



Data Centre Outlook 2021

Big data = big business?

Volume 1
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Introduction

Virtually no other asset class better embodies the nexus between real estate, infrastructure and technology than the data centre. An immense and mainly analogue construction, packed to the rafters with highly specialised, yet sensitive technology. These "factories of tomorrow" are the literal foundation of our ever-increasingly interconnected, digital world. Not least due to the impacts of the current COVID-19 pandemic, demand for storage capacity, system performance and processing power is soaring in nearly every segment of the global economy.

As this trend continues to unfold, this places entirely new demands on real estate and facilities to enable highly complex technical infrastructure and sensitive server farms to be housed to the highest standards of security.

This relatively new type of real estate has caught the attention of investors seeking opportunities for investment in new asset classes that offer growth potential. Although until just a few years ago investments in this segment were rather the exception, the recent past has seen an increase in larger deals involving institutional investors. In "Emerging Trends in Real Estate®: Europe 2021", data centres were ranked the number 1 type of use by real estate investors. The European market for this type of investment is less developed and more

fragmented than in North America and the Asia/Pacific region.

As the value of data rises, do the value of and demand for data centres also climb? The rise in investor interest lends itself to this conclusion, as the trade press heralds data centres as a new asset class. But is this truly the case? And how important are ESG criteria when it comes to investing in and operating data centres?

In this study, we joined forces with industry experts from the German Datacenter Association (GDA) to examine these and other questions. The survey explores not only the investor perspective but also the views of data centre operators in key areas. The findings are drawn from a wide variety of leading real estate experts and data centre operators.

I hope you find this to be an interesting read and look forward to discussing it with you!



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Introduction

The German Datacenter Association (GDA), promotes the interests and special needs of data centre operators to policy makers, the media and society at large. Which is why we were pleased to support PwC in conducting this multifaceted market survey through our expertise and our network of contacts among data centre operators.

As of 2020 still only few studies existed that were based on reliable data from this dynamic, rapidly growing industry which has once again proven itself vital to the German economy's ability to continue functioning in challenging times – such as during the coronavirus pandemic.

One of the objectives of our Association is to raise the industry's profile among policymakers and throughout society.

We are therefore pleased that this study has been able to illuminate every aspect surrounding data centres – whether as an asset class on the real estate market, as a hub and marketplace in the growing online economy or as a crucial component in the effort to overcome the challenges of Germany's energy transition.

Germany's competitive edge depends on its ability to successfully shape the digitalisation of its economy – on this there will hardly be disagreement.

However, unlike their European counterparts, many political and economic policymakers in Germany fail to fully appreciate the pivotal link between digitalisation and data centres, which function as the "transport hubs of the digital age".

In particular, the general conditions for data centres will determine whether data will continue to flow through our country, creating value and secure jobs, or whether it will be diverted through other destinations.



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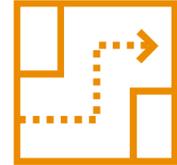
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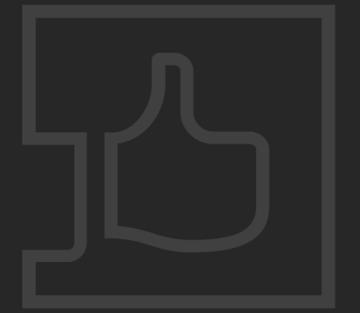
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Executive Summary and Outlook



One in three investors intends to invest in **data centres** in the **next two years**. The DACH region's most important hubs are **Frankfurt, Munich and Berlin**, followed by Vienna, Zürich and Hamburg.

Investors tend to have little **understanding** of this new asset class.

Expected returns amount to approximately **4-6%**.

Summary and Outlook

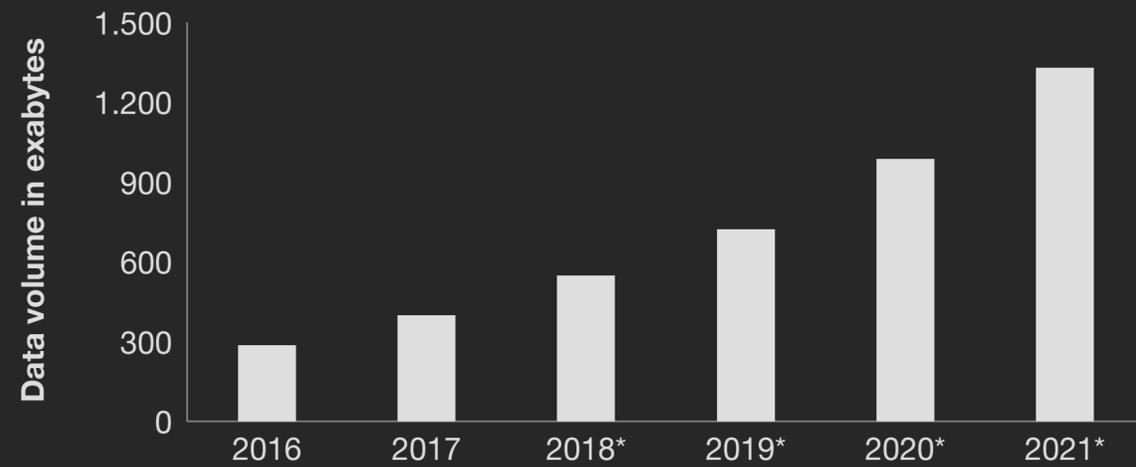
- More than one in three real estate investors surveyed (41%) intends to invest in data centres within the next two years. Roughly a quarter of those plan to invest between €50m and €250m. The majority (60%) plan to make direct investments, with indirect investments via funds playing a less significant role.
- The DACH region's most important data centre hubs are Frankfurt, Munich and Berlin, followed by Vienna, Zürich and Hamburg. The key deciding factor for location is proximity to the relevant Internet exchanges, with DE-CIX in Frankfurt standing at the forefront.
- Real estate investors currently still have little understanding of data centres. Nearly half (41%) indicated having only a poor to very poor understanding.
- Roughly half (50%) of real estate investors surveyed considered returns of between 4-6% to be appropriate for the asset class.
- Operators considered the general conditions for operating data centres in Germany to be in need of improvement, which they attributed to rising costs, among other factors.

Big data = big business?

Data centres – the factories of tomorrow

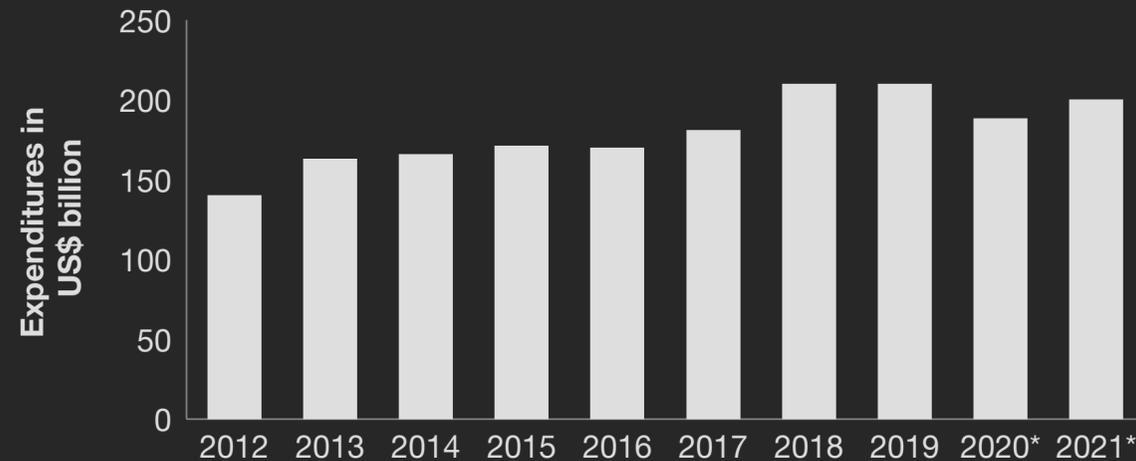


Forecasted volume of data stored at data centres globally by 2021



Source: Cisco Systems

Global IT expenditure for data centres by 2021



Source: Gartner

In many ways, data centres are different to conventional types of real estate uses

Data centres are the beating heart of our modern world; their infrastructure supports countless digital functions. Developments such as Industry 4.0, cloud computing, new Internet applications and the use of social media have caused exponential growth in the volume of data that is stored and processed.

As technology rapidly develops, our dependence on the ability to store immense volumes of data grows. This in turn drives demand for data centres around the world as well as in Germany.

Definition and requirements

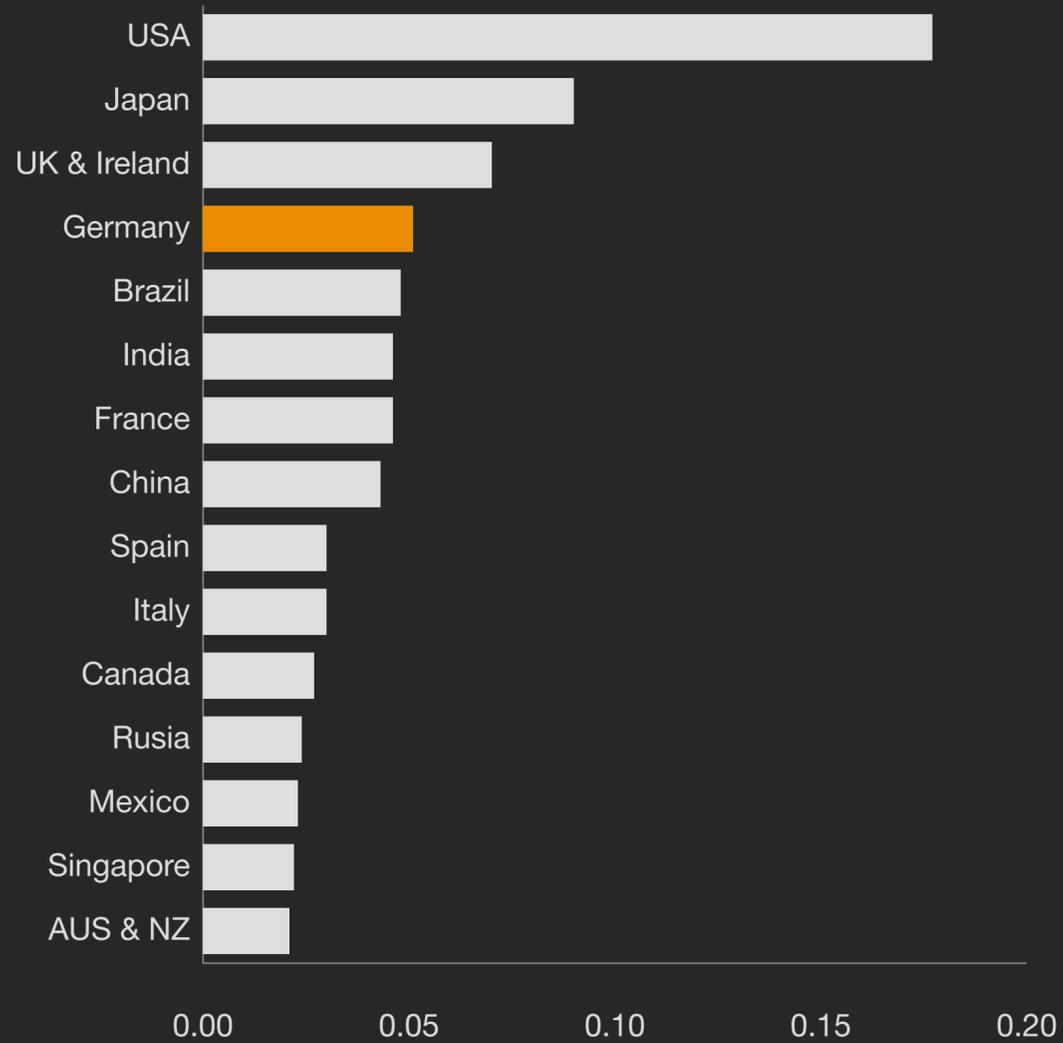
Data centres are buildings where computer systems and their ancillary components such as storage and telecommunications systems are housed. These are specialised properties and must meet specific architectural and structural requirements. Investors need to be familiar with and able to assess not only the peculiar features of the market but also the building requirements.

