

Danish PropTech Report

2022





1. Introduction and Summary

Welcome to the Danish PropTech Report 2022! The report brings you key insights on the development of the Danish proptech ecosystem and status on the digital maturity and digital transformation among established Danish real estate players. In this year's edition we also bring you a set of exclusive interviews with leading real estate actors about how they work with proptech and how they experience the challenges and opportunities of digital transformation.

Danish PropTech Report 2022 is compiled and published by PropTech Denmark and Colliers Denmark, with the main data source being a new and representative survey among more than 360 companies from the Danish real estate and construction sector. Our hope is that the report can serve to give you and our community a better and more fact-based overview and understanding of the Danish proptech landscape and how proptech is changing the real estate sector in praxis.

The report will also serve as a good starting point for internal reflections and discussion on where your organisation is on the digital transformation ladder and how you are approaching the challenges and possibilities of proptech.

PropTech Denmark & Colliers
May 2022

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About PropTech Denmark

PropTech Denmark is a non-profit innovation hub and network organization gathering proptech companies and owners, operators, brokers and advisors within real estate. In total, we gather more than 170 members representing the entire real estate value chain and life cycle.

Our purpose is to facilitate and help accelerate digital and technological innovation and business development in real estate. We gather our community around a series of activities, where our members can engage with each other while gaining new knowledge, inspiration and learnings on the digital transformation of real estate.

PropTech Denmark offers network events, matchmaking, seminars, training & education services, initiating and facilitating collaborative innovation projects across the real estate sector. We also operate the largest dedicated proptech lab and coworking space in the Nordics, situated in Bloxhub in Copenhagen.

Once a year we gather the entire proptech and real estate community in our yearly PropTech Symposium being the leading proptech and real estate innovation event in the Nordics.

Learn more at proptechdk.dk





2 PARTNERS

14 PREMIUM MEMBERS

180 MEMBERS

60 STARTUP MEMBERS

PROPTech DENMARK PARTNERS



PROPTech DENMARK PREMIUM MEMBERS





About Colliers

Colliers (NASDAQ, TSX: CIGI) is a leading diversified professional services and investment management company. With operations in 62 countries, our 17,000 enterprising professionals work collaboratively to provide expert real estate and investment advice to clients.

In Denmark, Colliers is by far the largest and most experienced commercial and investment property advisor. We offer national coverage with some 150 professionals working from offices in Copenhagen, Aarhus, Aalborg, Odense and Vejle. We boast the industry's largest Valuation & Advisory team, enabling our clients to tap into unrivaled market insights across all segments, providing them with the best possible basis for assistance across Colliers' services. Colliers strives to be at the forefront of digital innovation in the real estate industry. With a keen focus on development of new, digital solutions we aim to increase knowledge through data capabilities and simplify real estate transactions for our partner and clients.

We always put the needs of our customers first, and we think ahead. For several years running, Colliers has achieved top rankings in the annual poll conducted by internationally acclaimed Euromoney Magazine among industry peers. In 2021, the Colliers property valuation team was again named the best in Denmark.

Learn more at [colliers.com](https://www.colliers.com)





1.1 Key Takeaways

Digitisation of Danish real estate accelerates

Proptech is at a rapid pace creating a new normal in Danish real estate. The report clearly documents an acceleration of digital transformation, with the Danish real estate sector increasingly embracing new technologies. The vast majority of Danish real estate companies are now increasing their investments in digitisations, several of them also entering into collabs and partnerships with proptech startups.

- **Investments in Danish proptech** startups and scaleups have doubled reaching **DKK 354 million** (EUR 47.3 million) in 2021.
- **81%** of real estate companies have **increased their use of digital solutions** in the past year. In 2021, the figure was 72%.
- **31%** of real estate companies have **collaborated with a proptech startup**. In 2021, it was only 18%.
- **86%** of real estate companies rely on **digital data sources in decision-making** processes. In 2021, it was only 68%.
- Around **90%** of Danish **proptech companies experience increased demand** for their solutions. 77% experience a steep or very high increase.

More than DKK 350m

flowed into Danish proptech startups and scaleups in 2021. This is an **100% increase** since 2020.

Around 80%

of Danish real estate companies increased the use of digital solutions within the past year. In 2021, the figure was approximately 70%.

More than 30%

of Danish real estate companies collaborated with a proptech startup within the past year. In 2021, this was only 18%.



Key Takeaways (continued)

Lack of knowledge the main barrier for digitisation

Internal factors represent the most prevalent barriers when real estate companies try to increasingly embrace digital solutions. The challenges especially include lack of knowledge, skills and capabilities, poor prioritisation and time management.

The most important barriers to increased digitisation are:

- Lack of prioritisation (24%)
- Poor digital skills and competencies (23%)
- Insufficient knowledge of the general potential of digitisation (23%)
- Little or no knowledge of specific digital solutions of relevance (23%)

Significant ESG and tenant challenges ahead

When it comes to general challenges facing the real estate sector, most respondents point towards the rising ESG agenda as well as changing demands from tenants and clients as being the most significant ones. However, only 19% indicate that they invest in digital solutions to improve sustainability and only 15% invest to develop new services. The vast majority invest in digitisation to improve efficiency and automation.

34% see ESG

as one of most significant challenges facing their company and the real estate sector in general in the year to come.

However ...

... only 19% of real estate

companies indicate that they increased investments in digital solutions to improve sustainability.



What is Proptech?

Proptech [property technology] is a term describing digital solutions and business models that improve and change the way we finance, buy, plan, build, manage and use real estate and physical space.

Examples include automation of property management, data driven energy optimisation, tenant-communication apps, crowdfunding for real estate investments, market platforms for rentals, IoT based space management and much more.

Why proptech?

Because places shape people, and people shape places - and tech presents unique opportunities and challenges on this front. As you know, climate change is both real and urgent. Cities currently account for 60% to 80% of energy consumption and at least 70% of our carbon emissions. Add to that the fact that we spend 90% of our time indoors. Proptech is exactly about taking on the challenges of the real estate industry to make it better, more efficient, more user centric, more transparent and more environmentally and socially sustainable, fuelled by a rapidly developing digital landscape, changing regulations and new consumer demands.





02

Proptech Insights From Real Estate Leaders



2. PropTech Insights From Real Estate Leaders

Talking tech with real estate

PropTech Denmark and Colliers have spoken to some of the leading actors in the Danish real estate sector about how they work with proptech, what opportunities and challenges digital transformation brings in their experience and how proptech is changing real estate. We have also talked to Ben Liao, Global Head of Colliers Innovation, about how proptech impacts the international real estate arena.

2.1) Proptech has created an uneasiness in the industry

Interview with Peter Hebin Bruun, Head of ESG, ATP Real Estate

2.2) Technology to help reach Net Zero by 2028

Interview with Elisabeth H. Frederiksen, Head of Sustainability, NREP

2.3) Global megatrends shaping the proptech environment

Interview with Ben Liao, Global Head of Innovation, Colliers



2.1 Proptech has created an uneasiness in the industry



Peter Hebin Bruun

Head of ESG
ATP Real Estate

ATP Real Estate in a nutshell

ATP Real Estate is a subsidiary of ATP - Denmark's largest pension company. We own, operate, and develop some of the most beautiful properties in Denmark, and make our skills and knowledge available to our customers in one property solution. Our vision for sustainable properties is to contribute actively to creating a carbon neutral society and to work in a targeted manner with the UNDG.

How is proptech changing the real estate sector?

By introducing new technology that enables more agile ways of working within and outside the real estate sector, new property technology will create a new reality for real estate owners - a reality where our customers will have new demands for their lease in terms of e.g. service provision, sustainability performance of properties and customer experiences within them. As real estate owners, we need to anticipate this new reality, and be ready to greet our customers when they arrive at that platform.

ATP Real Estate in numbers

- Investments in real estate: DKK 48.5 billion
- Segments: Office 43.9%, retail 31.5%, logistics 12%, hotels 6.8%, housing 2.8%
- Direct yield: 4.5%
- Occupancy rate: 91.5%
- Floor area: 1.7 billion sq m
- Employees: 125 full-time employees



"We are to an increasing extent engaging with the Danish proptech scene, and we are fully aware of our need to understand what is going on in that space"

- Peter Hebin Bruun
Head of ESG , ATP Real Estate

How do you work with proptech in ATP?

We are to an increasing extent engaging with the Danish proptech scene, and we are fully aware of our need to understand what is going on in that space. Currently, we are working with Legacy, a Danish proptech company, on automatically and continuously collecting consumption data and convert this data to CO2 emissions. Without this cooperation, we would have to manually collect consumption data from all our properties. As construction and operation of real estate properties account for 40% of the world's CO2 emissions, we feel a special obligation to understand and contribute here.

What are the biggest challenges in the digital transformation?

The absorption capacity for new solutions of the established players in the industry. It requires a new set of competencies to understand how the digital transformation impacts real estate owners and the society around us. And we need to nourish this. For that, we require new, digital talent. And we need to stop doing what we did yesterday and start asking ourselves how we cater to our customers of tomorrow.

What are the most important gains of proptech?

Proptech has created an uneasiness in the established industry – a realisation that we need to look outside our industry to anticipate the future. This has started an impetus for change in the industry. I look forward to seeing many more concrete solutions in action: in buildings, in the servicing of our customers and in contributing to our UNDG commitments.



