

Location preferences of companies on Dutch science parks

Benchmarking tenant stickiness



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1 Introduction

Successful science parks stimulate networking and innovation and therefore economic performance of companies as well as the regions which they occupy. From a company's perspective, this economic performance translates to, for example, better R&D, more sales and cost saving. This type of added value is what draws companies to science parks. By doing so, science parks have contributed strongly to the knowledge-based economy. Over the last decade, science parks in the Netherlands have seen strong company and employee growth. They have outperformed not only the national average among all sectors, but also the knowledge-intensive sectors. Successful science parks stimulate networking and innovation and therefore economic performance of companies as well as the regions which they occupy. From a company's perspective, this economic performance translates to, for example, better R&D, more sales and cost saving. This type of added value is what draws companies to science parks.

From a real estate perspective, the ability to retain companies (i.e., stickiness) is a good indicator of a science park's capacity to support the needs of their commercial occupants, providing an attractive investment location in the long-run.

The ASR Dutch Science Park Fund focuses exclusively on science parks in the Netherlands where a strong anchor, such as a university, or a large corporate, provides a stable business environment. Identifying the factors which influence a science park's ability to retain companies allows for a more focused location strategy within a subset of science parks, which already outperforms the national average in both company- and employee growth.

For this purpose we examined the i) company survival, ii) status and iii) relocation behavior of companies on 27 park-like Dutch science

parks, and compared them using several characteristics such as: type of knowledge anchor, ownership model, size and location quality.

At first glance science parks with a public anchor have a higher company survivability rate compared to science parks with a corporate anchor. However, as university science parks have a larger share of young companies, which need several years to "mature" at their original location, this leads to a skewed image. A closer look at the data shows for example that company stickiness on corporate science parks is influenced by their greater likelihood of being acquired by third parties, indicating commercial success. This article therefore looks at the nuances of company behavior and differences among science park features, and their implications for a real estate investment strategy.

Science parks with a public anchor have a higher company survivability rate compared to science parks with a corporate anchor.



Added value of science parks

Science parks provide additional value to its occupants through physical attributes as well as non-physical attributes.

Science parks are area developments that provide for critical infrastructure, (R&D) facilities and services. Through economies of scale, science parks supply shared facilities and services, which can lead to cost saving for companies and access to equipment which would otherwise be out of reach. This allows especially younger companies to scale up in a way that would not be possible, individually.

On science parks, proximity to organisations such as universities, research organisations and other companies create opportunities for knowledge sharing and collaboration. Moreover, the urban setting and the presence of a university, university medical centre or large corporates are sources of human talent. The proximity to clients and suppliers improves innovative output, therefore outperforming competitors. The quality of an ecosystem encompasses the formal and informal interaction among collaborators, competitors, clients, suppliers, etc. both on-site and within the region. These interactions are facilitated by both deliberate and serendipitous events (software).



2 Survivability of companies on Dutch science parks

One of the most defining features of a science park is the presence of an “anchor”, such as a university or university medical centre. These anchors act as a source of human talent, fundamental research, grants, shared facilities and entrepreneurship.

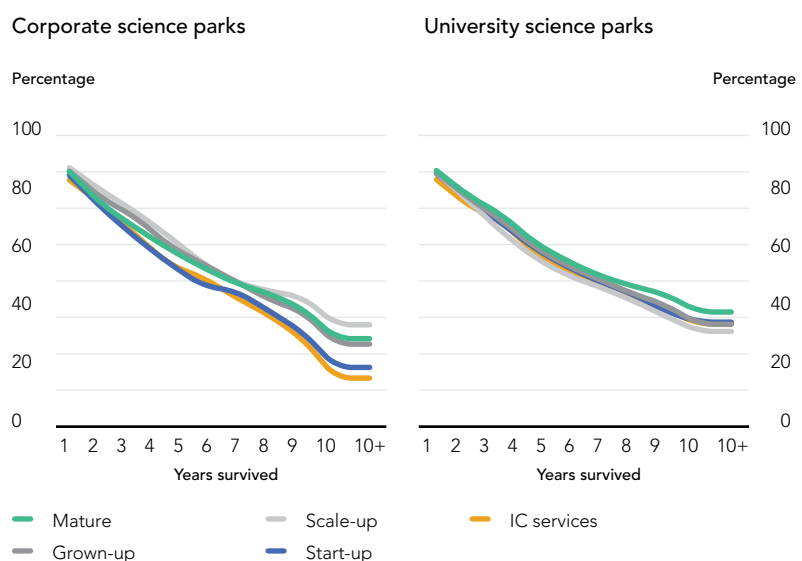
Despite several successful examples of corporate science parks, such as the High Tech Campus in Eindhoven or Brightlands Chemelot Campus in Sittard-Geleen, most successful science parks are centred around a university. When comparing university and corporate science park types, university science parks perform better in tenant survivability. This is not just the case for young companies, for which universities often foster an attractive environment. The average survivability on university science parks is 3.9 years, compared to 3.5 years for corporate science parks.

