Stickiness and science parks

The duration of stay of companies on Dutch science parks

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Summary

Over the last decades, Dutch universities with a technical or life-science background and, more recently, university medical centres have developed their existing campus grounds into science parks. In a similar trend, several former single-tenant business parks, all with strong R&D backgrounds, have transformed into attractive multi-tenant areas of innovation.

This article focuses on the stickiness of companies (their tendency to stay, or leave) on Dutch science parks, factors which influence this behaviour and possible solutions aimed at increasing the duration of stay of tenants.

The key take-aways of this article:

The two most important factors in the ability to retain tenants are the size of the science park and the type of science park on which a company is situated.

Bigger science parks, as well as corporate, as opposed to university, showed a higher ability to retain companies;

The relative difference between duration of stay of companies among different types of science parks can be attributed to the business development phase of these companies;

These factors can be influenced by science park management or other public stakeholders, as well as commercial actors such as real estate investors;

Commercial real estate development contributes to the critical mass of resources, in terms of facilities and services, and is required to develop the local ecosystem, which in turn retains and attracts tenants.

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1 Introduction

The science park prototype originates from the United States in 1950s as a result of decreasing governmental funding and a shifting economy. During that time American universities sought out new opportunities to bridge the gap between academia, industry and government on university grounds (Saxenian, 1996).

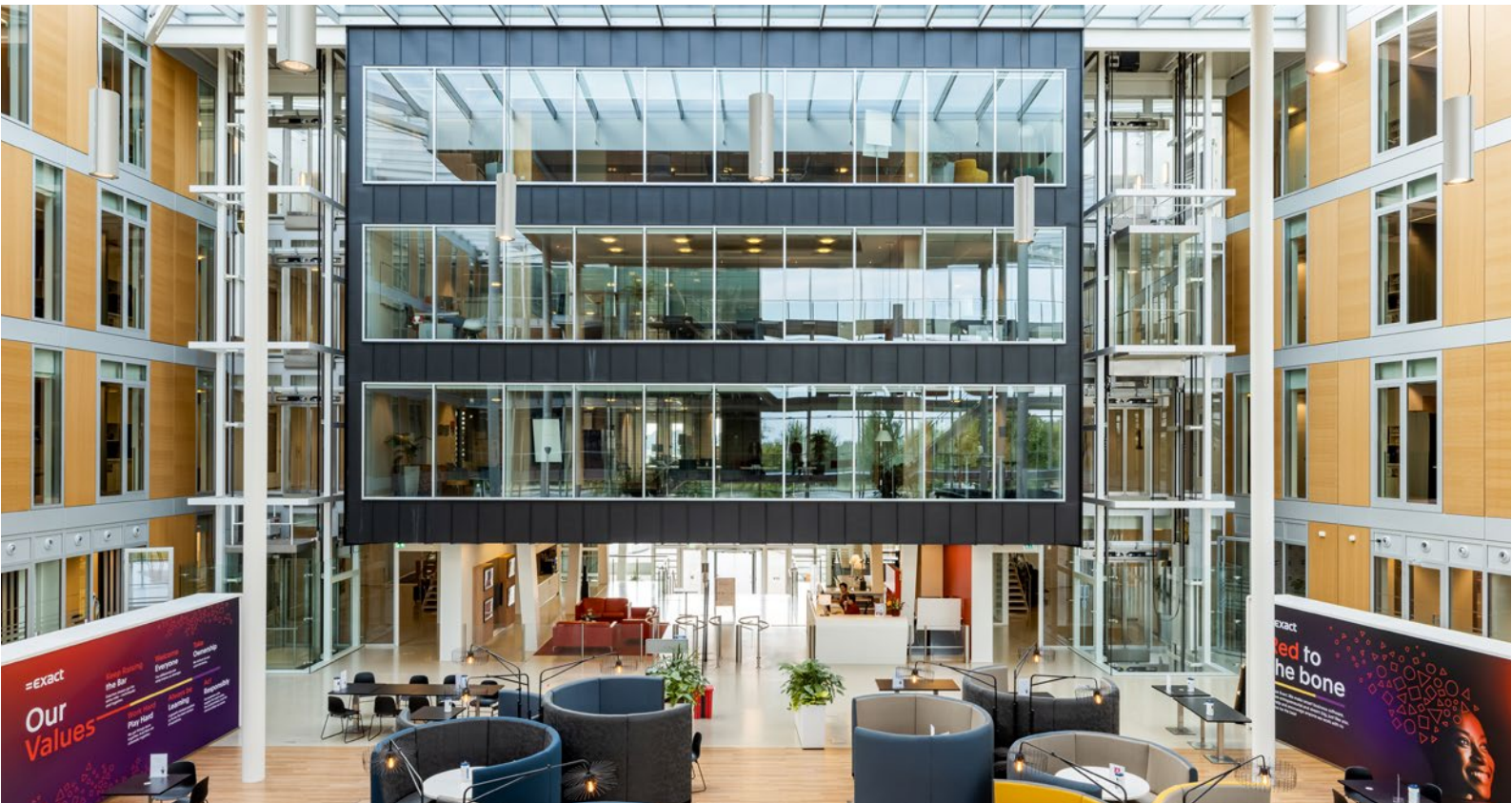
As time passed, the main objective of these locations moved from valorising academic knowledge and revitalising industrial areas to the creation and support of new technology-based companies. More recently, these goals have often included more community-focused goals, such as creating robust ecosystems (Annerstedt, 2006; Van Der Borgh et al., 2012).