2.2 Technology to help reach Net Zero by 2028



Elisabeth H. Frederiksen

Head of Sustainability
NREP

NREP in a nutshell

NREP is a leading Nordic real estate investor and developer. The company has grown massively over the past years, driven by its purpose to improve the built environment for the benefit of all stakeholders. Today, NREP employs more than 475 employees, has a portfolio of EUR 14 billion (AuM) and manages 5.7 million square metres of real estate across Denmark, Finland, Sweden, Norway, and Poland.

Going NetZero already by 2028

Recently, NREP leapfrogged most of the industry by committing to an ambitious target of reaching NetZero already by 2028, without external offsets. A critical part of reaching this ambition is a strong focus on operating CO2 emissions from the company's standing assets. NREP has set its target to cut 50% of these emissions already in 2023, compared to 2020 level.

NREP in numbers

- Real estate investments: EUR 14 billion AuM
- Countries: Denmark, Finland, Sweden, Norway and Poland
- Floor area: 5.7 million sq m
- Employees: 475+
- Established: 2005



Proptech will be a core enabler in the transition

Technology is set to play a crucial role in NREP's NetZero transition. "We can't cut the usage of heating, lighting, or water usage, without smart systems that create data and improve our energy efficiency. Since our assets are often located in regions with cold season heating demands as well as high levels of electricity usage, it is not possible to cut consumption completely - but with emerging technologies we can create green transition. The new system-level technological solutions will bring us to a new normal, where the buildings will be part of the solutions, not the problem," says Elisabeth H. Frederiksen, Head of Sustainability at NREP.

Closer collaboration with tech-providers needed

To fully leverage the promise of new technologies, NREP takes a holistic approach, says Frederiksen. This year, the company launched a 'Sustainable Action Plan' for all its standing assets, where education and training of employees plays a key role. Another priority is to deepen collaborations and partnerships with technology providers who can help NREP pilot and implement new innovations throughout the whole value chain. NREP aspires to position itself as an open-source by sharing its progress and learnings along the way.

"We are investing in proptech solutions that can help us to collect data and make sustainability decisions based on verified data. For example, in Finland we are using EnerKey, a cloud-based SaaS Service to get an even better understanding of where our priorities should focus. One of the major challenges is to collect data from the older buildings, since we are lacking sufficient metering and it takes time to get all of the older assets to produce data.

Complex and fragmented building management systems, which are often hard to combine, only add to the challenge. We have confidence that this will be solved in the future. We are already talking about partnerships with tech-providers who have the capabilities to unravel these challenges," says Frederiksen

Venture investment to scale promising tech solutions

Besides applying new technologies to NREP's own portfolio, Frederiksen points out that NREP is also a technology investor via its urban sustainability tech venture called '2150'. In both 'use-cases', NREP's approach to proptech is driven by scalable impact.

"We are firm believers in the promise of technology in urban and built environments. We want to partner with innovators that can lead with data, to help us achieve real CO2 impact. Becoming net zero already in 2028 across millions of square metres is a tall challenge. Future technologies need to not only make one building better but rather improve the sustainability of a whole block, a whole portfolio or even an entire city district," Frederiksen predicts.



"We are firm believers in the promise of technology in urban and built environments. We want to partner with innovators that can lead with data, to help us achieve real CO2 impact"

-Elisabeth H. Frederiksen
Head of Sustainability, NREP



The UN17 Village in Copenhagen is one of NREPS most recent residential projects. Meeting all of UN's 17 sustainable development goals with tangible solutions and measures, the building project is said to be the most sustainable in the world. In total, 200 sustainability measures will be taken addressing the entire life cycle of the buildings.



2.3 Global megatrends shaping the proptech environment



Ben Liao

Global Head of Innovation
Colliers

Which global megatrends do you see shaping the proptech environment?

Real estate is the largest asset class in the world, but the adoption of emerging technology that is purpose built for real estate along with the service proposition surrounding it, are all still in the early stages with significant upside potential. Although we are seeing an increase in the rate of adoption of technology in targeted areas, which has only been accelerated by the pandemic, there is still a long way to go. As the industry continues to undergo digital transformation, there is a massive opportunity to capture and expose data in a way that can be utilized by machine-learning technologies with several implications that are quickly forming:

1. An **increased transparency across the value chain**, allowing owners, investors, and occupants to be empowered to make smart, data-driven decisions on their property, portfolios and investments.
2. Improved **data and analytics to support the growing demand to meet ESG** objectives and science-based targets for existing properties, driving owners, investors and occupants to improve operations, energy efficiency and better manage, measure, disclose and act on their portfolios.

Colliers in numbers

- Assets under management: USD 57 billion
- Countries: 62
- Annual revenue: USD 4.3 billion
- Square feet managed: 2 billion (≈186 million sq m)
- Employees: 17,000
- Lease/sale transactions: 53,000



The key challenge will be to consolidate a rapidly increasing array of unstructured data sources and create a way to efficiently analyze it.

Will proptech fundamentally change companies in the real estate sector or merely be a means of improving efficiency?

We think there is room for both opportunities. There is certainly a need for grounding and the focus on improvements to core processes over legacy alternatives as a means of increasing efficiency. However, many real estate organizations have already taken significant steps to create internal innovation capabilities to discover and explore the new thematic that are shaping our industry along with the emerging technologies that are driving that change. In other words, their sole purpose is to fundamentally change the status quo.

How do you work with proptech at Colliers?

Technologies that enable our professionals to deliver better solutions are at the core of how we do business. In 2021, we formalized a global innovation team Colliers Innovation to bring a disciplined approach to technology and identify solutions that address high-priority business and client needs.

Since this time, we partnered with Measurabl – an ESG data management company – to help our clients better manage, measure, disclose and act on their portfolios. With Measurabl's added capabilities, our teams are empowered to make smart, data-driven decisions and building investment recommendations that add significant value for clients. In 2021, we launched a globally coordinated effort to onboard buildings from each of our regions to the Measurabl platform.

Our suite of solutions, technology partnerships, and ongoing work with our portfolio of over 20 proptech companies – some of whom have done incredibly well, are just a few examples of our strategy in action.

Colliers Innovation invests in the solutions that will have impact today, while pursuing emerging technologies that will lead us into the future.

"The key challenge will be to consolidate a rapidly increasing array of unstructured data sources and create a way to efficiently analyze it"

- Ben Liao
Global Head of Innovation, Colliers



03

The Danish Proptech Ecosystem



3. The Danish Proptech Ecosystem

The Danish real estate sector and proptech ecosystem at a glance

DANISH REAL ESTATE SECTOR



170,000+

Number of jobs



DKK 350+ billion

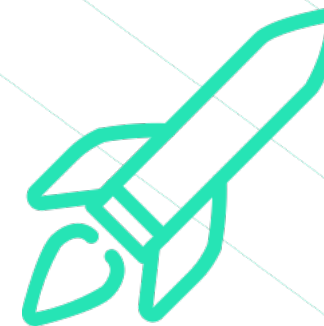
Total yearly revenue



DKK 106 billion

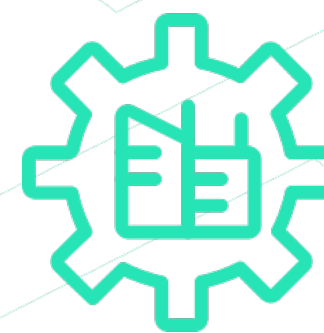
Value of commercial real estate transactions in 2021