Special requirements for building structure

Although from the outside data centres often resemble production halls or logistics buildings – albeit with fewer doors and usually with greater security –, the usual features commonly used to value a property are of little help. Data centres generally feature complex security apparatuses, redundant data communication links, auxiliary power supplies and environmental controls (such as fire suppression and air conditioning systems). Because of their high construction costs, particularly for the extensive cooling and security equipment, alternative uses of these properties are extremely limited and hardly profitable.

Big data = big business?

Distribution of data centre employees worldwide by country in 2014



Source: DatacenterDynamics

Data centres – the factories of tomorrow



The customary real estate KPIs capture data centres only to a limited extent

Location criteria for data centres differ significantly from conventional real estate types

However, data centres differ significantly from other types of use not only with respect to structural requirements but also due to location criteria.

While pedestrian footfall, preferred residential areas or good connections to infrastructure are normally considered key location criteria, these factors play a less important role for data centres.

Rather, data centres rely on a secure power supply, fast fibre-optic networks and – above all – proximity to major Internet exchanges.

For instance, the world's largest Internet exchange is located in Frankfurt, making the city a popular location for data centres. Germany is the world's fourth-largest employer when it comes to data centres.

In addition, the relevant KPIs for data centres are described using specialist terminology that is largely unfamiliar to most real estate experts in other asset classes. While rents for residential and commercial properties are usually indicated in euros per square metre, KPIs for data centres are expressed in euros per kilowatt. While the key figure for building size is described in square metres for conventional real estate types, data

centres are sized by capacity in megawatts.

Accordingly, leases are also structured differently to those in conventional commercial real estate.

In addition, there are different types of data centres, such as colocation centres, which differ in terms of size as well as features.

For instance, colocation centres – also called carrier hotels – are data centres which are already fully equipped and offer storage space that is commonly used by multiple customers.

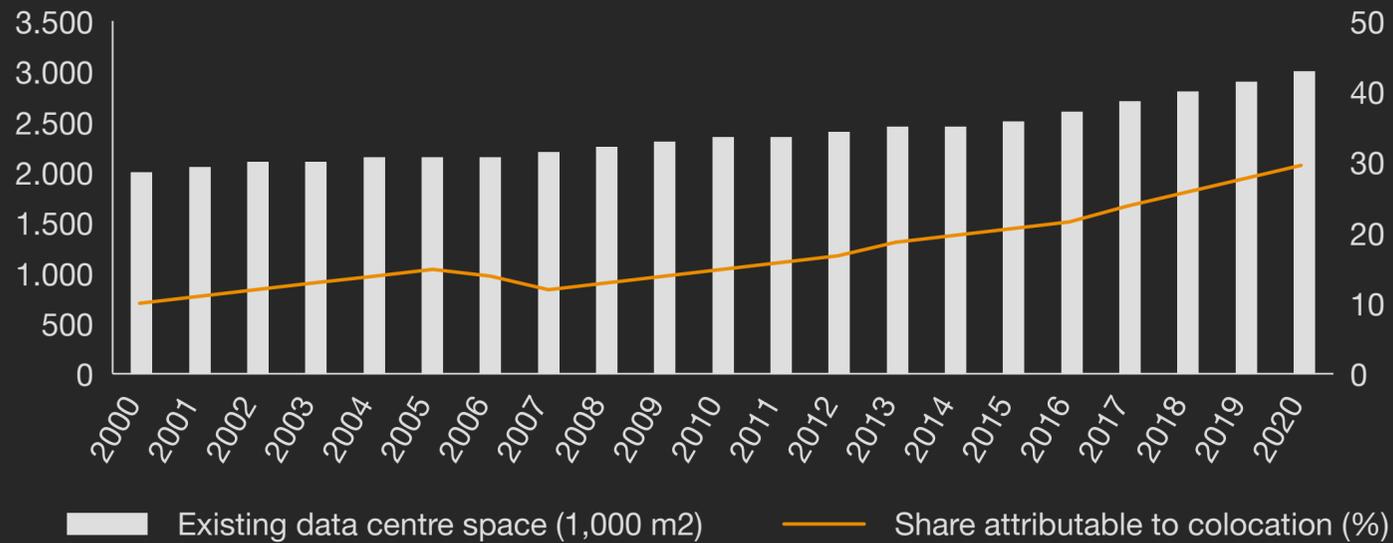
Other primary types of data centres include enterprise, managed service and cloud data centres.

Big data = big business?

Data centres – the factories of tomorrow



Existing space in German Data Centres



Source: ArtInvest et al.

Industry outlook for 2021

Asset class	Rank
Data centres	1
Logistics	2
Life sciences	3
New energy infrastructure	4
Industrial/warehousing	5
Private residential	7
Subsidised housing	8

Source: PwC/ULI

As the value of data rises, so too does the interest of real estate investors in data centres.

Available space for German data centres has grown continually over recent years, in line with demand. In particular, the share of colocation centres in the overall market has experienced above-average growth.

Transaction market for data centres

Given the special features particular to data centre properties, conventional real estate investors and lenders have in the past often considered the sector to be too complex, which is why for a long time the market was dominated by the major owners, developers and operators. However, the search for alternative investment opportunities has meant that this situation is changing, and conventional real estate investors are increasingly focusing on data centres – thanks to constant growth figures on the one hand and rising demand on the other.

In Europe, investment activity continues to be strongly linked to mergers and acquisitions. For instance, AXA has acquired Colony Capital's DATA4 portfolio featuring assets in Paris, Milan and Luxembourg, and Canadian Brookfield Infrastructure Partners has acquired for US\$ 1.1 billion the AT&T portfolio comprising 31 data centres – five of which are located in Europe.

Across Europe, the majority of investment activity continues to centre around the United Kingdom,

although investment has increasingly shifted to Germany, France and the Netherlands, with individual portfolio transactions also taking place in Spain and Italy.

Summary of findings





Summary
of findings



Real estate investors



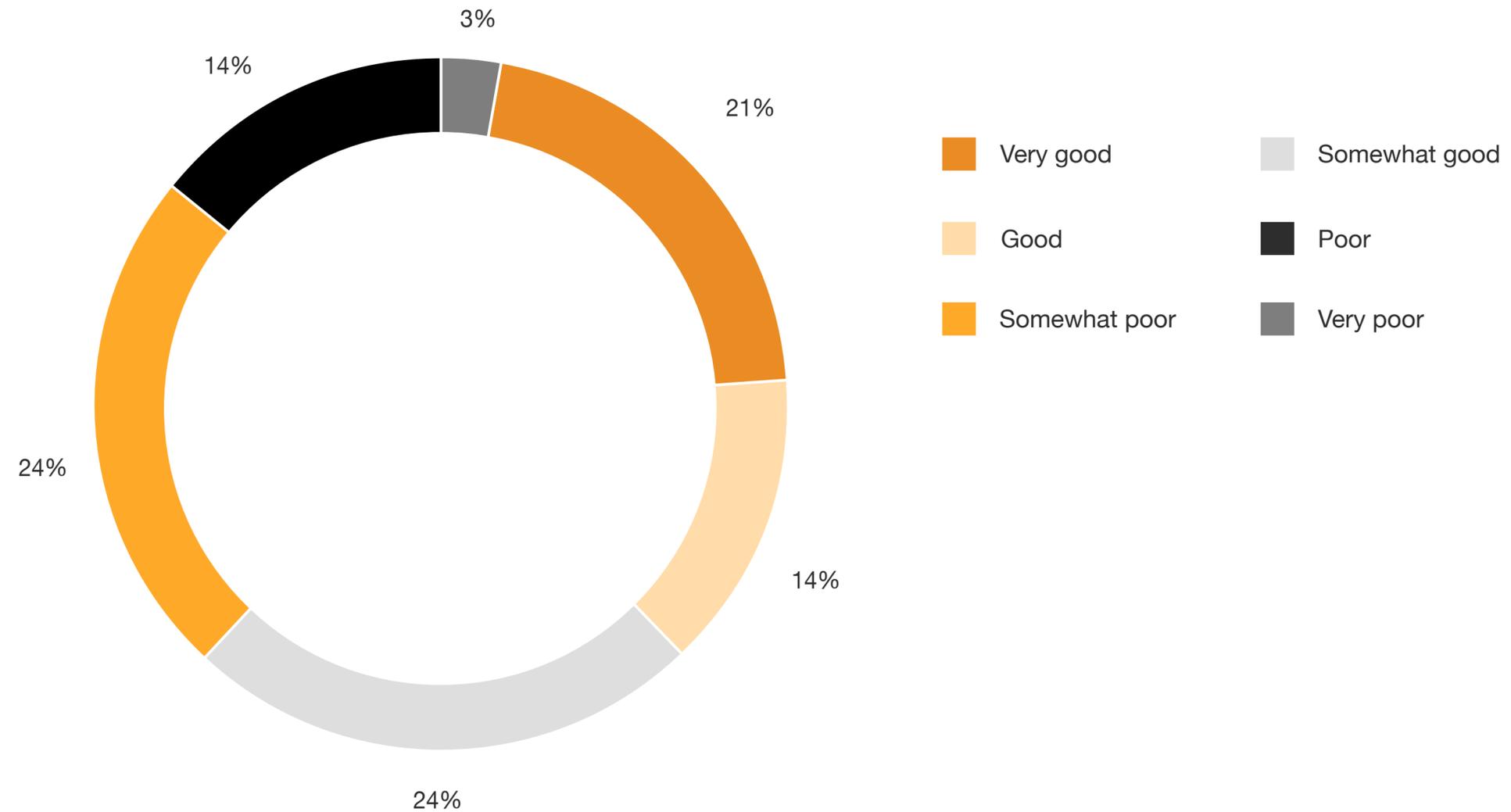
For many investors, data centres remain a largely unfamiliar asset class

