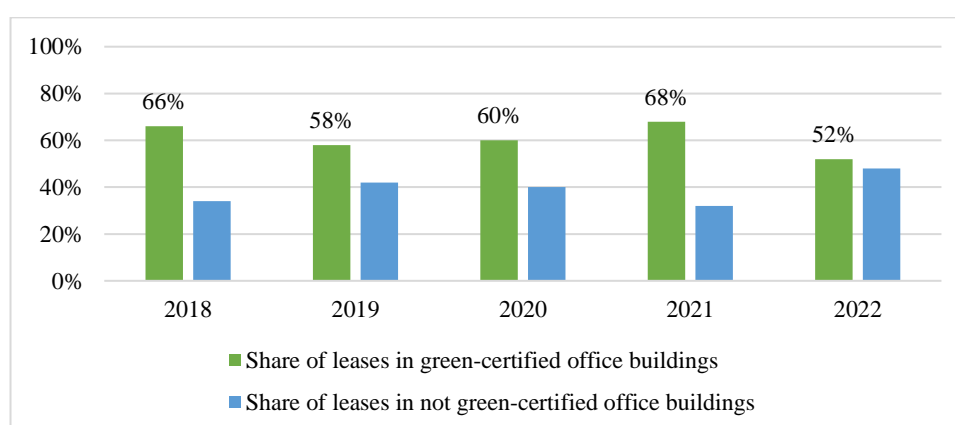
Year	Size of the total office stock	Vacancy rate of the office market	Share of green certified buildings in the office market	Total leasing transaction volume
2018	3 628 105 sq m	7.3%	33%	535 562 sq m
2019	3 693 044 sq m	6.7%	34%	637 117 sq m
2020	3 903 841 sq m	9.1%	39%	334 703 sq m
2021	3 955 566 sq m	9.2 %	39%	365 776 sq m
2022	4 251 574 sq m	11.3 %	40%	391 671 sq m

*Source:* Own work based on the data of Budapest Research Forum (BRF) and Hungarian Green Building Council (HuGBC)

As Table 1 shows, the size of the total office stock of Budapest grew by 17% in the past five years. On the other hand, the share of green certified buildings in the total stock increased by 7% between 2018 and 2022 and ended up at 40% at the end of 2022.

In 2019, the vacancy rate of the Budapest office market decreased to 6.7%, which was a record low level from the past 10 years, however between 2020 and 2022, the share of vacant space in the office market was continually increasing to 11.3% at the end of 2022. The past years' economic and pandemic turbulences made an impact on the volume of leasing transactions as well. The annual total leasing activity fell back almost by 50% in 2020 compared to 2019, and although it started to a slow, moderate decrease, it reached still only 391 671 sq m at the end of 2022.