DANISH PROPTech



180+

Number of proptech startups and scaleups



Key business verticals

Property management, sustainable operations, co-living & community



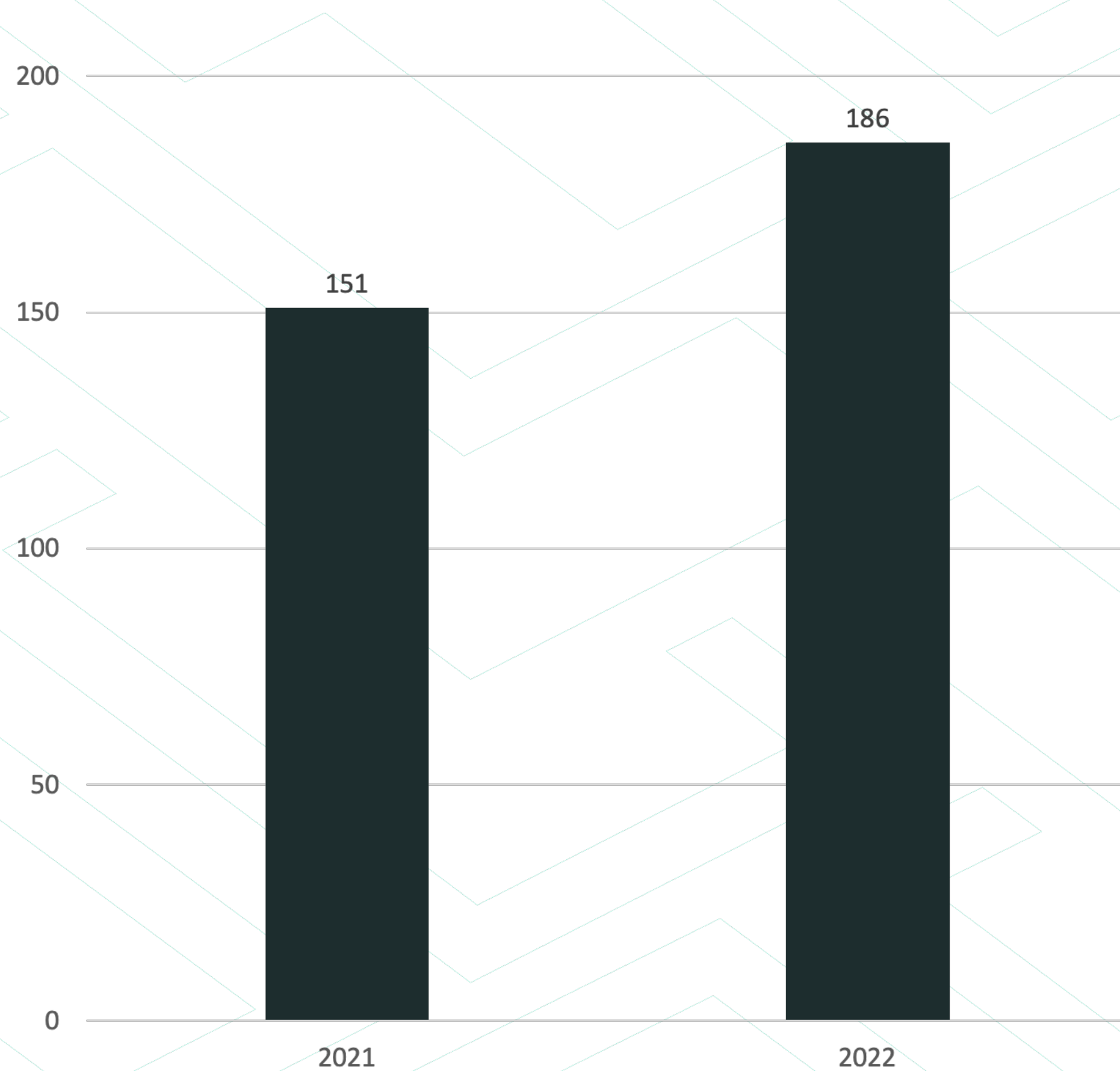
DKK 350+ million

Total investments in Danish proptechs 2020

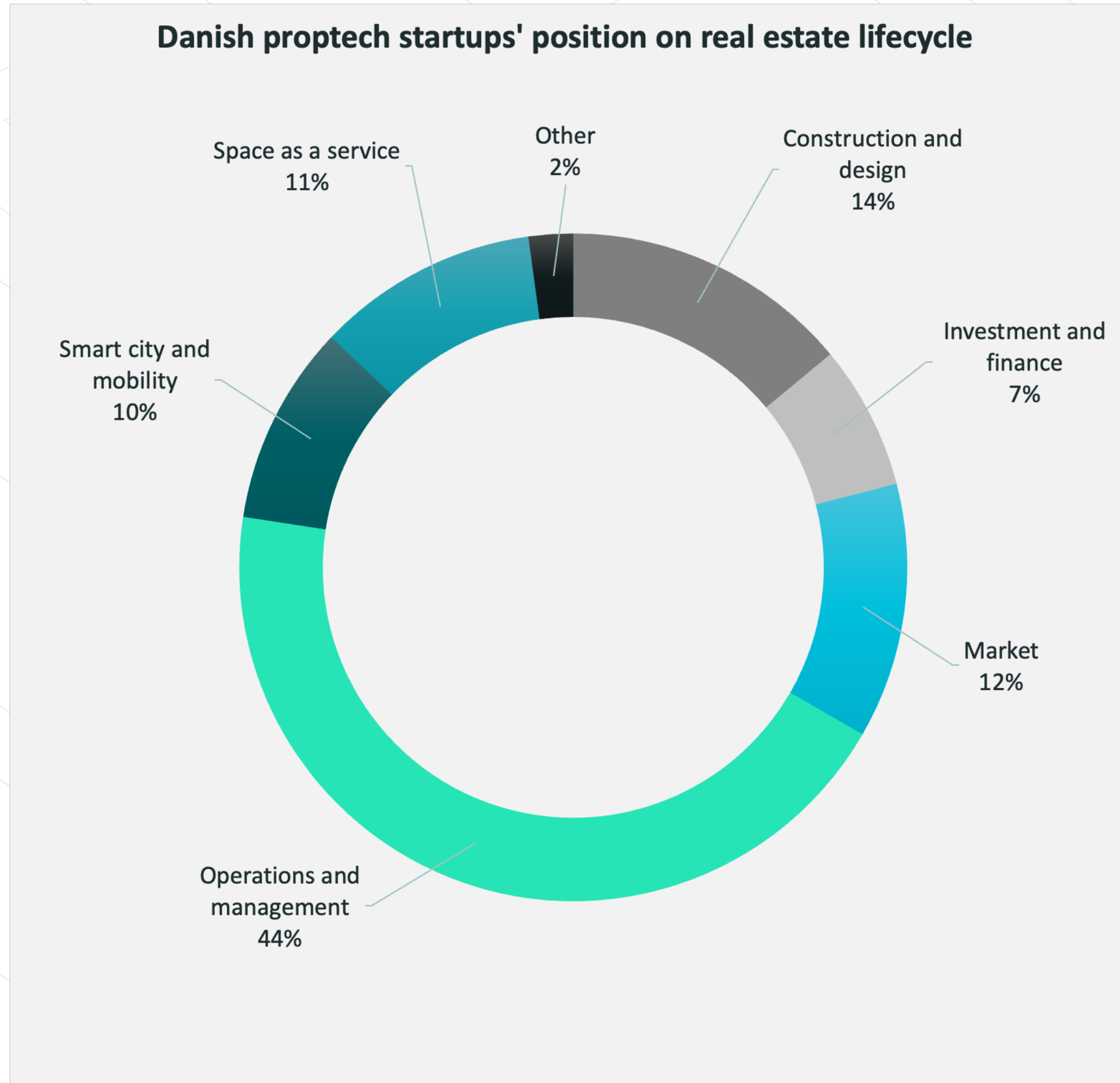


3.1 A growing number of Danish proptech startups

Number of Danish proptech startups and scaleups



Danish proptech startups' position on real estate lifecycle





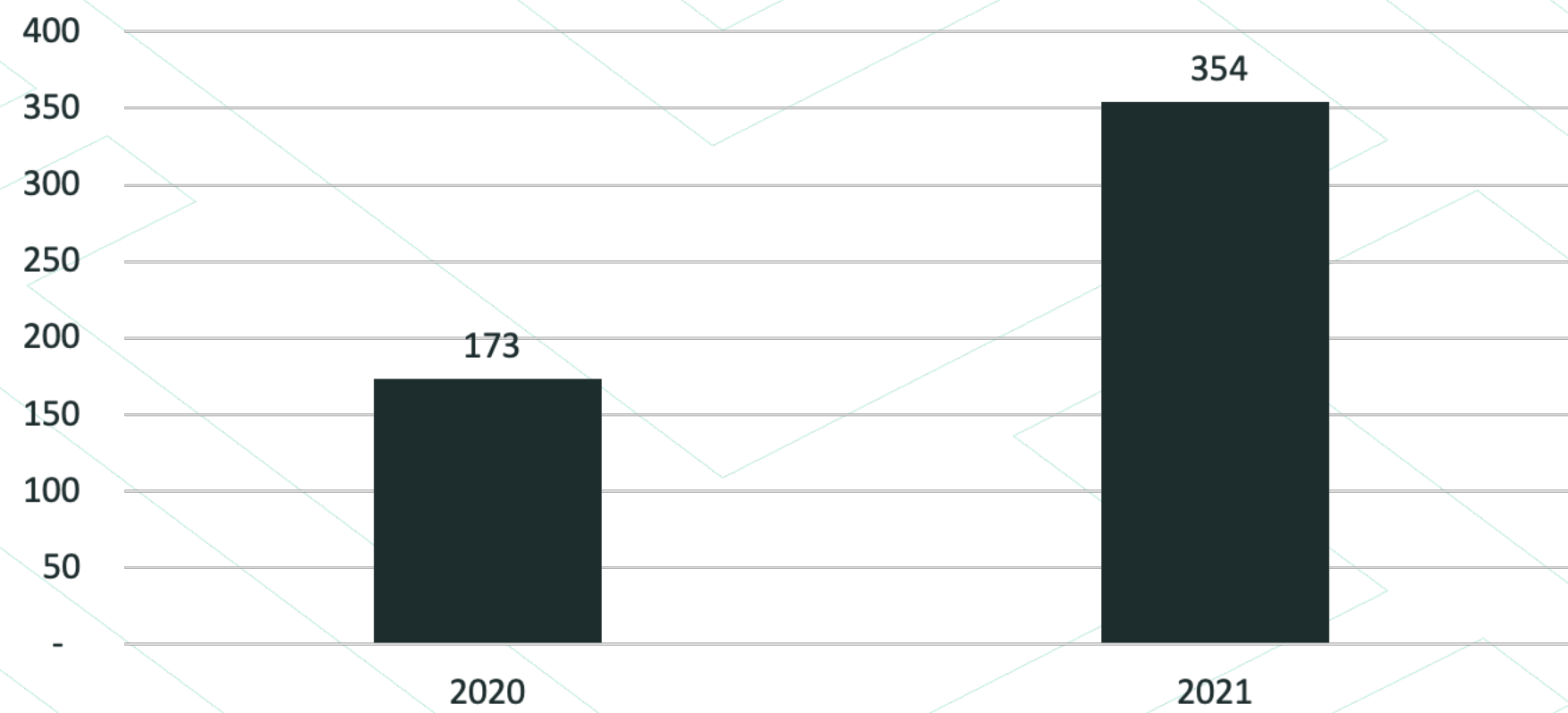
3.2 Investments in Danish proptech startups have doubled

Total investments in 2021:

DKK 354 million

(EUR 47.3 million)