Findings

Understanding

- Nearly half of all real estate investors surveyed (41%) consider their level of understanding of the data centre asset class to be "somewhat poor" (24%), "poor" (14%) or "very poor" (3%).
- Only one in five (21%) consider their level of understanding of data centres to be "very good".
- It is clear that the increase in interest in the asset class has not yet translated into an improvement in the specific level of understanding. The majority of real estate investors do not yet feel sufficiently informed about the peculiarities of the data centre market to make qualified investment decisions.

Level of understanding



T105 Understanding of data centres (DCI): "How would you describe the level of understanding of data centres in your firm?"

Basis: all investors

Findings

Investment history and holdings

- Nearly three-quarters (72%) of all respondents indicated that they had never invested in data centres thus far. Only a minority had invested previously in one data centre (16%) or in two (12%).
- Prior volumes of investment in data centres were equally low. The majority of those surveyed (76%) indicated holdings of less than €10m.
- The responses from investors and operators tracked market participants' views that real estate investors had in the past tended not to focus on data centres as potential investments.

T127 Prior investment in data centre properties (DCI): "How many data centre properties are currently held by your firm in the DACH region?" and T128 Prior investment in data centre properties (euros):

"How high approximately is the volume (market value) of the data centre properties held by your firm in the DACH region?"

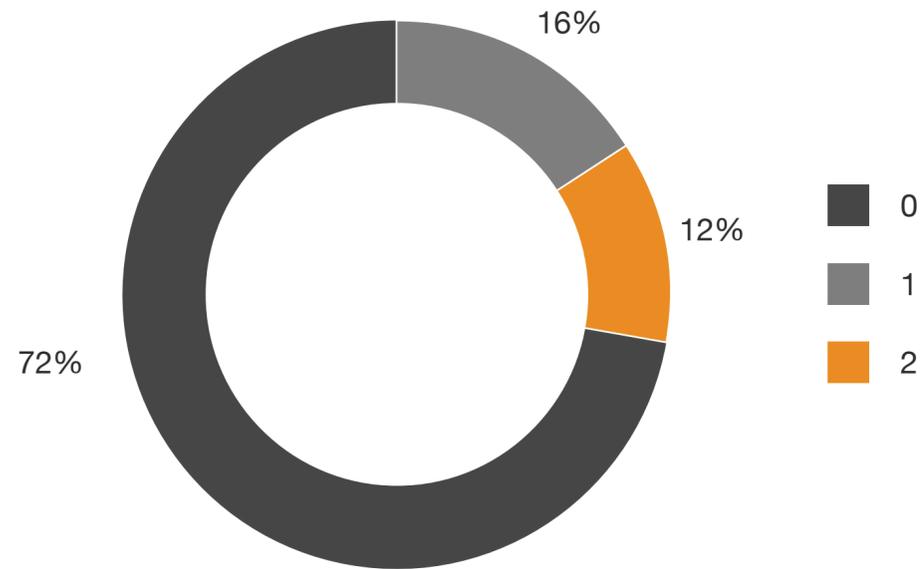
Basis: all respondents

Prior investment in data centre properties

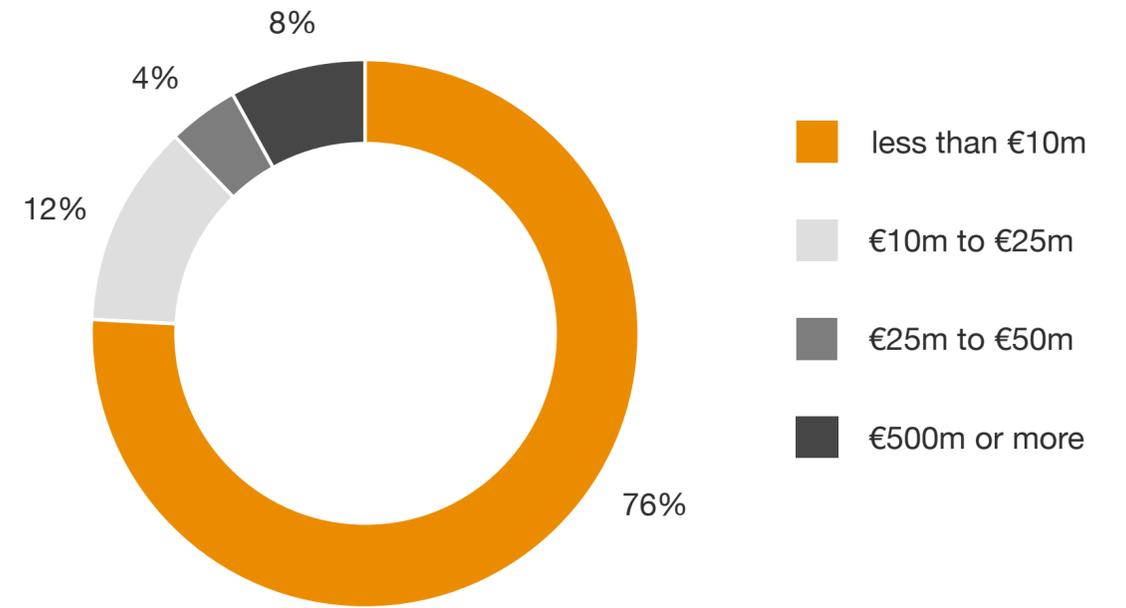
In the past, data centres played little to no role for real estate investors



Prior investments (number)



Prior investments (euros)





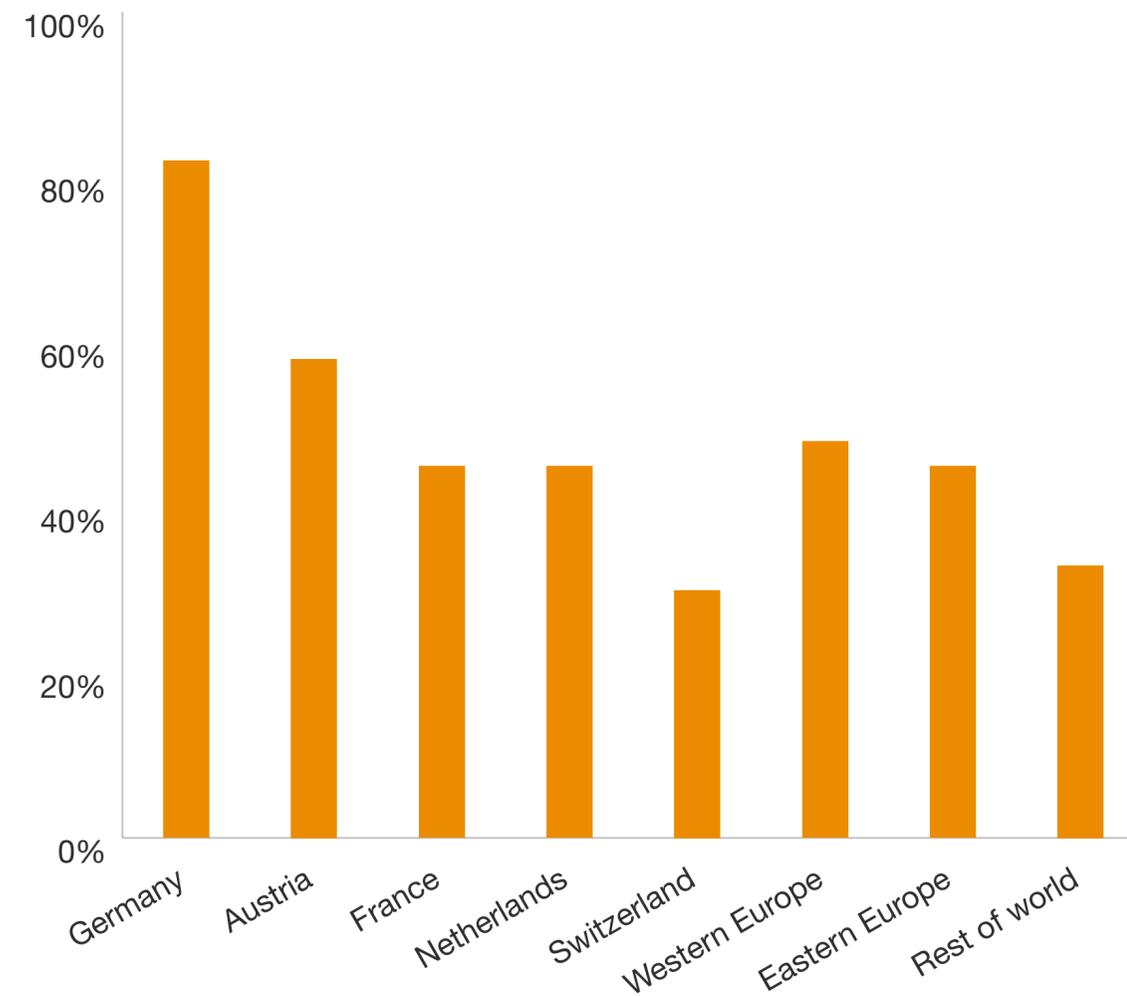
International focus for operators as well as for real estate investors