Science parks in the Netherlands have emerged near different knowledge anchors: universities, academic medical centres or large corporate R&D locations (see Figure 1). There are key similarities that differentiate these locations from 'common' business parks. A common shared attribute is a clearly defined area development, often managed by an on-site management organisation.

Science parks host companies in all business development phases. Generally, more established companies have grown on their locations or have been attracted to the sector-specific advantages these sites offer. Start-ups generally emerge from one or more of the principal knowledge anchors, which contribute to knowledge flows and instigate spin-off activity. This has led science parks to have a specific thematic focus, such as life sciences, agriculture or focus more broadly towards high tech systems and materials.

Additionally, various governance structures have emerged and in different sizes. Over the last decades, internationally as well as in the Netherlands, a steady economic shift is noticeable from 'traditional' economic activities towards more knowledge-intensive activities. These activities are characterised with ever increasing economic output from scientific and research & development (R&D) activities.

The ability to retain companies, in all commercial phases, is vital for the success of science parks and the ecosystem as a whole.



This is one of the driving forces behind the increased concentration of commercial and public knowledge-intensive activities on Dutch science parks. In parallel, the Dutch science park real estate stock has grown exceptionally over the last decade, while vacancy rates on these locations has remained low.

The success of ecosystems on science parks has historically been influenced by its ability to reach a critical mass of resources. These resources include facilities such as meeting spaces, sector specific infrastructure, as well as various services, allowing companies to focus on their core businesses. This in turn attracts other companies, which increases its mass and strength of the local ecosystem. Growth is further stimulated by key anchors (i.e. a university, research institute or company) as they contribute to the stable flow of ideas, which form the basis for innovation and the formation of new companies (Feldman, 2002). The ability to retain companies, in all commercial phases, is therefore vital for the success of science parks and the ecosystem as a whole.

Figure 1 Science parks in the Netherlands

A Zernike Groningen
B Kennispark Twente
C Utrecht Science Park
D Amsterdam Science Park
E Leiden Bio Science
F TU Delft Campus
G Wageningen Campus
H TU Eindhoven Campus

I Erasmus Medical Centre
J VU Medical Centre
K Amsterdam Medical Business Park
L Brightlands Maastricht Health Campus
M Radboud UMC
N Healthy Ageing Campus

O Biotech Campus Delft
P High Tech Campus Eindhoven
Q Brightlands Chemelot Campus
R Pivot Park Oss
S Novio Tech Nijmegen

Source: a.s.r. real estate

2 Stickiness of tenant companies on Dutch science parks

In order to investigate the stickiness or duration of stay of tenant companies, Dutch chamber of commerce data of 1,953 tenant companies among 36 Dutch science parks between 2012 and 2020 was analysed. Of these companies around 70 percent are located on science parks located near a university or university medical centre, while the other companies are located on science parks with a corporate background.