Investments in Danish proptech startups & scaleups in million DKK



Large deals



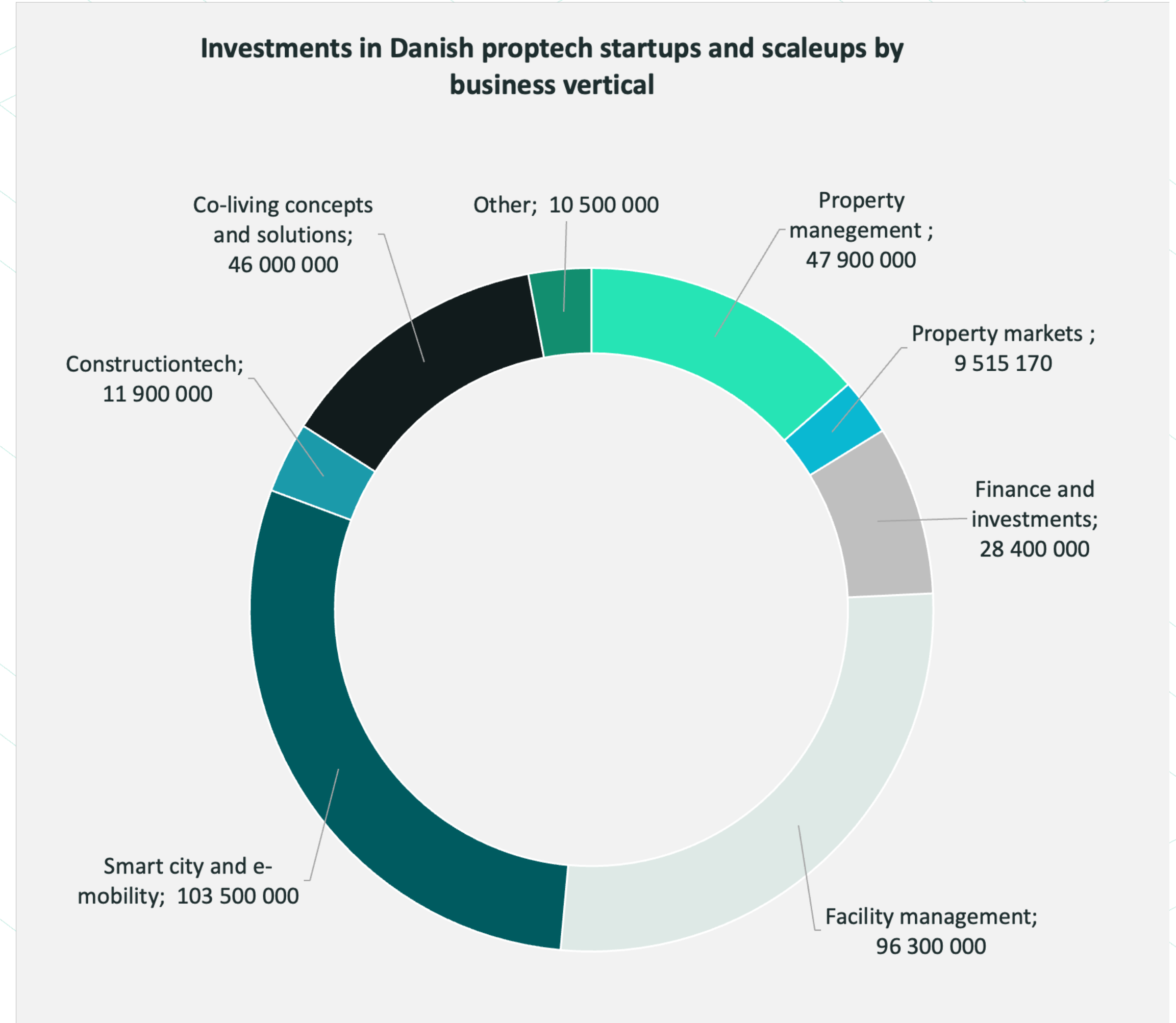
DKK 28.5 million



DKK 70 million



DKK 85 million (IPO)

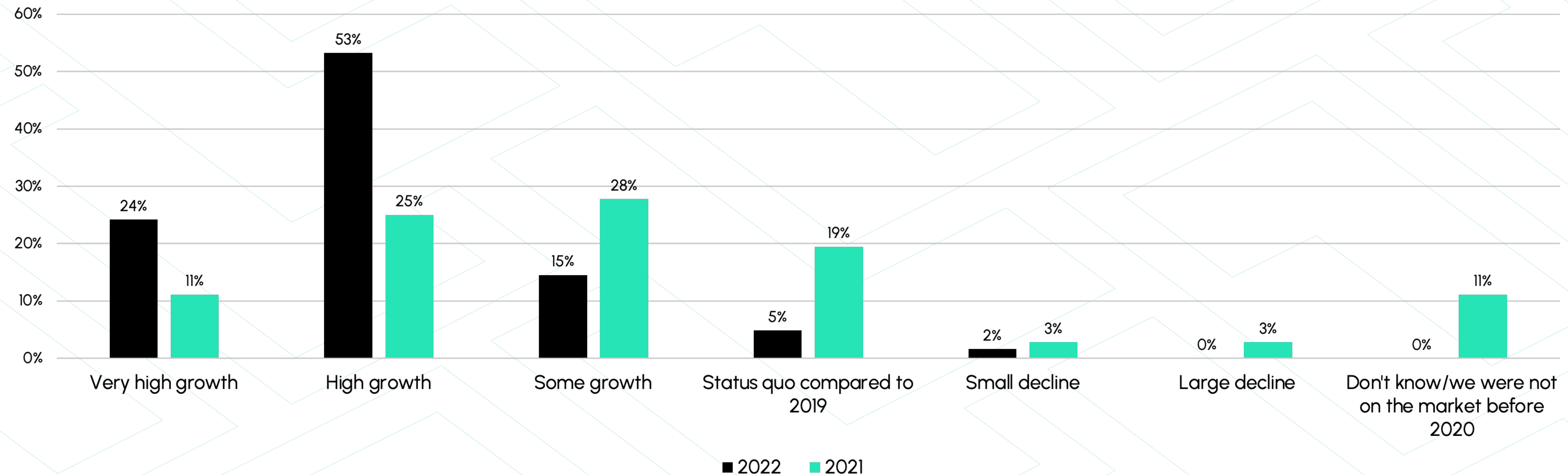




3.3 Accelerating market growth for Danish proptechs

PropTech Denmark and Colliers have cooperated on surveying Danish real estate companies including also proptech startups and scaleups as well as established tech suppliers. As the opening question shows, the demand for proptech solutions is on the rise. Here, 92% of the companies that identify as suppliers of digital solutions to the real estate sector are experiencing growth with 77% seeing very high or high growth levels. In 2021, only 64% had experienced growth in the previous year.

Have you experienced growth or decline in the demand for your solutions and services within the past year?

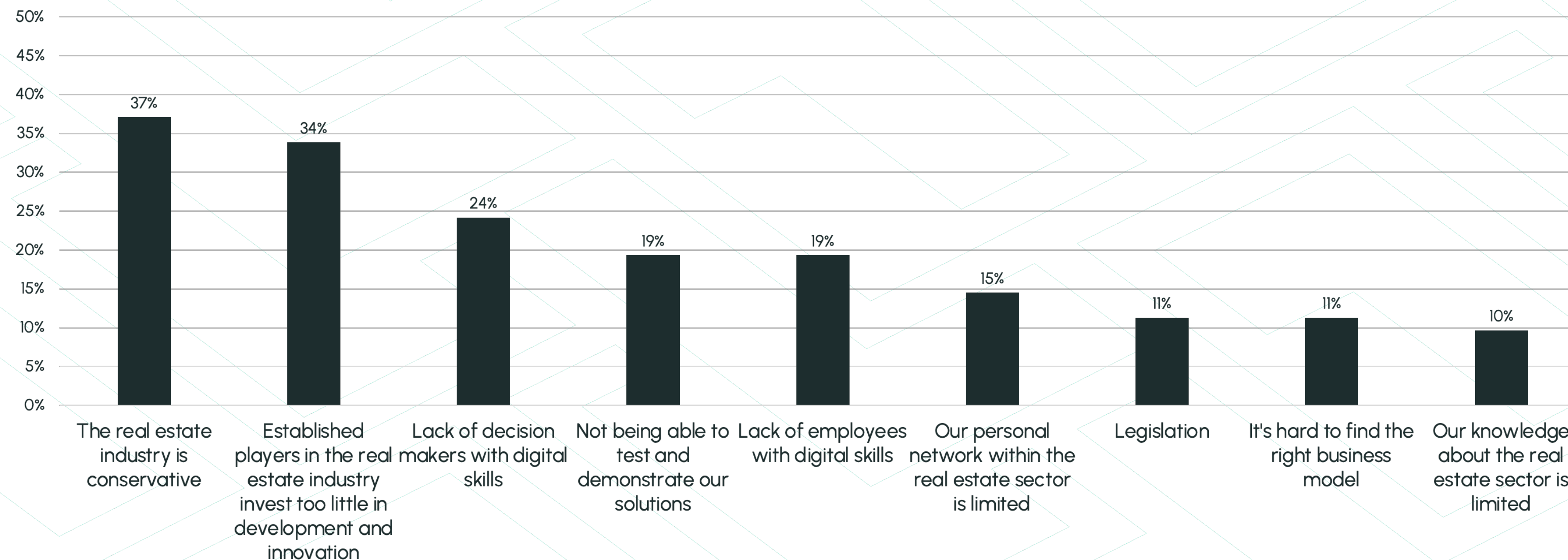




3.4 A conservative industry is *still* seen as the biggest growth barrier

37% of startups still consider the real estate sector to be conservative to the point where it becomes the main challenge regarding increasing the sales of their solutions and services. This was also the main reason in 2020. In second place comes the lack of investments in innovation and development by established players in the real estate market.