Findings

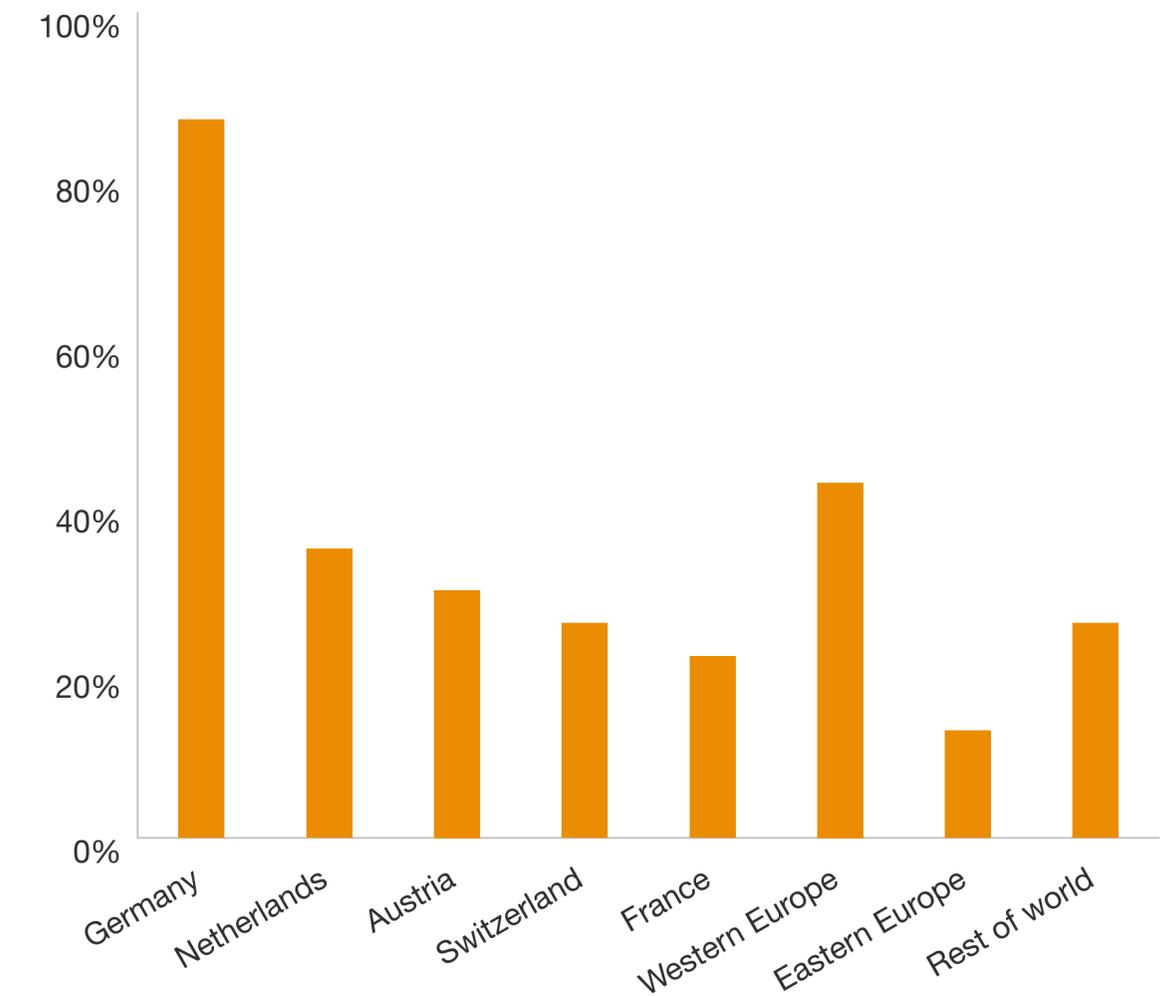
Country focus of investors and operators

- Responses were analysed separately for real estate investors and for data centre operators.
- Both groups indicated an increased focus on Germany (82% and 87%, respectively) as well as western Europe, while real estate investors had an increased interest in Austria and France.
- The country focus of both groups largely overlapped, meaning that it could generally be assumed that the conditions for developing the market together were good.

Real estate investors



Data centre operators



T104 Geographic focus of business activities (DCO/DCI): "In which regions does your firm conduct business? (multiple responses possible)"

Basis: all respondents

Findings

Attractiveness of cities for data centres

- The three most attractive cities for data centres in the DACH region are in Germany: Frankfurt, Munich and Berlin.
- Vienna, Zürich and Hamburg followed in places 4-6.
- Frankfurt's outstanding position as the most attractive location in the DACH region is due to its proximity to the world's largest Internet exchange: "Deutsche Commercial Internet Exchange (DE-CIX)", which is located immediately in the urban area.

T119 Most attractive cities in DACH region (DCO/DCI): "Which 3 of the following cities in the DACH region do you consider to be the most attractive locations from which to operate data centres?"

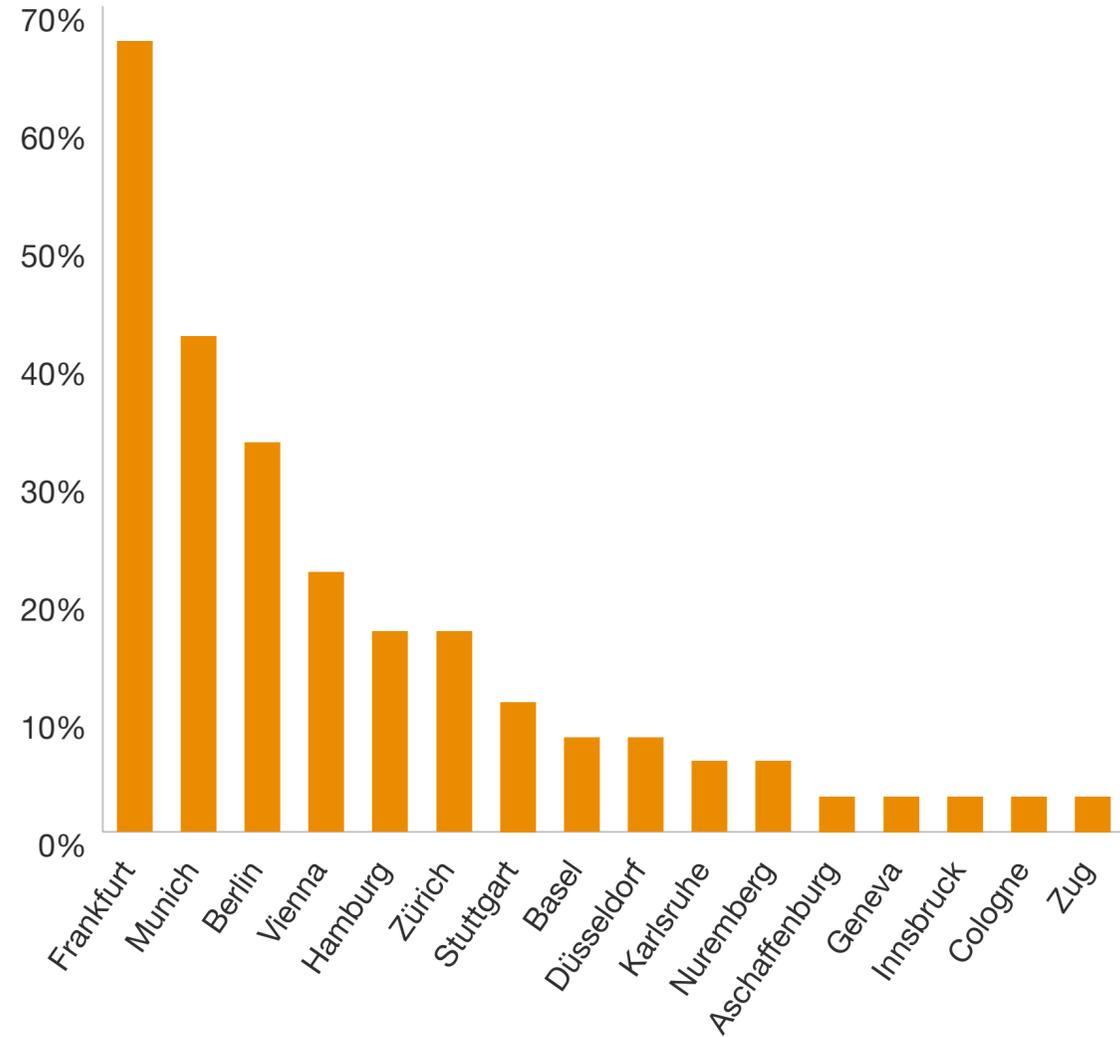
Basis: all respondents

Most attractive cities in DACH region

Frankfurt is the most attractive city for data centres in the DACH region, followed by Munich and Berlin



Most attractive cities



Findings

Investment plans and planned data centres

- More than one in three real estate investors surveyed (41%) intends to invest in data centres within the next two years. Roughly a quarter of those plan to invest between €50m and €250m.
- The number of planned new data centres for operators differed significantly within the group surveyed. For instance, 30% of operators surveyed intended to establish only one new data centre in the coming two years, while 10% indicated their intention to open up to as many as six new data centres.
- With respect to the planned new builds, it can be assumed that high demand on the part of real estate investors for the asset class will exceed supply in the short term, particularly as a majority of data centre operators own the properties and have no experience with lease or sale-and-leaseback models.

TI22 Number of planned data centres (DCO/DCI): "How many data centres does your firm plan to establish in the DACH region over the coming two years?" and TI23 Planned investments in euros (DCO/DCI): "How high are the investments in the data centre market in the DACH region planned by your firm for the coming two years?"