Science park size and science park type as distinguishing factors

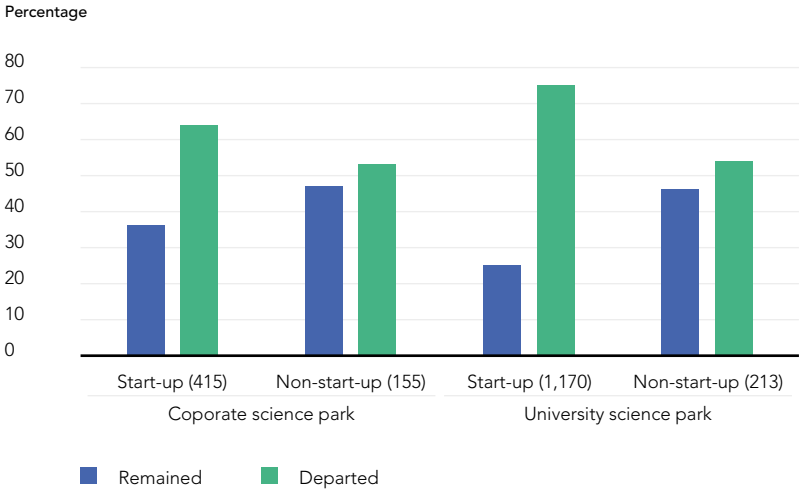
The two most important factors in the ability to retain tenants are the size of the science park and the type of science park on which a company is situated. Bigger science parks, as well as corporate, as opposed to university, showed a higher ability to retain companies. This can be attributed to a higher number of collaboration opportunities on larger science parks than those with less tenant companies (Folta et al., 2006). The critical mass can therefore support tenant companies that rely on other organisations to thrive. Over the studied period of seven years corporate science parks were relatively more able to retain companies for the full period compared to university science parks. During the studied period between 2012 and 2020, university science parks were able to retain companies for an average of 4.5 years. In contrast, companies showed a longer average stay on corporate-based science parks; 6.0 years.

Whereas the correlation between the size of the science park provides further evidence that larger science parks provide more attractive ecosystems, while the differentiation between corporate and university science parks is less straightforward. Companies are likely to leave as a result of various company related factors.

Start-ups and scale-ups

The relative difference between duration of stay of companies among different types of science park can be attributed to the business development phase of these companies. Companies established not longer than five years ago, which are classified as

Figure 2 Start-up retention among science parks[2]



Source: Company.Info (2020).

1 Based on the data available and comparative method used between each year it is unclear whether companies relocated to another location, acquired by another company or ceased to exist.

2 In this study 'start-ups' are defined as companies, which are five years or younger, while 'non-start-ups are companies older than five years.

start-ups, tend to relocate more readily than their more established counterparts[1]. Start-ups were more represented among university science parks with 85% start-ups and 15% non-start-ups versus 80% and 20% on corporate science parks. The higher presence of start-ups on academic grounds is generally attributed to spin-off activities of academic staff and students. Relocation behaviour of non-start-ups in both science park types were quite similar, as shown in figure 2. In contrast, start-ups tend to leave more often; on university science parks 75% of the start-ups left compared to 64% on corporate science parks. This could explain the difference on duration of stay of companies among the two types of science parks.

The relative higher rate of departures of start-ups on university science parks is related to several factors. Past research showed that companies benefit from the proximity of a university, but more is needed for commercialising this knowledge (Albahari et al., 2017). Producing a stable flow of ideas is insufficient to create commercially viable products.