As shown in figure 1 company's survivability decreases gradually and there are differences in pace among company types and science park types. The graphs show the survivability over time for both science park types. The x-axis shows the duration of stay, while the y-axis reveals the percentage of companies that survived at a certain point of time for a specific company type.

When comparing university and corporate science park types, university science parks perform better in tenant survivability.

Mature companies have the highest survivability, independent of science park type. Additionally, larger science parks are more capable in retaining tenants. When looking at the added value which science parks provide for tenants, the old saying “bigger is better” seems to be true, while considering the surface area of the locations.

Figure 1 Survivability of company types on science parks (2011 – 2020)



Methods

This article is based on an original paper, which is part of the conference proceedings of the 40th IASP World Conference on Science Parks and Areas of Innovation 2023 held in Luxembourg. The paper is titled "Stickiness unraveled: Company survival on Dutch science

and technology parks" and will be presented at this conference.

In this article we studied the 27 'park-like' science park locations in the Netherlands. These science parks vary by e.g., degree of urbanisation, size and knowledge anchor. On one hand university-based science parks (i.e., main location of a university or academic medical centre) and on the other hand corporate science parks (i.e., a large corporate company functions as main anchor). Within the geographical boundaries of these science parks, a set of company data is acquired from the Dutch Chambre of Commerce in

the period 2011 – 2020¹. Through cluster analysis we separated the total sample of companies in five company cluster types among all park-like Dutch science parks. Clusters vary among maturity, size and business activities:

1. **'Mature'**. The largest group with the relatively oldest and largest on-site companies. These companies are most active in established business activities such as human health and social work, manufacturing and other service activities.
2. **'Grown-up'**. In terms of characteristics this group is very similar to the 'mature' cluster, but relatively smaller and younger. Between size on location and age this cluster seems to be the second-most mature. Companies in this group are relatively more active in professional, scientific and technical activities.

3. **'Scale-up'**. This cluster is relatively the smallest among the clusters, but not the youngest and mostly active in professional, scientific, technical and other related work.
4. **'Start-up'**. This cluster is the youngest and their activities are well-spread over all five business activities.
5. **'IC services'**. The smallest cluster consists of companies with a relatively low employee count. Companies in this cluster often belong to a relatively large business group. Their signature business activity is information and communications, hence IC services.

1. Company.info (2022)

Teaser – Stickiness unraveled: Company survival on Dutch science and technology parks



If the video doesn't work click [here](#) to view it online.

3 Status of companies on Dutch science parks

Looking at factors which influence tenant stickiness most, it is tempting to just focus on the anchor type and sheer size of science park locations. However, among all 27 park-like science parks in the Netherlands there are

Among all 27 park-like science parks in the Netherlands there are various differences which influence performance and attractiveness.

various differences which influence performance and attractiveness (see Appendix). In order to gain a better understanding of the Dutch science park market we created a data-driven science park typology, which focuses on the features that impact stickiness the most. A cluster analysis leads to the most distinguishing features (i.e., regional, building and managerial variables). Figure 2 shows the key variables that dictate these four cluster types. A closer look at the university clusters, which can act as peer groups for individual university science parks as well as provide benchmarks for stickiness. Within these peer groups there are both under- and overperformers compared.

For instance, Wageningen Campus and TU/e Campus both belong to the Provincial science park cluster and TU Delft Campus and VU Campus Amsterdam belong to the Metropolitan science park cluster (figure 3). Wageningen Campus and TU Delft Campus outperform their respective peer groups, while TU/e Campus and VU Campus Amsterdam underperform in terms of companies which still exist after ten years.

In the last decade, closures at Wageningen Campus were 24% lower than the Provincial peer group, while closures at TU Delft Campus were almost 10% lower compared to other Metropolitan science parks.