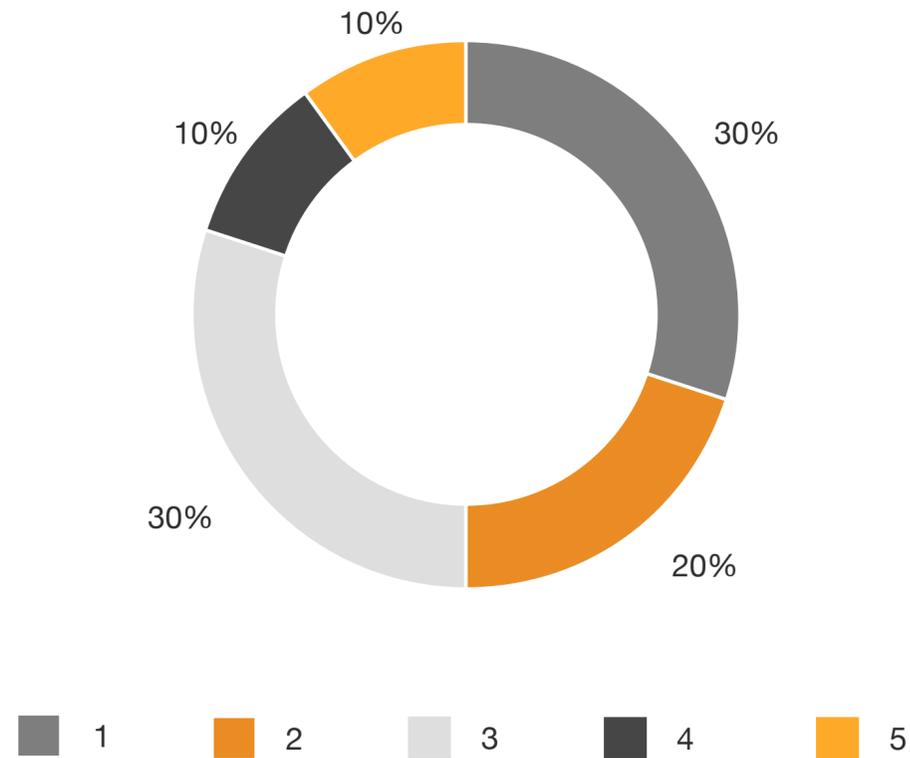
Basis: all respondents

Number of planned data centres

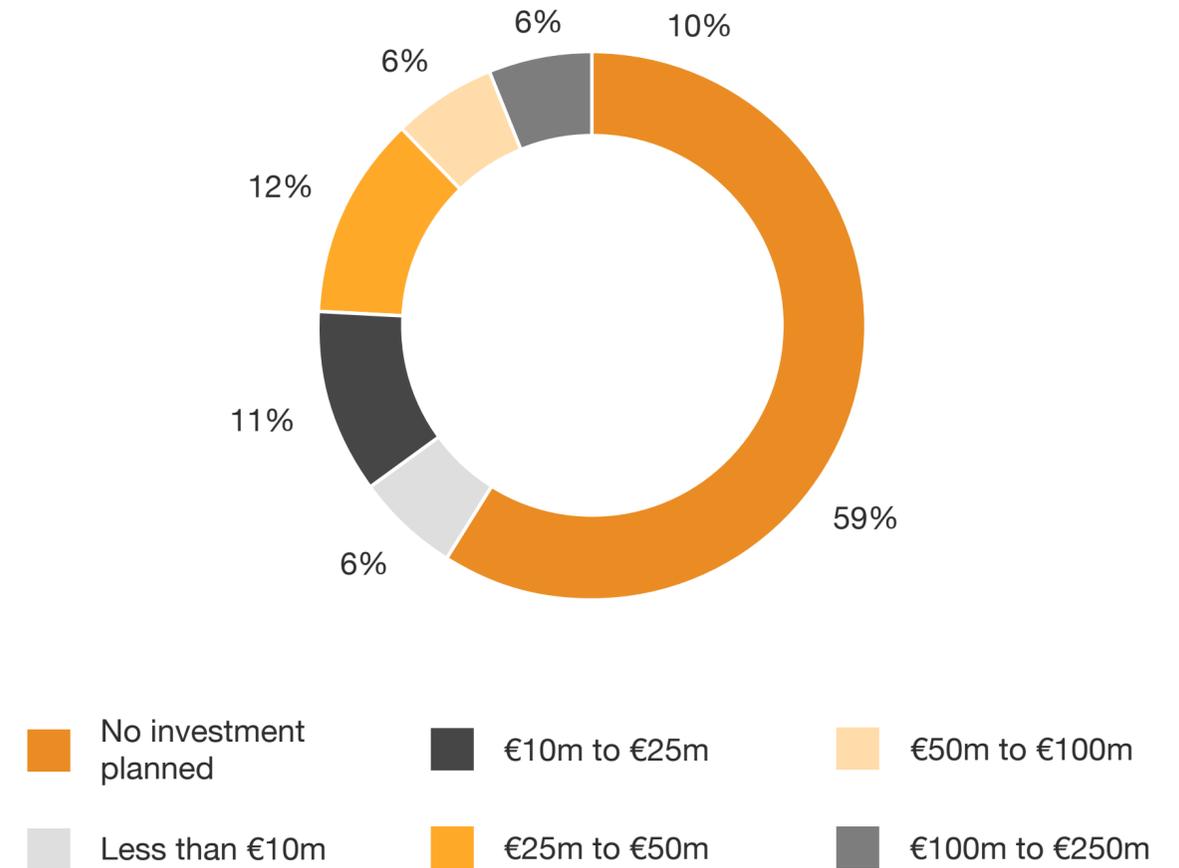
More than one in three real estate investors plans to invest in a data centre in the next two years



Number of planned data centres



Planned investments



Findings

Investment type: direct vs. indirect

- A majority of those real estate investors surveyed (60%) prefer to invest directly in data centre properties. Only 12% of investors surveyed would consider an indirect investment in a data centre.
- Only a very small group of investors (4%) would be interested in investing in a data centre without acquiring the property.

T124 Investment objectives (DC): "Which of the following options would your firm consider for an investment in the data centre market?"

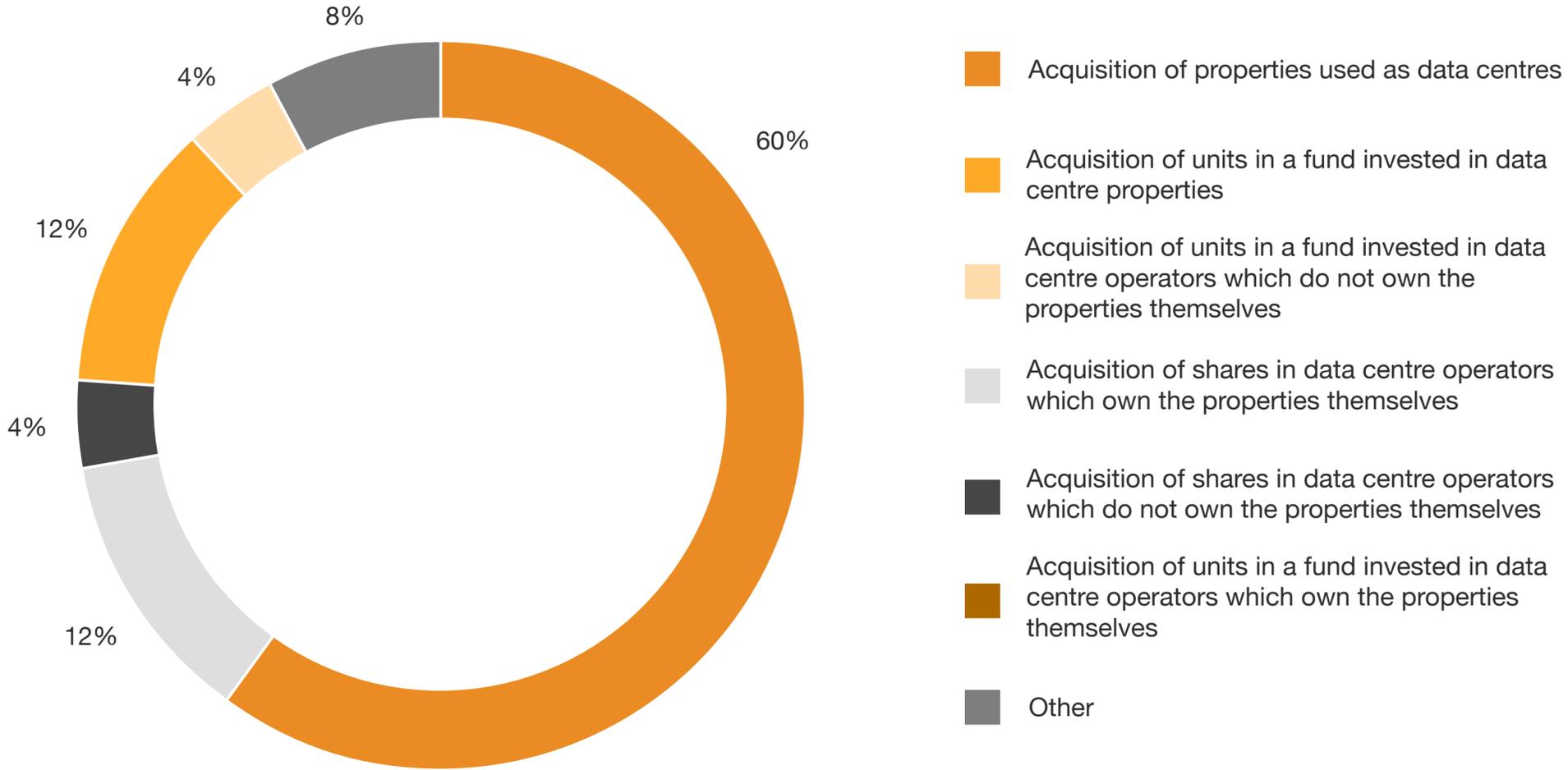
Basis: all investors

Investment objectives

The majority of investors plan to invest directly in the property



Investment type



Findings

Required returns

- The required returns (static net initial yield) of those surveyed for an investment in a data centre varied significantly between 2-3% and 7-8% and even 8-10%. A majority of those surveyed (58%) considered a return in the range of 4.00% to 6.00% to be acceptable, however.
- In light of the falling returns for established real estate asset classes such as residential and office properties, the expectations for data centres are slightly above this. Only 18% of those surveyed called for a significant premium for data centres as compared to established asset classes and thus expected returns of between 7% to 10%.

TI20 Required return on data centre properties (DCI): "Approximately what return (static gross initial yield = net rent/purchase price excl. acquisition costs) does your firm require for an investment in properties used as data centres?"