What are the biggest challenges in increasing the sales of your solutions and services/getting your solutions and services on the market? (Multiple answers)





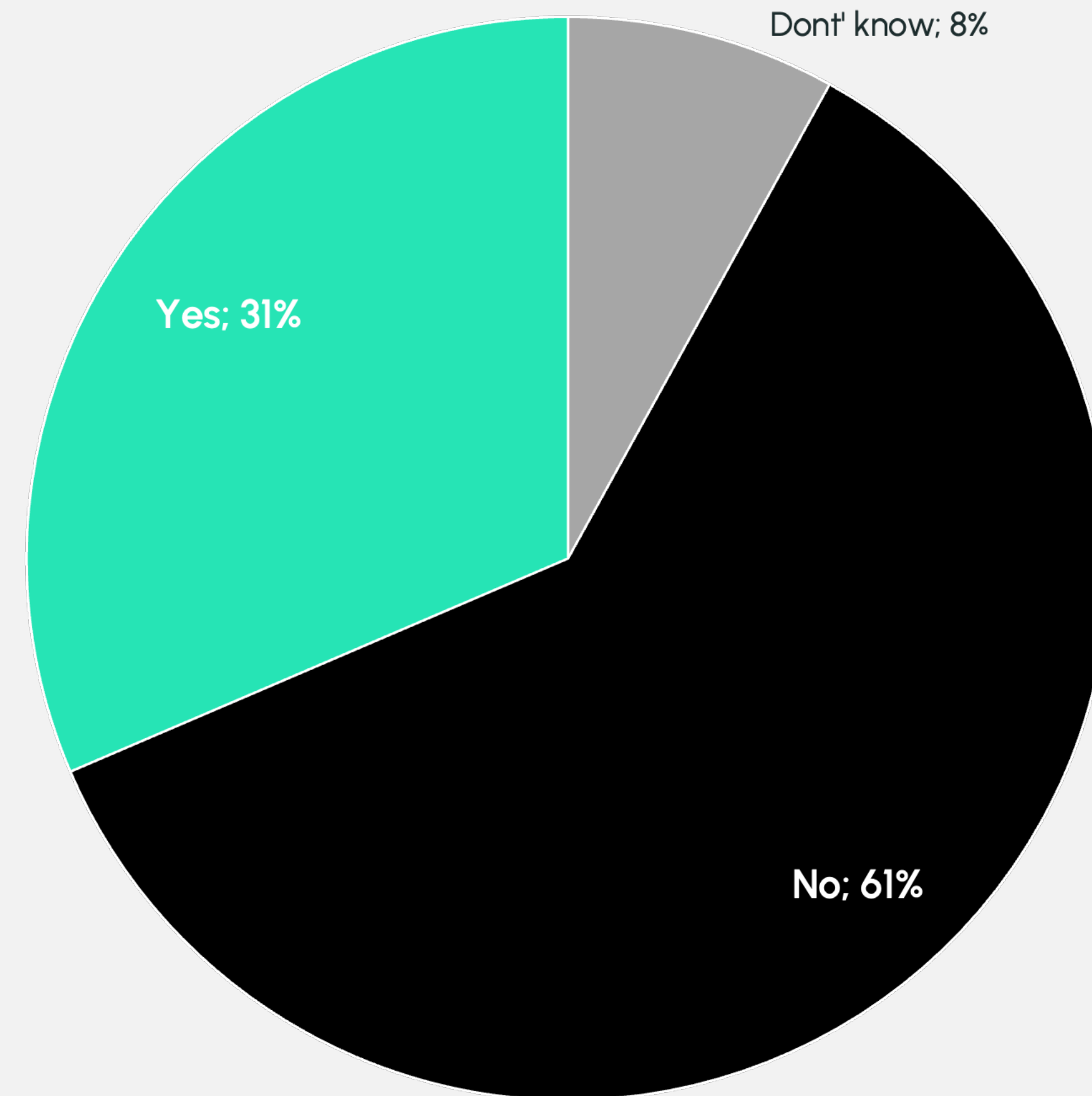
3.5 Startup-corporate collaboration takes off

Collaboration between startups and established players is important. It helps established players innovate and gain access to new technologies. And for the startups it is crucial in order to test and market their solutions.

Almost one in three established actors in the real estate sector responds that they have **collaborated with one of more startups** within the past year regarding the development or implementation of new digital solutions.

This **shows a rapid increase compared to 2020**, where only 18% - less than one in five - showed collaboration.

Has your organisation collaborated with startups regarding development or implementation of new digital solutions within the past year?





04

Digital Transformation in Danish Real Estate

4. Digital Transformation in Danish Real Estate

Digitisation of Danish real estate accelerates

The survey reveals that the urge of the digital transformation is beginning to spread in the Danish real estate sector. Some of the key takeaways from the survey show that:

- Around 58% have to a high or some degree increased the use of digital solutions within the last year. This is a slight increase compared with 2020.
- 77% expect to increase their investments in digitisation in 2022.
- One in three companies believes that it is lagging behind its peers in the digital transition. Within construction, this applies to almost half of all companies.
- Prioritising the necessary time is still the biggest barrier when it comes to increasing the use of digital solutions.
- Green transition tops the list of overall challenges in 2022. However, only few real estate companies invest in digital solutions to improve sustainability.