Figure 2 Characteristics of science park types in the Netherlands

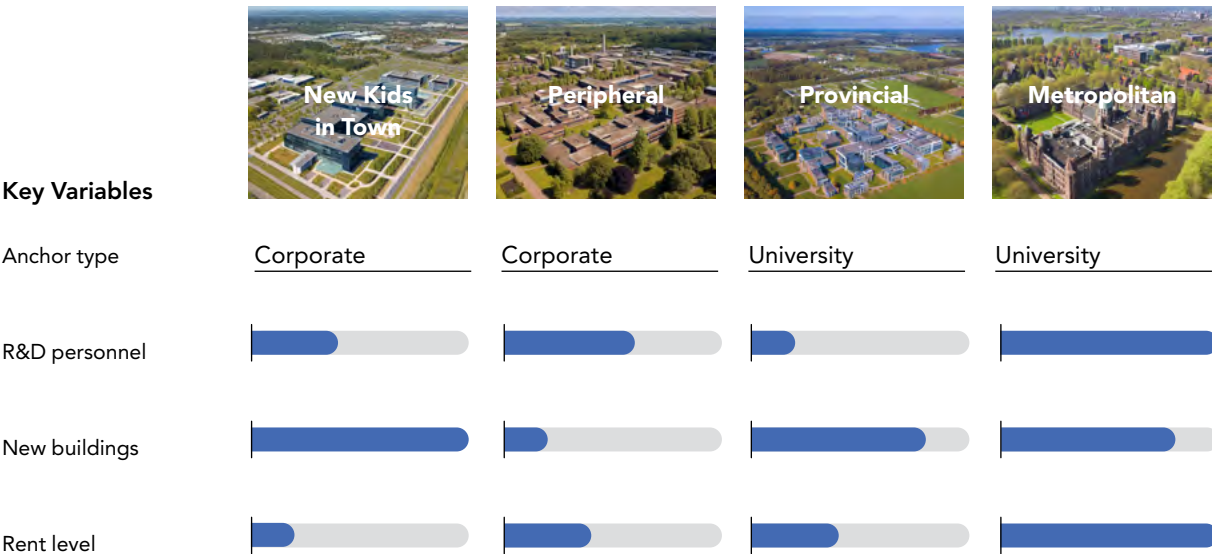
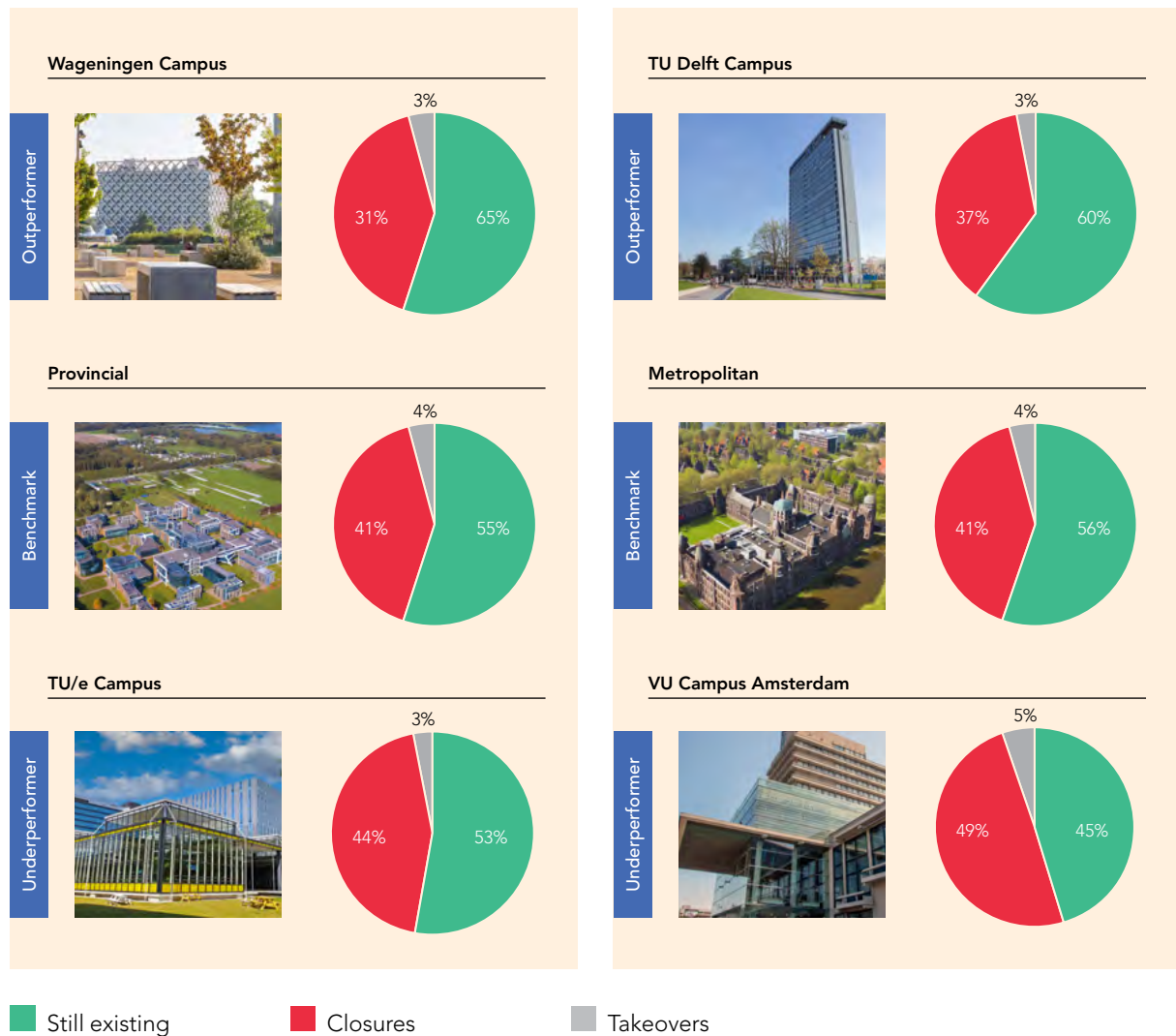