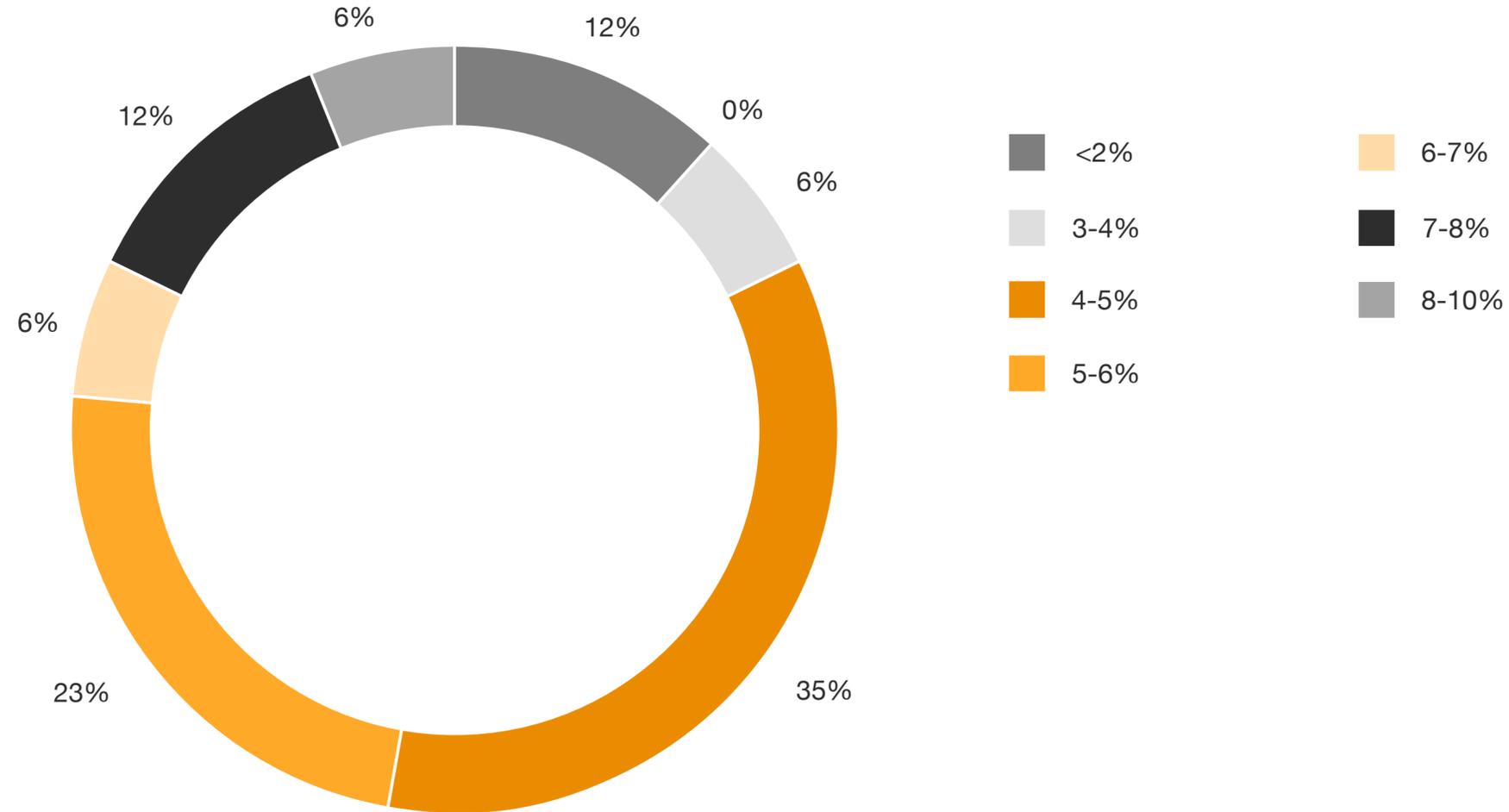
Basis: all investors

Required return on data centre properties

Real estate investors surveyed considered returns of 4-6% to be acceptable for investments in data centres



Required returns



Findings

Relevance of different criteria when selecting location

- While "connection load" (score: 64) was the most important criterion selected by data centre operators, investors accorded greater significance to "power supply" (82).
- This "power supply" is also the most important criterion for location attractiveness, with a total score of 145.
- Environmental aspects such as "temperatures" (98) and "heat" (101) played a less significant role.

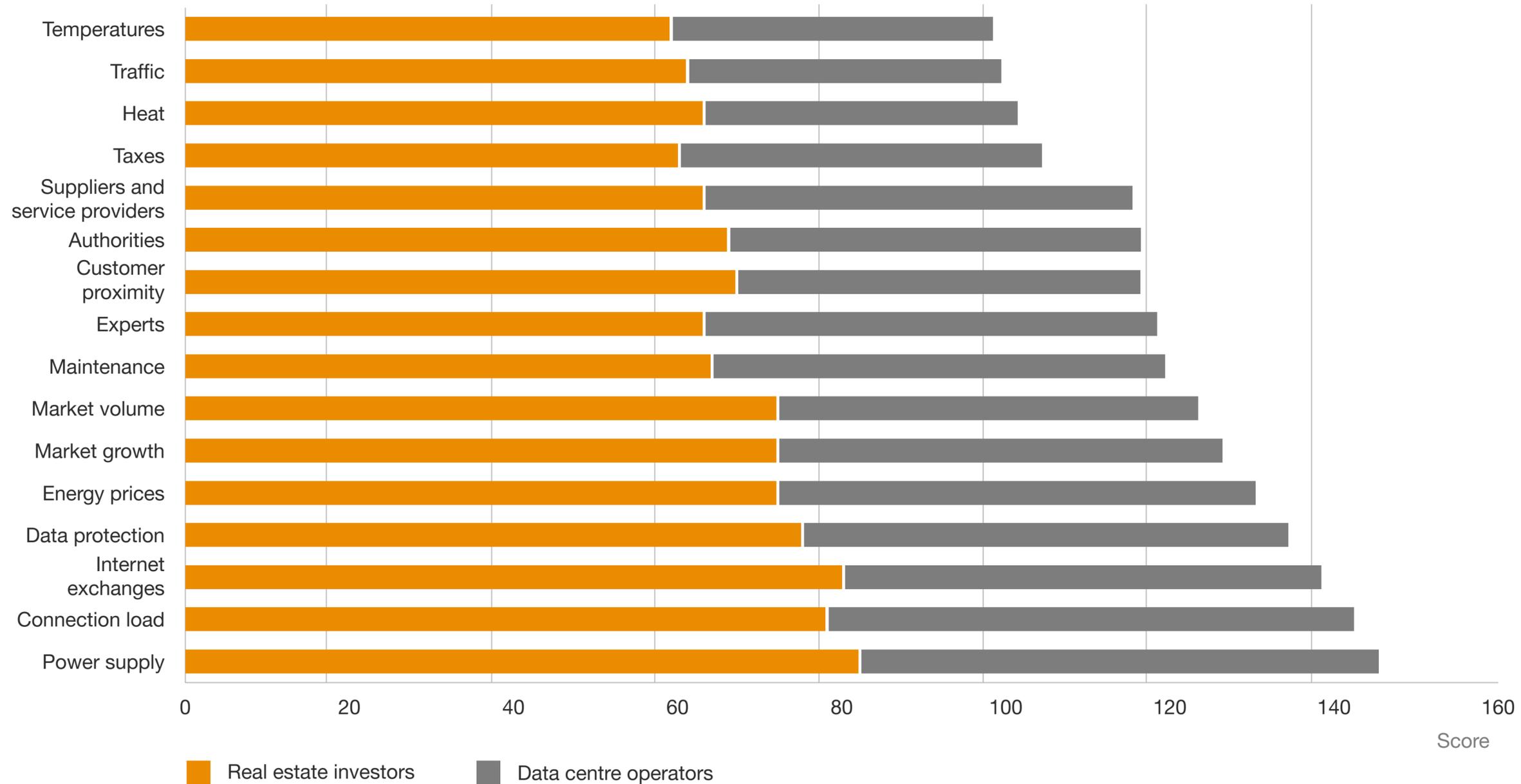
T117 Criteria for location attractiveness (DCO/DCI): "How important does your firm consider the following aspects when assessing the attractiveness of a data centre's location?"

Basis: all respondents



Focus on power supply and connection load when selecting location

Location attractiveness (criteria)



Score



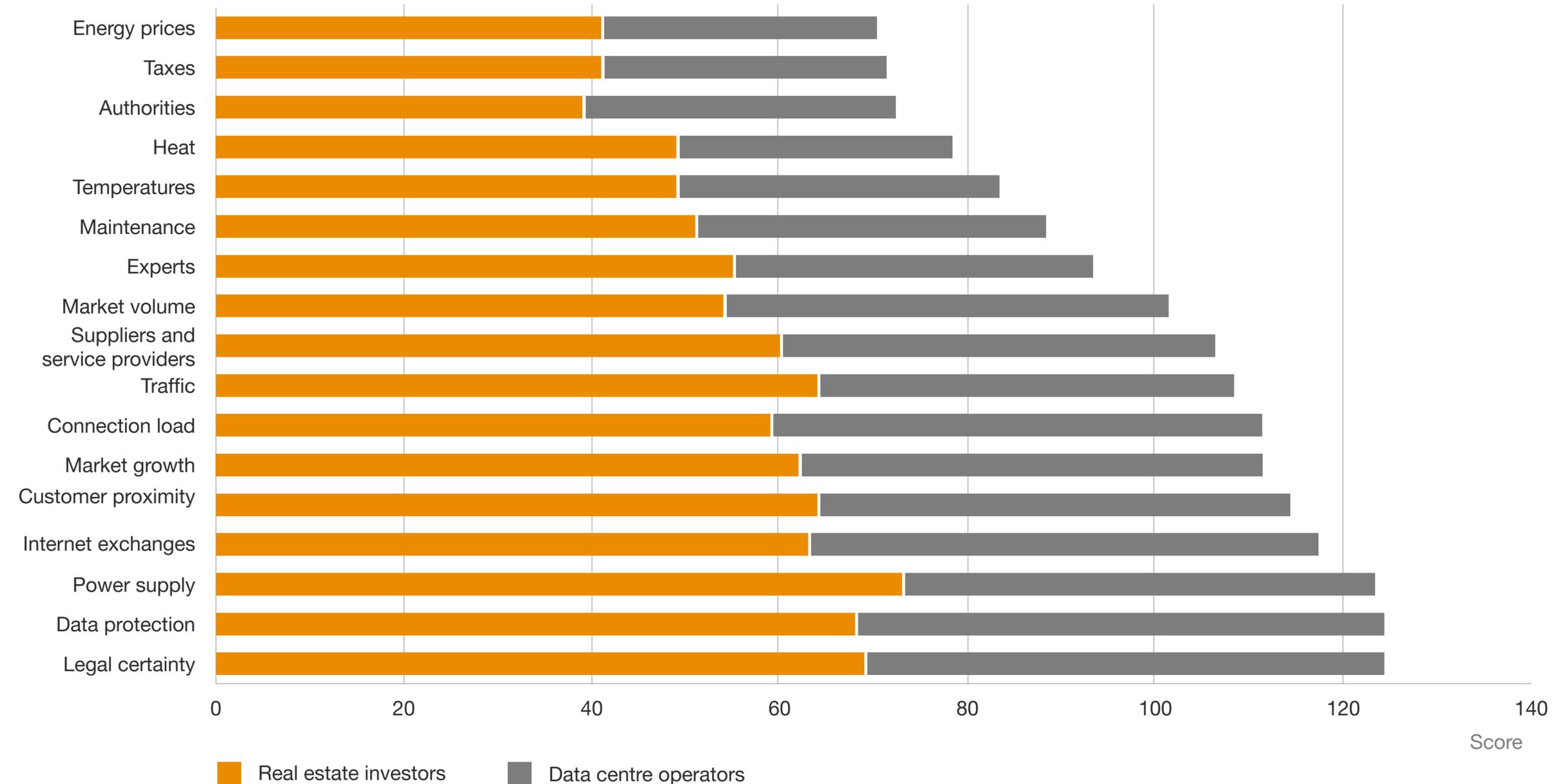
DACH region stands out thanks to data protection and legal certainty

Findings

DACH region as a potential location

- The DACH region stood out for data centre operators as well as investors primarily thanks to the particularly high standard of "data protection" and "legal certainty" (total score for each: 124).
- In addition, the secure "power supply" and robust "Internet exchanges" – particularly DE-CIX – rendered the region more attractive.
- For data centre operators, "data protection" (56) was paramount, while investors increasingly valued "power supply" (73).