This is especially important from a business development perspective, where younger companies start by exploring their novel idea, while improving product offering with external knowledge and ultimately translating these concepts into commercial products or processes. In contrast, commercial real estate development and business support services on corporate science parks is more often able to aptly respond to market demand. However, a public knowledge anchor is often missing on these corporate science parks that contributes to the traffic of ideas on-park. A robust network of partners, suppliers and customers enable companies to innovate faster than competitors (Gassmann, et al., 2015). It is likely that an in-house corporate spin-off enjoy more advantages than an academic counterpart. For the older counterparts, companies are relatively more embedded to remain at their location (Oliveira, 2015). In successful cases, start-ups and small-medium enterprises leave as a result of acquisitions by larger corporates, which underscores the function of a science park as a breeding pool for high-potential businesses in relevant sectors.

A robust network of partners, suppliers and customers enable companies to innovate faster than competitors.

3 Increasing tenants' duration of stay on Dutch science parks

Besides company-related factors, existing literature provides some clues that explain the results from the science park context. In addition, factors are identified for university science park managers that increase the overall stickiness of their science parks that contribute to retaining tenant companies.

First and foremost, the main tasks of universities includes education and fundamental research, followed by commercialising knowledge and entrepreneurship. In the last few years Dutch universities have continued to improve their entrepreneurial programs for students. This explains why business support from university science parks is relatively more focused on the early stages of business development. In contrast, corporate science parks tend to be owned by private organisations with different strategies, goals and decision-making rationale. On corporate science parks, real estate decision-making is often faster, which contributes to aligning real estate and business development processes more easily. Science park managers or commercial parties are responsible to offer appropriate business support to tenants in order for them to grow (i.e. facilities and business development services). Science parks are able to create and strengthen the science park community through the adequate provision of facilities and services, which contributes to tenant retention.

Secondly, creating so-called lock-in effects can increase overall stickiness of science parks in which older companies often stay longer at both university and corporate science parks. Over time, firms are demotivated to leave ecosystems that they have invested in socially, the access to human talent and dependence on critical services, e.g. R&D facilities and services (Van Der Borgh et al., 2012). These facilities combined with dedicated community managers and services contribute to the business development and success for especially start-ups.