Figure 3 Out- and underperformers of the Provincial and Metropolitan science park clusters



The benchmark through the cluster analysis of science park types poses three key takeaways:

- Bigger the better** on science parks. Both Wageningen Campus and TU Delft Campus are larger in both footprint and commercial real estate stock than TU/e Campus and VU Campus Amsterdam. A certain critical mass contributes to the economies of scale in terms of (shared) facilities and services. Moreover, shared usage of facilities can lead to chance encounters and subsequent knowledge sharing and collaborations.
- Competitive edge** through sectoral focus. In terms of tenant retention, Wageningen Campus fares relatively well, which could be attributed to its unique and strong focus on agri-food and life sciences with ample large corporates on-site. Similarly, the TU Delft is the highest ranking technical university in the Netherlands². In addition, the sectoral focus partly explains the number of closures and takeovers for the examples in Eindhoven and Amsterdam. Product development in the tech and life science sectors includes a certain amount of risk.
- Ecosystem quality** trumps location. Although the old saying of real estate investment dictate 'location is king', this comparison shows that this is not always the case for science parks. Eindhoven is more urbanized than Wageningen, while from an economic perspective, Amsterdam is more attractive than Delft. Here, the business ecosystem development on-location on both Wageningen and Delft are more ahead than their science park counterparts in Eindhoven and Amsterdam.

2. Times Higher Educational Ranking (2023)

Methods

In this section, an attempt is made to produce a basic typology among science parks in the Netherlands that will provide for a more nuanced view on the status of companies on science park types. Based on regional, building and managerial characteristics four distinct science park clusters can be defined. The major distinguishing key variables are anchor type, amount of R&D personnel in the region, new buildings (average construction year) and average rent level of real estate, which represented around 75% of importance to produce these four clusters. The remaining variables, which were not that distinct among clusters, were number of companies, distance to highway, land ownership policy and growth rate of companies.

In this study, status among companies on science parks in the past decade can be divided in three business outcomes:

1. Still existing (operation continued up until the last data point),
2. Closures (bankrupt or operation is ceased within the studied period) and
3. Takeovers (the company is acquired by a third party). In this section, relocations are omitted, which will be the focal point of section four. In the last decade, the share of companies staying and relocating is around 50-50.

There is a striking uniformity among the company statuses between science park clusters. Despite large difference in anchor tenant, age of stock, rent levels and regional

qualities, the average tenant stickiness lies within 5 percentage points of each other. The share of 'still existing' varies between 55% and 60%. However, companies on corporate science parks were more likely to be acquired by third parties, an important indicator for commercial success.