Location attractiveness (criteria)



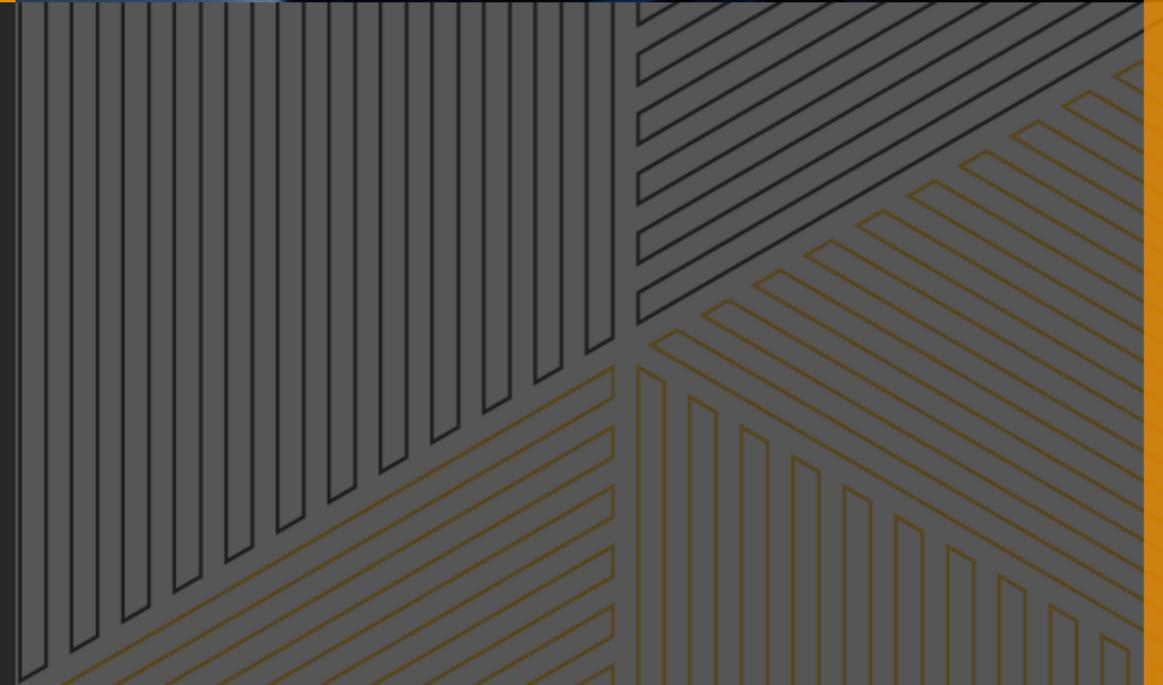
T118 Location attractiveness in DACH region (DCO/DCI): "How attractive is the DACH region as a location for data centres based on the following criteria?"

Basis: all respondents

Summary
of findings



Data centre operators



Findings

Locations

- Overall, the market for data centre operators in the DACH region features a fragmented structure with regional operators.
- The vast majority of operators indicated that they operated only one or two locations in the DACH region.
- Major market players focus on Germany, primarily in the Frankfurt am Main metropolitan area.
- The total space of the locations varies greatly between 12,500 m2 and 180,000 m2.

T106 Number of locations in the DACH region (DBO): "At how many locations does your firm operate databases in Germany, Switzerland and Austria?" and T107 Total space of locations in the DACH region (DBO): "Approximately how much space (rack space) do the data centres operated by your firm in the DACH region offer, in m2?"

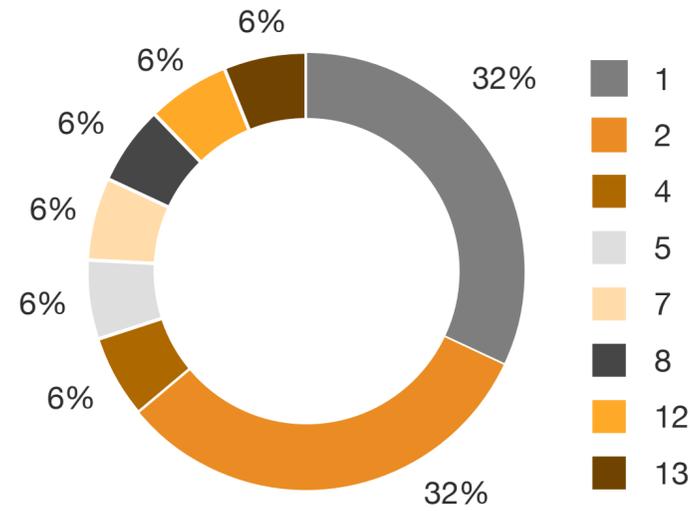
Basis: all data centre operators

Number of locations and total space in DACH region

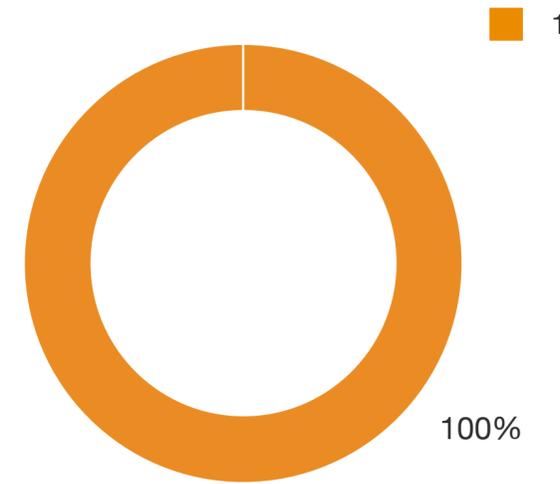
Fragmented market: most operators only operate at one or two locations