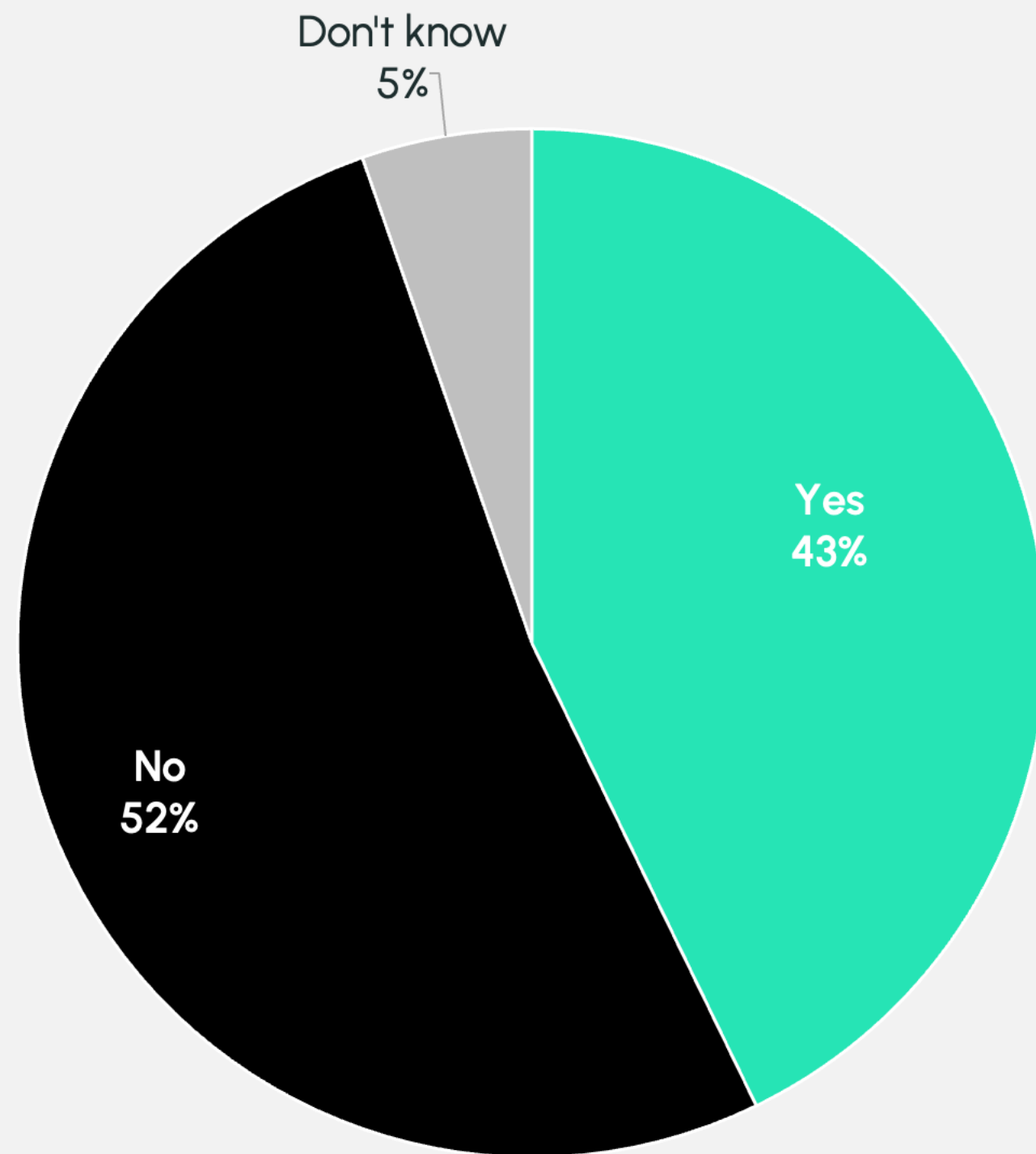


The Real Estate Digital Maturity Survey

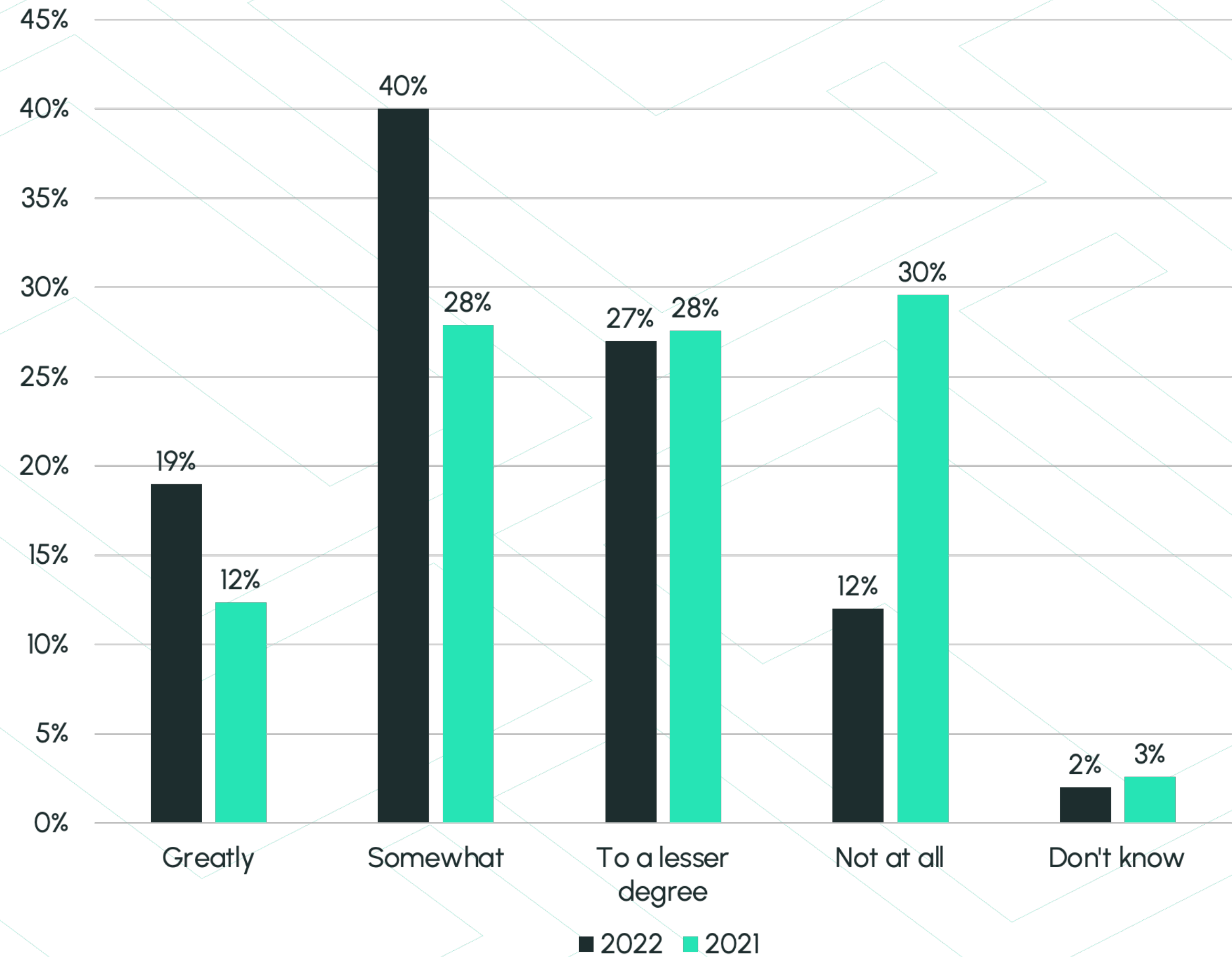
- The survey was sent to a representative sample of Danish real estate companies
- The survey population covers the entire real estate life cycle, including finance and investment, developers, planners and architects, construction companies, operators and managers of buildings and real estate portfolios, and commercial real estate advisors.
- More than 360 companies participated in the survey.

4.1 Digital strategy and use of digital data

Does your company have a digital strategy?



To what degree does your organisation utilise digital data in your decision-making processes?