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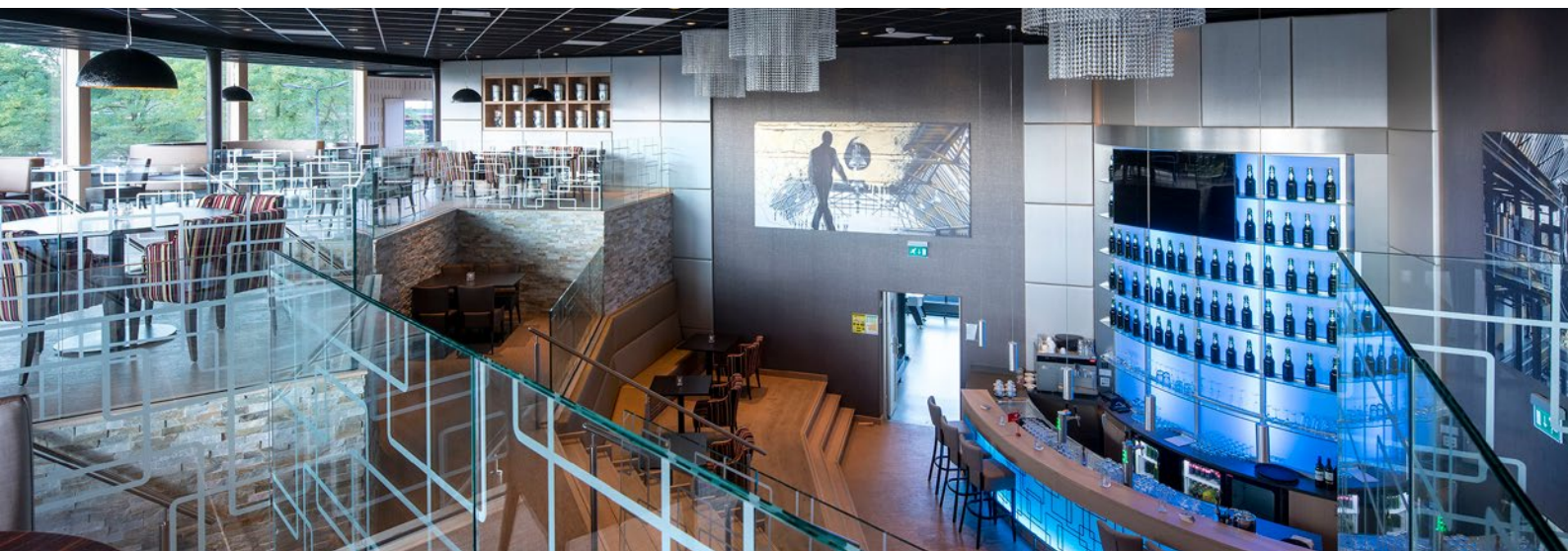
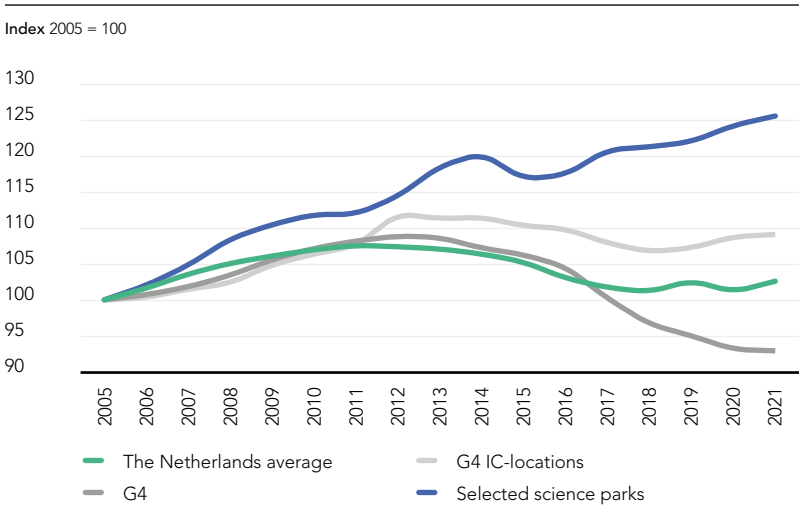


4 Commercial real estate development on Dutch science parks

The main social and economic goal of science parks can largely be described as setting up and supporting a unique knowledge ecosystem. Commercial real estate data suggest that there is significant untapped potential, as not all parts of the ecosystem are optimally facilitated.

Research by a.s.r. real estate showed that since 2005, the supply of office stock on the 19 science parks[1], which a.s.r. real estate identifies as most attractive, have shown stable growth, while the general Dutch office market has stabilised or decreased (Figure 3). This includes offices near the major train stations among the four Dutch largest cities (i.e. InterCity stations), generally considered the most attractive office locations in the country.

Figure 3 Office stock development in the Netherlands, G4 and selected science parks



Source: JLL (2021), CBRE (2022), edited by a.s.r. real estate

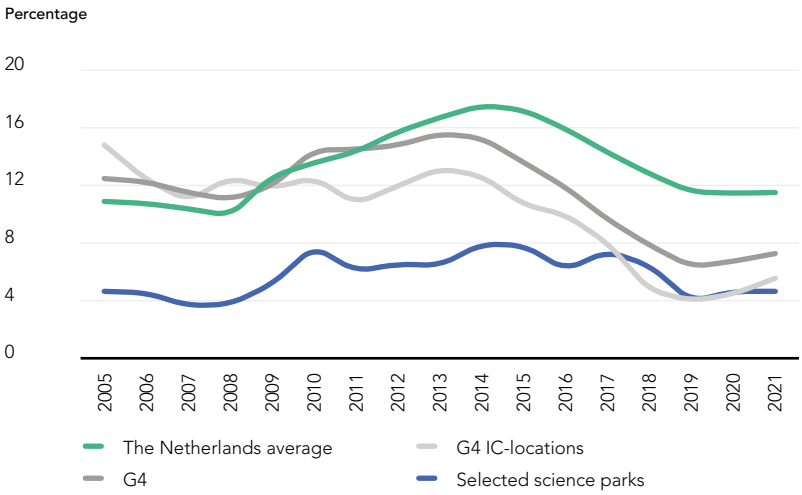
1 These 19 science parks are: Zernike Groningen, Kennispark Twente, Utrecht Science Park, Amsterdam Science Park, Leiden Bio Science Park, TU Delft Campus, Wageningen Campus, TU Eindhoven Campus, Erasmus Medical Centre, VU Medical Centre, Amsterdam Medical Business Park, Brightlands Maastricht Health Campus, Radboud UMC, Healthy Ageing Campus, Biotech Campus Delft, High Tech Campus Eindhoven, Brightlands Chemelot Campus, Pivot Park Oss and Novio Tech Campus Nijmegen.