4 Relocation behavior of companies on Dutch science parks

Tenants who do not remain on science parks have either relocated or ceased to exist. Understanding these relocations allow for a better understanding of tenant demands, as science park vacancy remains very low. Often, companies will relocate nearby, as available space on their preferred location is scarce. Additionally, movements are also influenced by a company’s connection to a region or a municipality.

The table below shows examples for a subset of the examined science parks. Overall, relocation to a foreign country is almost non-existent. Largely there are three relocation behaviors:

1. **Intra-municipal relocations:**

High Tech Campus Eindhoven shows a relatively high share of intra-municipal relocations. The city of Eindhoven accommodates ASML, three science parks and a myriad of suppliers of high-tech companies. This could explain the pull factor of Eindhoven.
2. **Intra-provincial relocations:**

Relocation behavior of companies on Leiden Bio Science Park and TU Delft Campus show similar patterns: a relative large share of intra-provincial movement. Universities in Leiden, Delft and Rotterdam have a strategic alliance in order to create a robust regional ecosystem. Company relocations of Leiden Bio Science Park and TU Delft Campus support evidence that businesses tend to relocate within the same province.
3. **Inter-provincial relocations:**

Utrecht Science Park and Wageningen Campus show that relocations most often occur within the same municipality and to a lesser extent within the same province. However, for these locations, relocations are relatively high, beyond the own province.

Table 1 Relocation behavior of five science parks in the last decade in the Netherlands				
	Intra-municipal	Intra-provincial	Inter-provincial	Abroad
High Tech Campus Eindhoven	60%	18%	21%	1%
Leiden Bio Science Park	31%	44%	24%	1%
TU Delft Campus	32%	44%	24%	1%
Utrecht Science Park	51%	14%	35%	1%
Wageningen Campus	42%	24%	34%	0%

5 Conclusion

The ability to retain tenants is a strong indicator of the long-term attractiveness of a science park to its mature tenants, as well as its ability to foster young companies. It is clear that a strong anchor, such as a university or university medical centre highly influences this ability, for companies in all business development phases. There are several factors which also strongly correlate with tenant retention, such as the age of the building stock and availability of R&D personnel. Additionally, a higher rent level is a strong indication of strong tenant stickiness, but more likely a result, instead of a cause.

When clustering science parks based on their characteristics, several locations can be seen to outperform in terms of tenant stickiness, despite

underperforming in other factors. Ecosystem development and sector focus seems to provide for a competitive edge on these locations. This is for example the case for the Wageningen Campus, which has a strong sectoral focus and despite its rural location strongly outperforms its peers. This is also visible on the more urban locations, where for example the TU Delft Campus strongly outperforms its more urban peers.

When identifying locations for a long-term real estate strategy, it is therefore worthwhile to not just look at broad characteristics. Especially ability to foster a strong and focused R&D environment with room to improve on other characteristics can be perceived as a strong indicator of future potential.

Ecosystem development and sector focus seems to provide for a competitive edge on science parks.

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Appendix

	Science parks	Knowledge anchor	Urbanisation*
University science parks	AMC Medical Business Park	University Medical Centre (UMC)	1
	Amsterdam Science Park	University	1
	Brightlands Maastricht Health Campus	UMC	1
	Healthy Ageing Campus Groningen	University + UMC	1
	Kennispark Twente	University	2
	Leiden Bio Science Park	University + UMC	1
	Mercator Science Park Nijmegen	University + UMC	2
	TU Delft Campus	University	1
	TU/e Campus	University	1
	Utrecht Science Park	University + UMC	1
	VU Campus Amsterdam	Universiteit + UMC	1
	Wageningen Campus	University	2
	Zernike Campus Groningen	University	1
Corporate science parks	Biotech Campus Delft	DSM	1
	Brainport Industries Campus Eindhoven	Various	1
	Brightlands Chemelot Campus	Various	2
	Brightlands Greenport Campus Venlo	BASF	2
	Brightlands Smart Services Campus Heerlen	APG	2
	Energy & Health Campus	Various	4
	High Tech Automotive Campus Helmond	Various	2
	High Tech Campus Eindhoven	Various	1
	High Tech Systems Park Hengelo	Thales	2
	Novio Tech Campus Nijmegen	Various	2
	Pivot Park Oss	Various	3
	Polymer Science Park Zwolle	Various	2
	S/Park Deventer	Various	2
	Space Business Park Noordwijk	ESTEC	3

* Degree of urbanisation on municipality level, based on Statistics Netherlands (1=very high, 2=high, 3=somewhat, 4=low, 5=not urbanized).

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