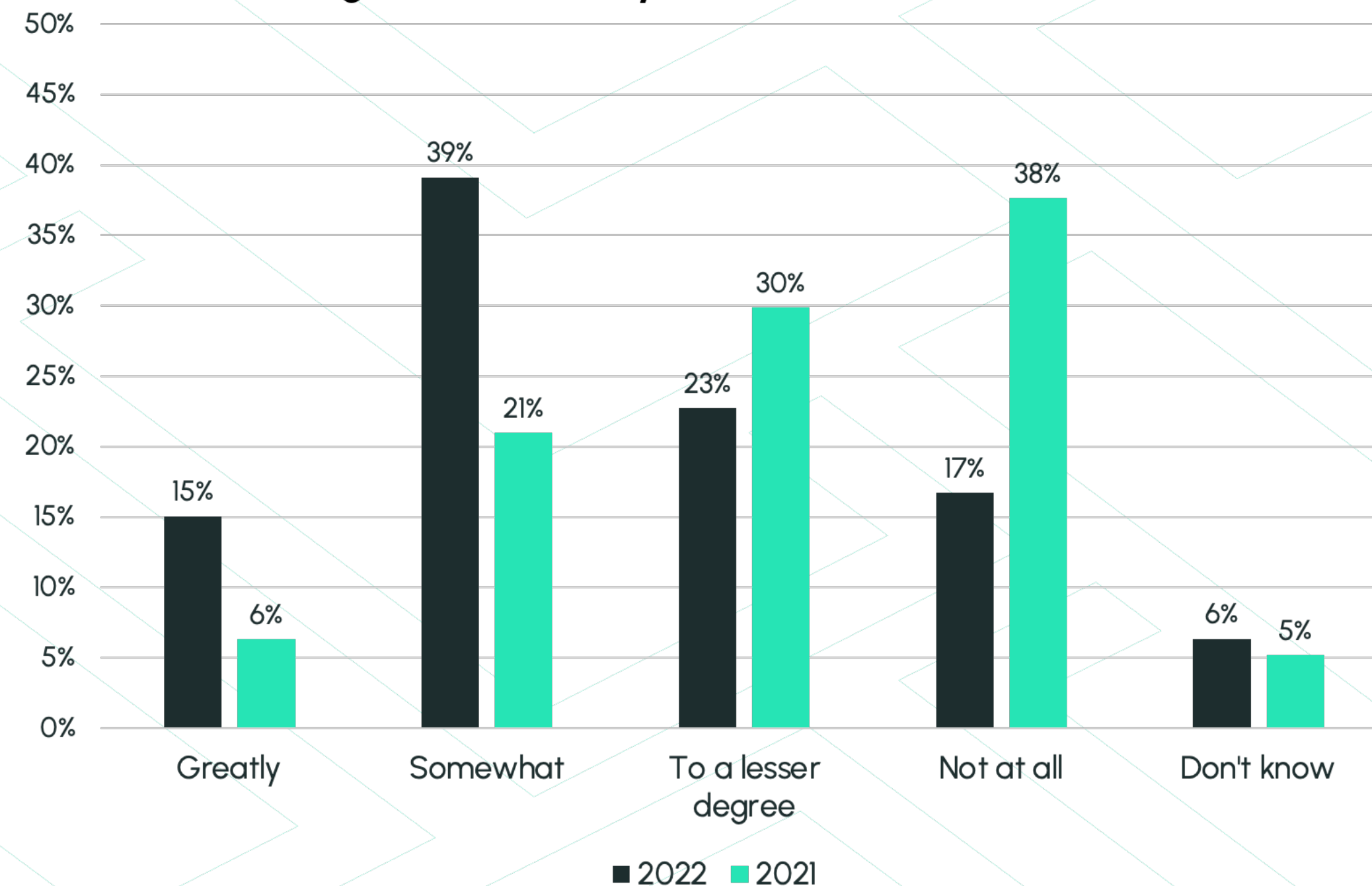




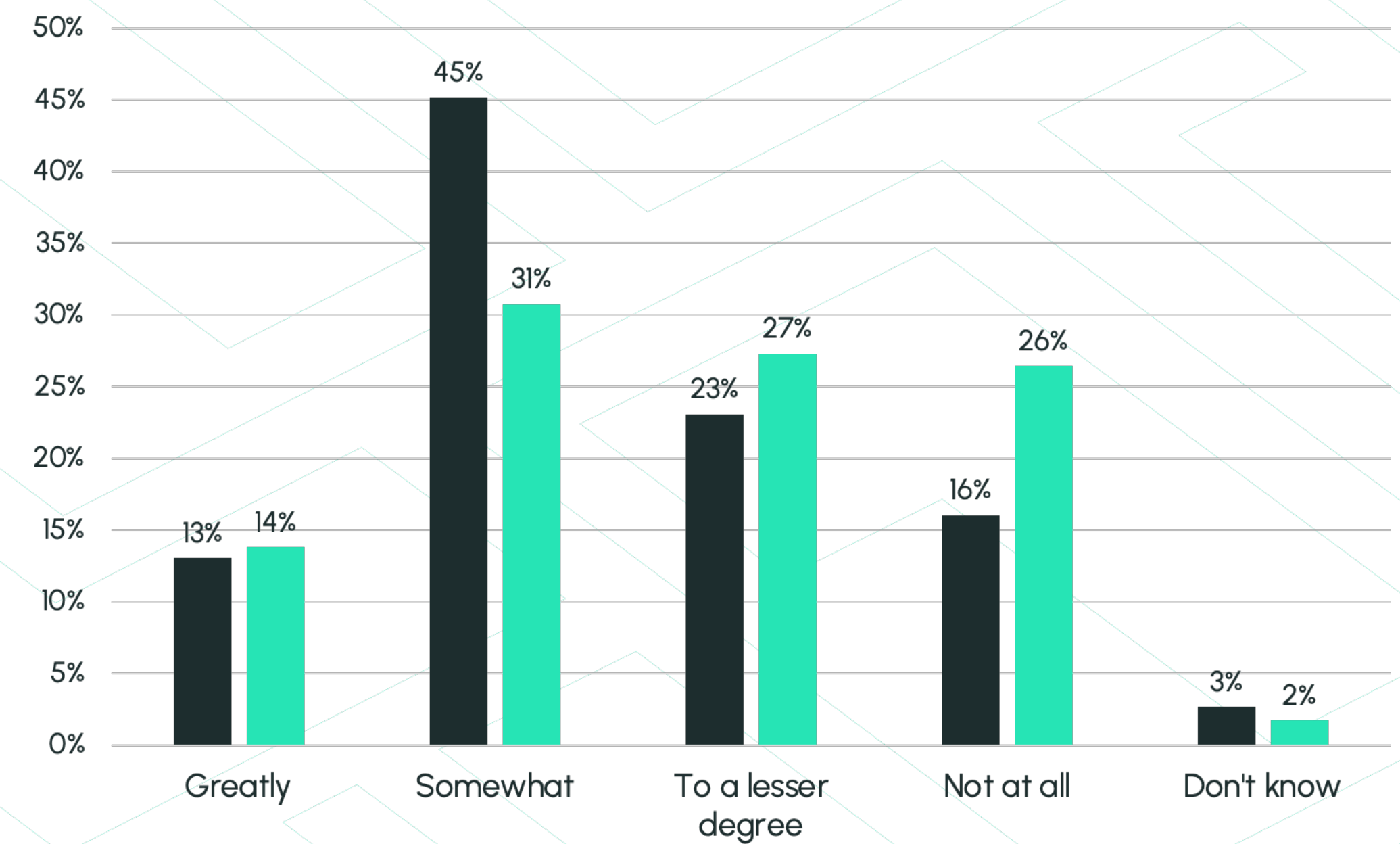
4.2 Increasing investments in digital transformation

Altogether, more than 81% of Danish real estate companies increased their use of digital solutions within the past year. The increase is primarily moderate, but compared to the survey in 2021, we see an overall rise by 9 percentage points. Looking ahead at the year to come, the plans to increase investments in digitisation are significant compared with 2021, with 54% of respondents planning to increase investments "greatly" or "somewhat".

To what degree does your company plan to increase investments in digitalisation this year?



To what degree has your organisation increased your usage of digital solutions within the past year?

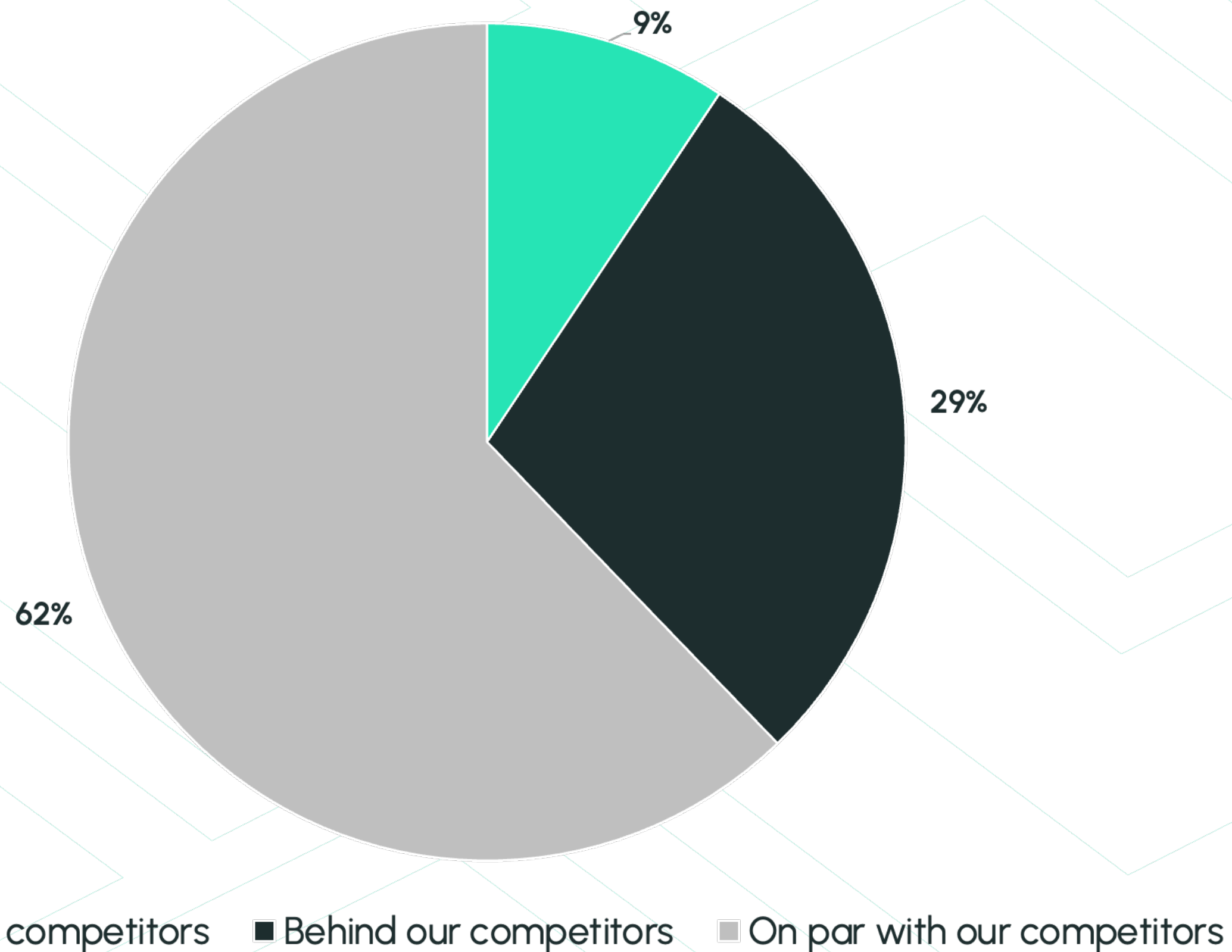




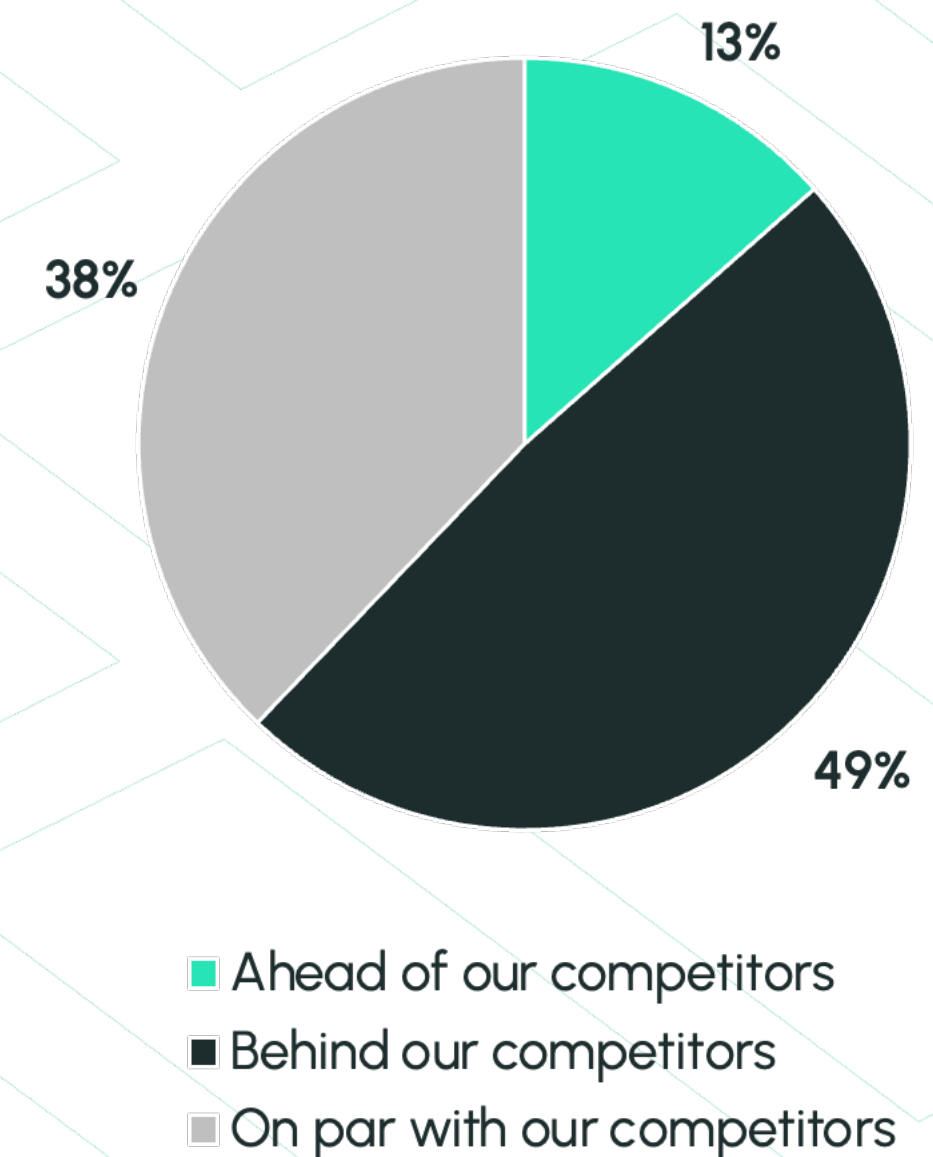
4.3 One in three companies believes they are lagging behind peers

When assessing how digitised the respondent companies are compared to their main competitors, almost one in three states that it is lagging behind its peers. This figure is all of 49% when looking at respondent companies in the construction industry exclusively.