Considering the vacancy rate of the office stock, the availability of science parks has remained extremely low and recently on a similar level as the most sought after offices in the G4 (Figure 4). While office supply has steadily increased on the selected science parks, this stock is continually occupied, while leaving no noticeable vacancy. This is a clear indicator of a mismatch between supply and demand, with continued demand and lagging supply.

This mismatch of real estate could limit the further development of Dutch science parks. On one hand prospective tenants could deviate to other locations as a result of limited availability of commercial space. While on the other hand, existing start-ups are hindered in their growth towards scale-ups and they might even occupy space for new entrants. These consequences of the mismatch hampers growth as it leaves tenants unsatisfied and limits the maximum capabilities of the science park and ecosystem as a whole.

Campus organisations on university science parks are less equipped to provide an adequate answer to this issue, due to their commercial restraints. The conditions which allow science park ecosystems to flourish require both private and public investments, as the Dutch law 'Wet Markt en Overheid' (the Dutch Public Enterprises Market Activities Act) inhibits public parties such as universities from investing in real estate for commercial means. Market participants such as real estate developers or investors, however, have historically lacked the long-term commitment needed to positively influence the local science park and focus on a limited part of the investment market. The diversity of functions required for a science park to thrive has often not developed to its full potential. This is underpinned by various reports and research in the Dutch science park sector, which highlight the lack of commercial real estate investments as a bottleneck for further development of science park ecosystems. It has also been shown that a mismatch between supply and demand for science park facilities and services can negatively impact the achievement of policy goals (i.e. hamper technology development) and business performance, and makes it harder to attract potential tenants (Monck and Peters, 2009; Good, et al., 2019). A clear, self-reinforcing, role for commercial real estate parties has therefore emerged over the last decade; facilitating a wide range of companies, from corporates to companies which have outgrown the start-up phase. This has not only proved to provide attractive investment opportunities, but also contributes to the further development of science park ecosystems and, in turn, investment climate.

Figure 4 Office vacancy rates in the Netherlands, G4 and selected science parks



Source: JLL (2021), CBRE (2022), edited by a.s.r. real estate

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Case study

University partnerships ASR Dutch Science Park Fund

In the last three years, the Fund has established preferred partnerships with TU Delft and Kennispark Twente to acquire and realise the multi- and single-tenant buildings that are beyond the scope of the university.

Through its partnerships, the Fund and the local science park are able to provide a joint answer to the market challenges. The goal is to realise a broad range of commercial real estate, which allow resident firms and the science park to create value on both firm and ecosystem level. With these partnerships, in relatively limited time the Fund is able to create value for tenants (facilitate adequate real estate) and form a sustainable bond between investor and science park for the long term (a more robust ecosystem).

For the TU Delft campus, the Fund completed NEXT Delft in 2022, a multi-tenant building with offices, lab space and shared facilities aimed at high-tech scale-ups and TNO as its main tenant. It serves as a natural 'next step' for the start-ups currently located in the adjacent YES!Delft building and interested parties that wants to settle at the TU Delft campus. In Twente, the Fund is currently collaborating with the university to develop a new building near the heart of the campus. The Fund aims to expand its university partnerships and contribute to the Dutch knowledge economy.

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