**Figure 1. Share of leases in green-certified office buildings between 2018-2022**

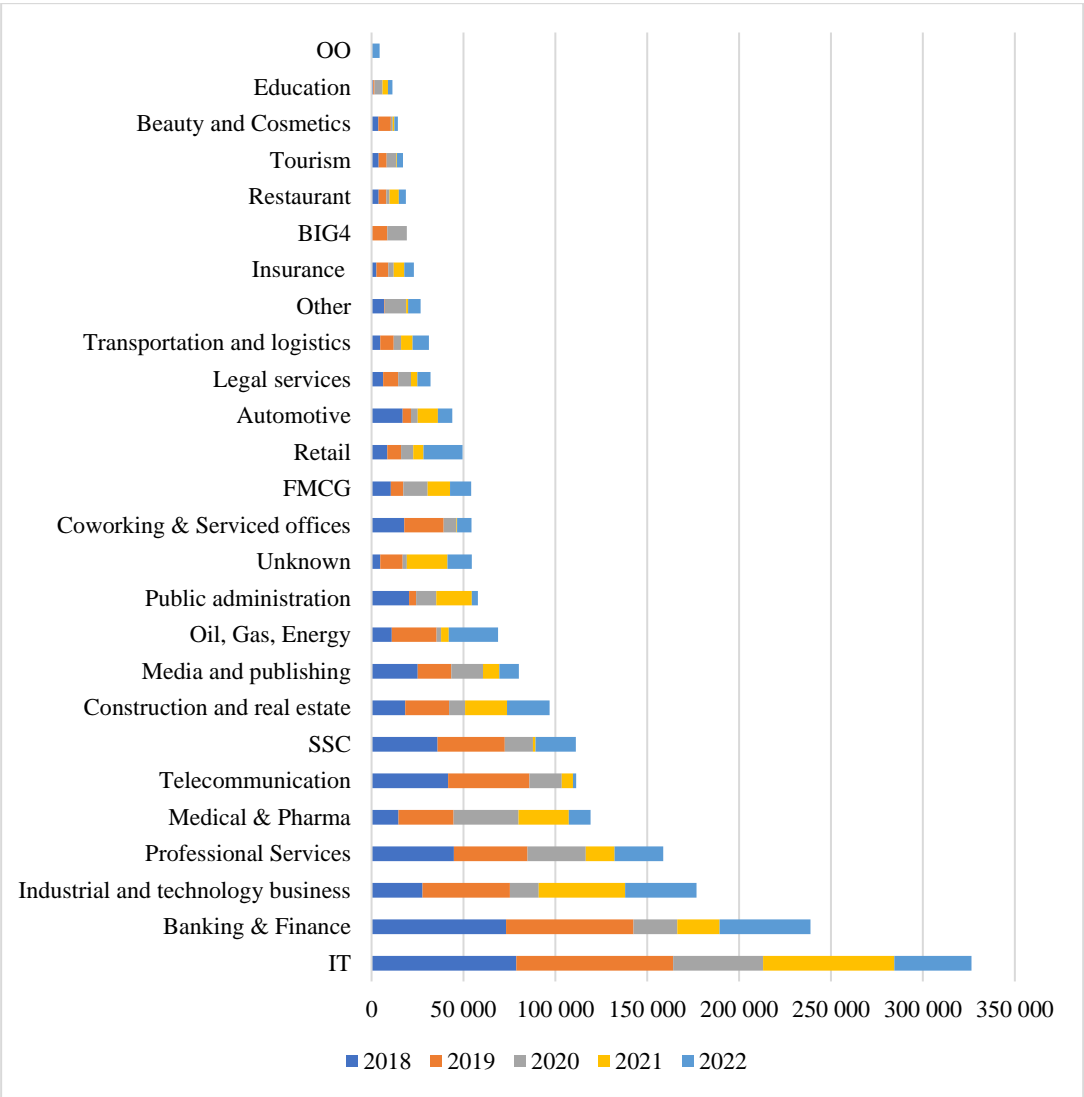


*Source:* Own work based on the data of Budapest Research Forum (BRF) and Hungarian Green Building Council (HuGBC)

<sup>1</sup> Including the data of all Class 'A' and Class 'B' office buildings

Based on the result of the statistical analysis, 61% of lease agreements between 2018-2022 were signed in green-certified office buildings in Budapest. This clearly shows that green certified offices are popular among tenants. Furthermore, Figure 1 shows that in the past 5 years, the share of green-certified office building leasing transactions were always higher than the share of general, not certified-building leasing transactions. Even during the years of COVID, the share of leasing transactions in green-certified office assets were increasing, and in 2021, it reached an all-time high level at 68%. The year of 2022, when the energy crisis and the Ukrainian war has started, was the first time in 5 years, when the share of leasing transactions in green-certified office buildings decreased, and the share of non-green building leasing transactions increased. However, their share was still higher than the non-certified transactions', as it was responsible for 52% of the total leasing activity in 2022. Based on the statistical database it was possible to identify, what kinds of companies are the most active on the office leasing market.

Figure 2. Leasing transactions by type of companies between 2018 and 2022



Source: Own work

Figure 2 shows the leasing transaction volumes in 2018-2022 categorized by type of companies in the competitive sector. Based on the data, most of the green-certified leasing transactions were signed by the IT (14%), banking & finance (11%) and industrial & technology sectors (8%). The least green-renting market actors on the Hungarian market are the owner-occupied ('OO', meaning the headquarters buildings), the education and the beauty and cosmetics sectors. These three sectors' green-certified building leasing transactions did not reach 10 000 square meters in the past 5 years in Budapest.



On the other hand, IT and other technology companies are often at the forefront of the green office market, as they tend to have a young and environmentally conscious workforce that values sustainable practices. Many of these companies have implemented sustainability initiatives and are actively seeking green office spaces to support their mission.

In the finance industry, companies such as banks and investment firms are increasingly seeking out green office spaces as a way to demonstrate their commitment to sustainability and social responsibility. These companies often have large and influential customer bases and are using their green office spaces as a way to differentiate themselves from their competitors.

Another important result of the statistical analysis was that beside the competitor sector companies, governmental bodies are really active on the Hungarian office market, as 12% of the green-certified office leasing activity from the past five years was registered from this sector. Governmental office leasing involves the leasing of office spaces by various government entities, such as federal, state, and local government agencies. These offices are used for a variety of purposes, including administrative functions, public services, and court systems.

Governmental office leasing can be a complex process, as government agencies often have specific requirements for their office spaces. These requirements can include security features, accessibility for disabled individuals, and proximity to public transportation. Governmental office leasing can also be influenced by political and budgetary considerations. For example, in times of budget cuts, governments may seek to consolidate their office spaces or reduce their overall square footage to save money.