How digitised would you say that your company is compared to your main competitors?



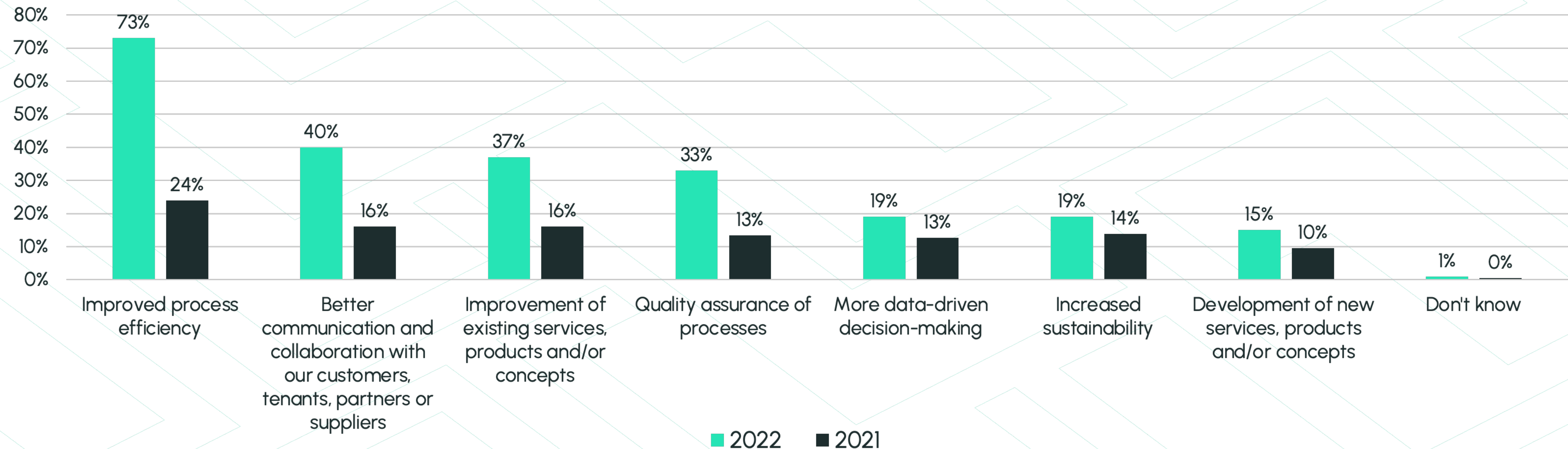
Companies in the construction sector



4.4 Improved process efficiency still main reason for digital investments

Most real estate companies still invest in digitisation to improve internal process efficiency. This indicates that the main perception of the benefits of digitisation is derived from an economical viewpoint, where cutting costs and time is in focus. The more customer-focused activities such as better communication and collaboration with customers and improvement of existing services are of secondary importance. Relatively few invest in digital solutions to achieve increased sustainability, although many see green transition as *the* major challenge of the real estate sector (see p. 33).

What are the most important goals your organisation wishes to achieve with increased digital investments?
(Max. 3 answers)

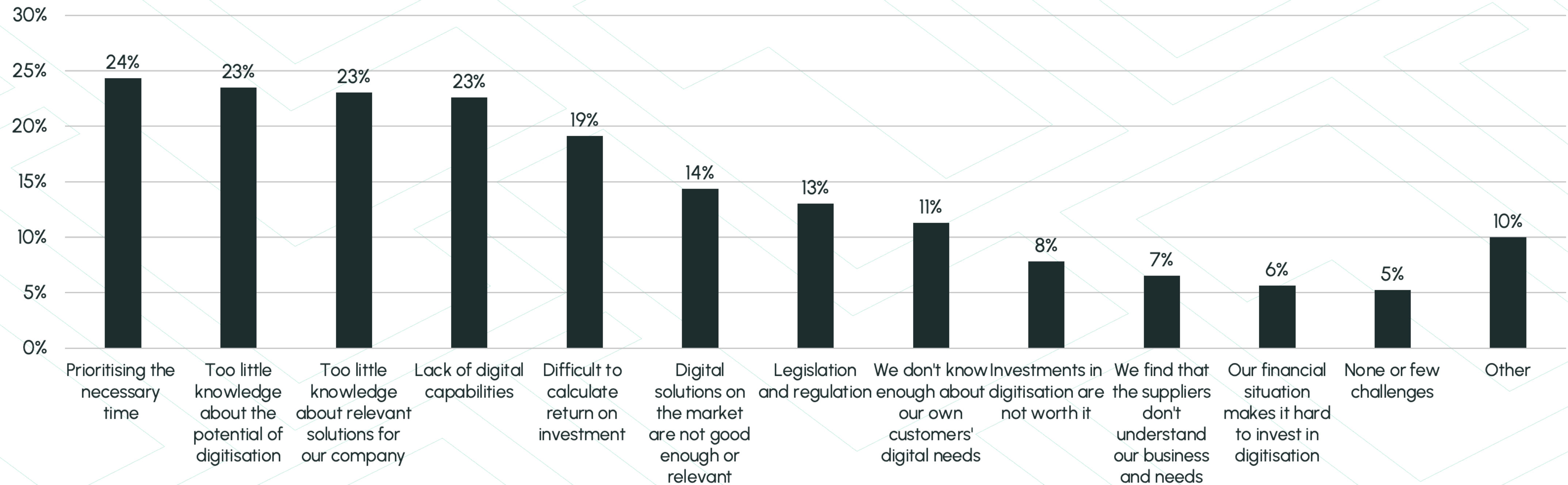




4.5 Lack of prioritisation and knowledge hinder digital transformation

Internal factors represent the most prevalent barriers when real estate companies try to increasingly embrace digital solutions. The challenges include lack of knowledge, skills and capabilities, but first and foremost poor prioritisation and time management. Only few real estate actors point towards lack of relevant/good digital solutions on the market as a barrier to digital transformation. The main barriers remain largely unchanged relative to 2021.

What are the biggest challenges of increasing the adoption of digital solutions in your organisation?
(Multiple answers)

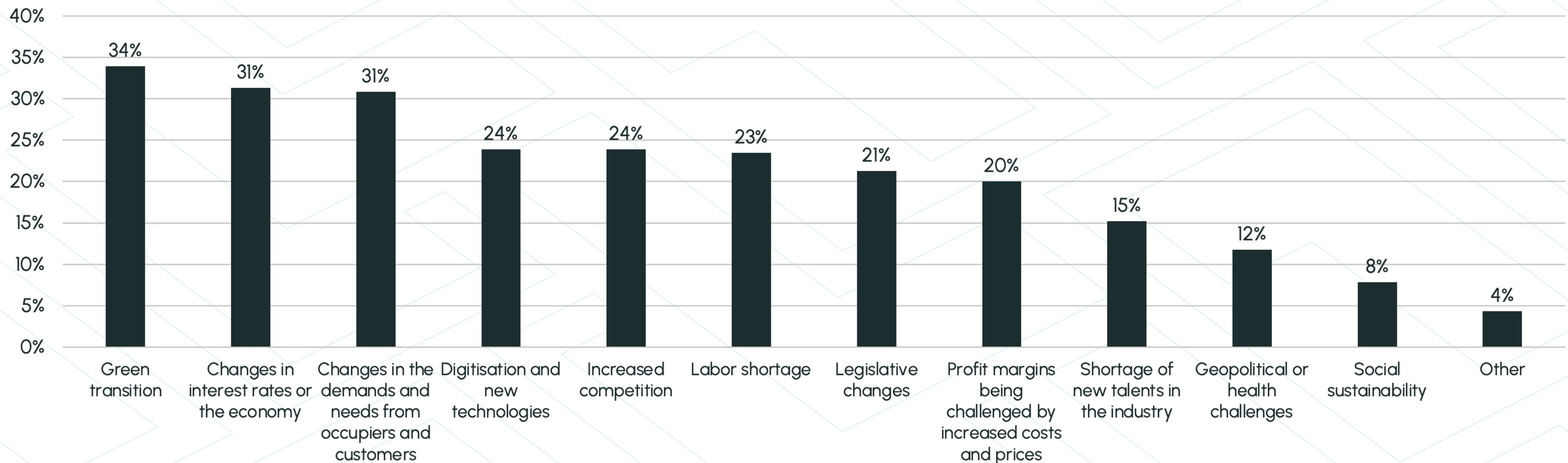




4.6 Green transition tops the list of overall challenges in 2022

Finally, the survey concludes that the main challenge for Danish real estate companies looking ahead is the green transition. This underlines the reinforced focus on sustainability and the significance of the ESG agenda throughout the Danish and international real estate landscape. Changes in interest rates, the economy and the demands and needs from occupiers and customers are the second- and third-highest concerns of 2022.

Which of the following challenges do you see having the most significant impact on your company the coming year?
(Multiple answers)



Danish PropTech Report 2022

By PropTech Denmark and Colliers

Editors in chief: Jakob Stoumann and Jakob Hagen Schmidt

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