Based on the results of the statistical analysis, 6 interviews were made with different market actors. The interviews included decision makers from 2 IT companies (1 Hungarian and 1 international), 1 telecommunication company (multinational), 2 banks (1 Hungarian and 1 international) and 1 industrial-manufacturing company (multinational). The main questions for each interviewee were about their green building preferences and their motivation and dedication behind leasing space in green-certified office buildings.

According to the interviews, one of the main reasons companies rent green offices is that leasing a green office can help a company improve its corporate image and reputation as a socially responsible organization in the eyes of its clients and the society. The respondents feel that companies that prioritize sustainability and environmental responsibility can differentiate themselves from their competitors. By renting a green office, a company can demonstrate its commitment to sustainability and environmental responsibility. This is usually a signal to customers, investors, and other stakeholders that the company takes its environmental impact seriously and is actively taking steps to reduce it. This can help to build trust and loyalty among stakeholders and enhance the company's reputation as a socially responsible organization. Renting a green office can also improve a company's brand image. Major multinational corporate tenants mentioned that by positioning itself as an environmentally conscious organization, a company can differentiate itself from its competitors and appeal to customers who are increasingly concerned about environmental issues. This can help to attract and retain customers who value sustainability and may be more likely to support environmentally conscious brands. Finally, the interviewees also highlighted that renting a green office can help a company attract and retain employees who are environmentally conscious. A sustainable and healthy work environment can be a significant factor in attracting and retaining top talent, as younger employees increasingly prioritize workplace wellness and sustainability in their job search.

In the case of the multinational, large corporates it was a very common statement that they lease in green-certified office buildings, because it is a requirement from their parent company. If a parent company requires its subsidiaries or affiliates to rent green offices, it may do so for a variety of reasons, such as a commitment to sustainability and environmental responsibility, a desire to reduce operating costs, or to improve the overall health and productivity of their employees. The parent company may have a sustainability policy in place that requires all of its business units to adopt sustainable practices, which may include renting green office spaces. By requiring subsidiaries and affiliates to rent green offices, the parent company can ensure that its entire organization is aligned with its sustainability goals. This can also help the company to reduce its carbon footprint and demonstrate its commitment to sustainability to its customers, investors, and other stakeholders. In addition, renting green offices can offer several benefits to the subsidiary or affiliate, such as lower energy costs, improved indoor air quality, and a healthier and more productive work environment. This can lead to cost savings, increased employee retention, and improved overall business performance.

This cost factor also appeared usually in the interviews, as companies may also rent green offices to reduce their energy costs. Green buildings are designed to be more energy-efficient, which can lead to

significant cost savings over time. This includes features such as high-efficiency heating and cooling systems, energy-efficient lighting, and water-saving fixtures.

Another important factor in the responses was that green offices can improve employee well-being by providing a healthy and comfortable work environment, access to natural light, and in some cases outdoor green spaces. Based on the experience of the interviewees, this can lead to improved productivity, reduced absenteeism and turnover rates, and an overall healthier and happier workforce.

## **Conclusion**

The green office market in Hungary has been growing in recent years, driven by a combination of environmental awareness, energy efficiency concerns, and corporate social responsibility.

Based on the results of this research, green-certified buildings are usually preferred by major corporate tenants in the competitive sector, with an international field of activity who often have ethical rules for sustainable development by their parent company.

The statistical analysis pointed out that the Hungarian government became an important market actor regarding green-certified office building leasing transactions, as ca. 12% of the green-certified office leasing activity was related to it in the past five years.

Based on the numbers it can be stated that the COVID-19 and the Ukrainian war and energy crisis created some turbulence on the office market, however the share of leases in green-certified office buildings remained strong in the past years until this moment.

Many companies choose to incorporate sustainable practices into their operations as a matter of social responsibility. By renting green offices, companies can demonstrate their commitment to environmental sustainability and promote a positive image to their customers, stakeholders, and employees. In addition, green offices can be attractive to employees in the Hungarian market as well, particularly those who value sustainability and want to work for a company that shares their values. On the other hand, green offices may promote employee health and well-being, which can lead to higher productivity and job satisfaction, and ultimately contribute to employee retention based on the feedback of tenants.

The “green” tenants in Hungary also feel that while there may be a green premium associated with renting or building green offices, these buildings may also provide cost savings over the long-term. They usually highlighted that green buildings may have lower energy and water bills, lower maintenance costs, and higher resale value.

Overall, the green office market is expected to continue to grow as more companies recognize the benefits of sustainability and seek out buildings that align with their values and business goals. Further research suggested to be made regarding different tenant sectors and to examine the differences between Hungarian and multinational tenants’ office preferences on the Budapest office market, including the topic of remote working.



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