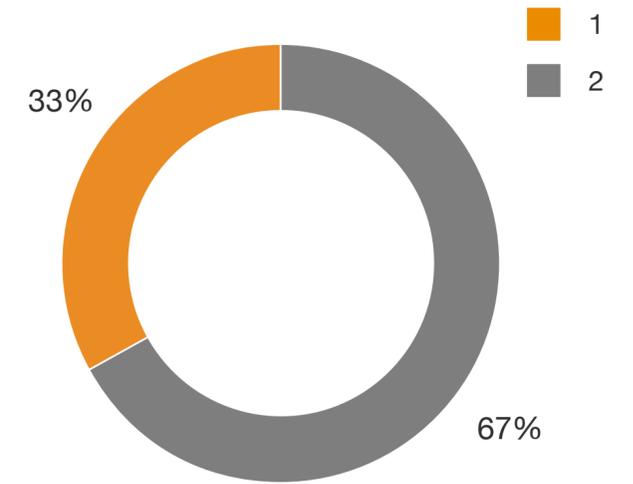
Germany



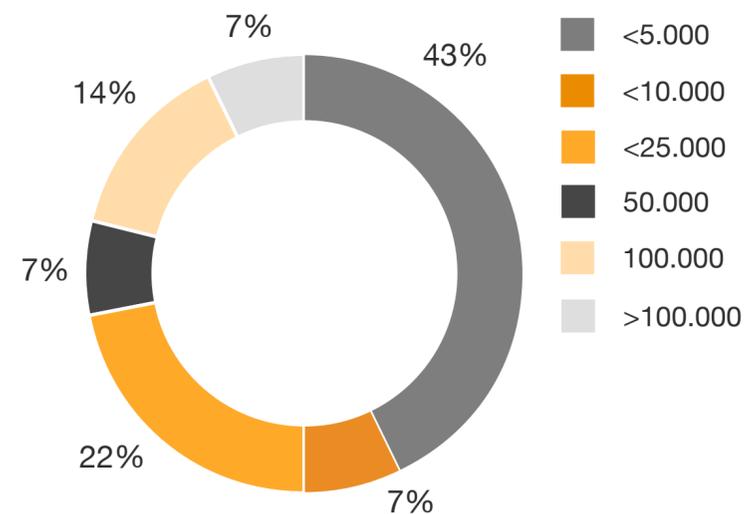
Austria



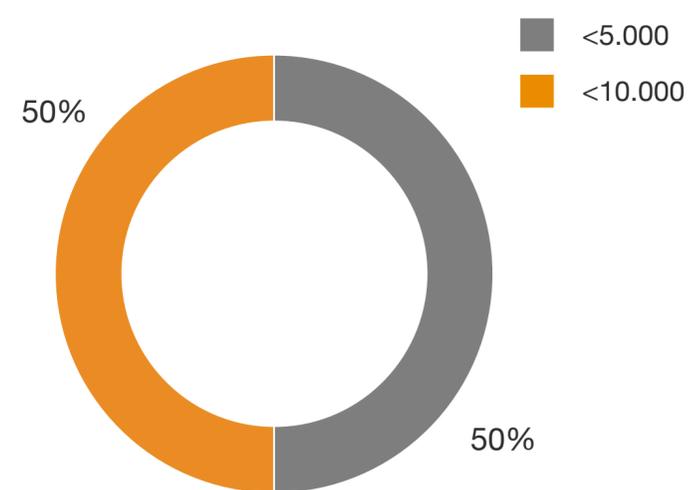
Switzerland



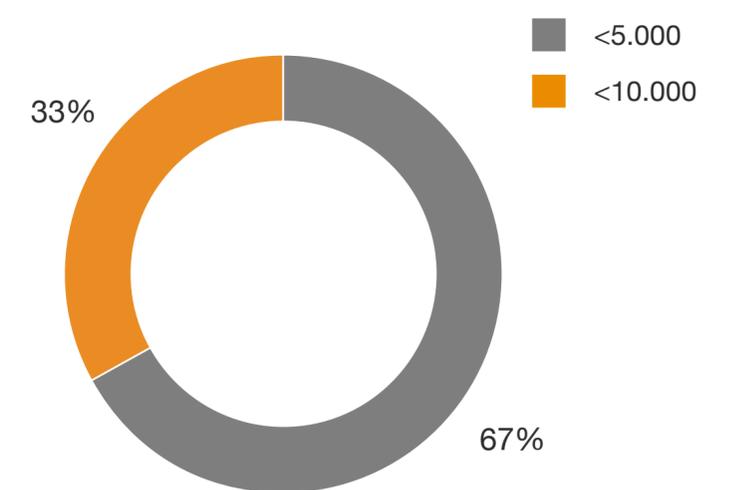
Germany



Austria



Switzerland



Findings

Future planning

- 37% of data centre operators surveyed plan to purchase land in the coming three years and 26% intend to acquire an existing data centre.
- By contrast, only 7% of those surveyed plan to sell a data centre.
- Only 8% of those surveyed plan to lease a property. Equally, only 4% indicated their preference for a sale and leaseback structure.
- This implies that to date, data centres have primarily been owned by the operator firms. Tenant/user models and sale and leaseback structures are not yet very common.

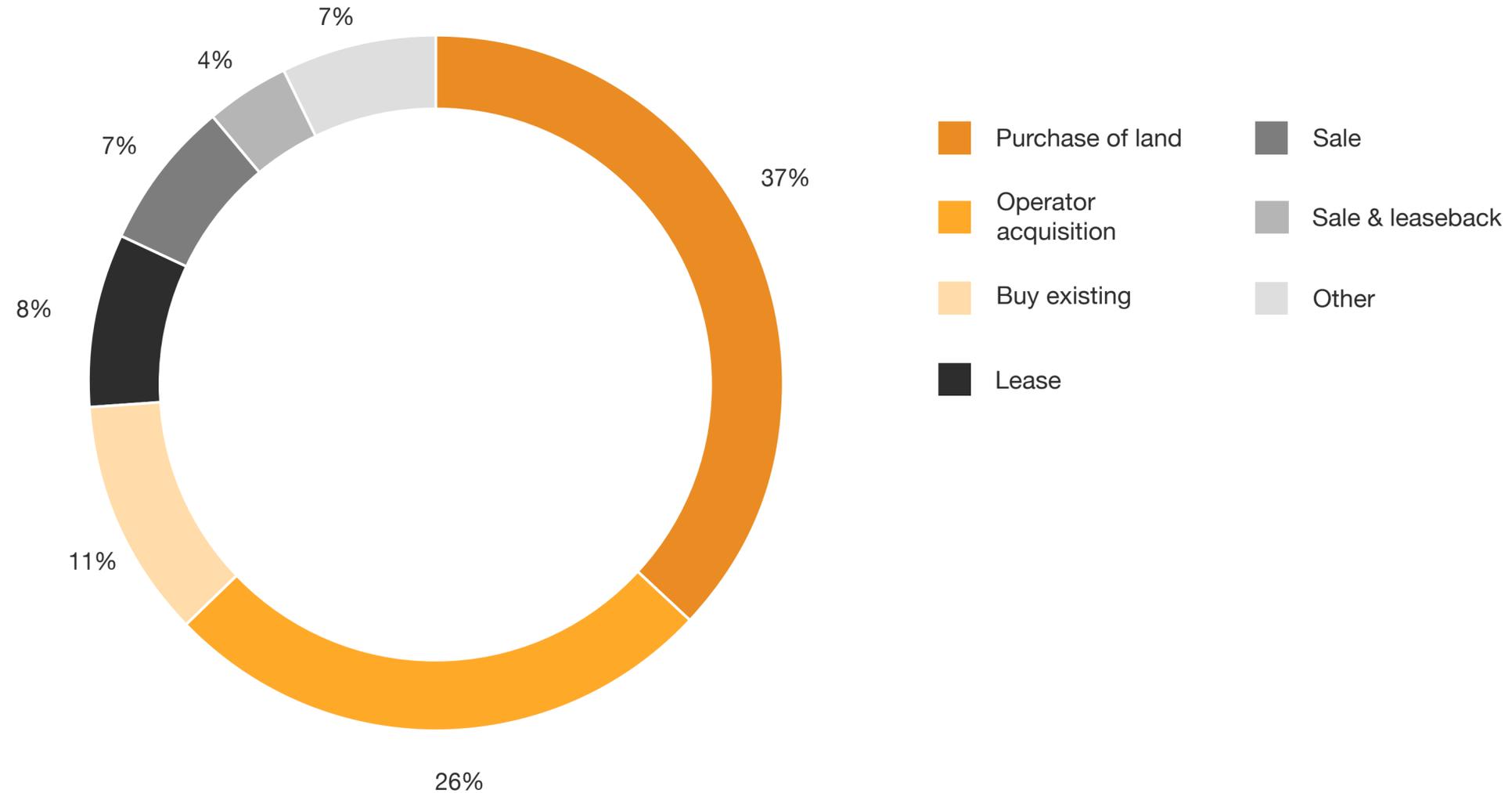
T115 Future planning (DBO): "Which of the following strategies is your firm pursuing with respect to the coming three years?"
Basis: all data centre operators

Future planning

Operators seeking to grow by purchasing land and building new data centres



Strategy



Findings

Relevance of Internet exchanges

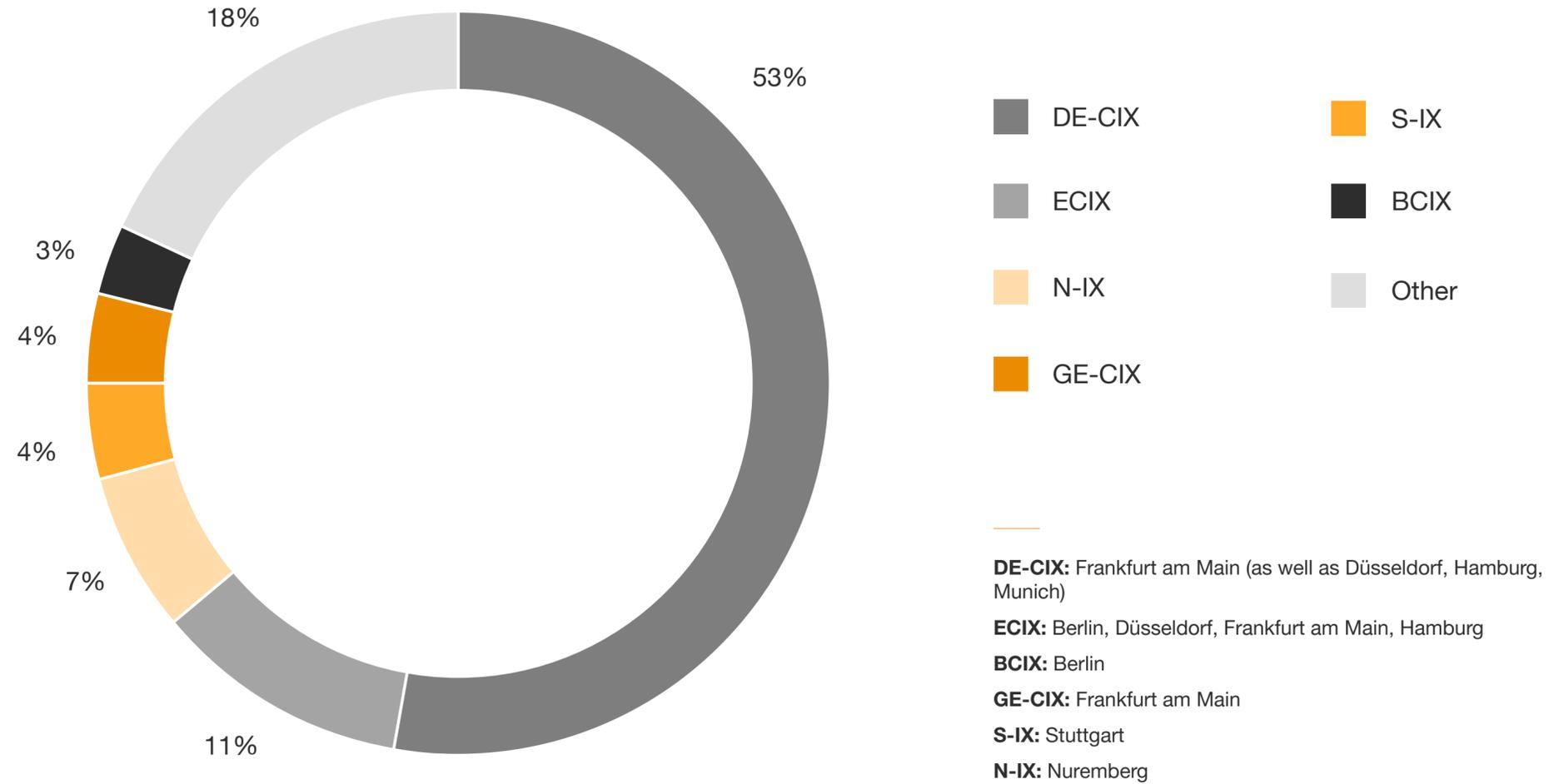
- Accounting for more than 50%, the DE-CIX Internet exchange is the dominant Internet exchange (IXP) in Germany. The following IXPs play a far less significant, more regional role. This is presumably the case in particular at locations where DE-CIX does not have a presence or enters into partnerships with other exchanges.
- This could also result in cluster risks if the better connectivity options were to cause the market to focus exclusively on Frankfurt.

T108 Connectivity to Internet exchanges (DBO): "Which Internet exchanges (IXPs) are available to customers in your locations?"
Basis: all data centre operators



The DE-CIX Internet exchange in Frankfurt is by far the most significant for data centre operators in the DACH region

Relevant Internet exchanges



Findings

Operator models

- The most common models are retail and wholesale data centres, as well as full-service providers. Under the retail model, customers utilise smaller capacities or individual racks; in wholesale, large, segregated spaces with dedicated infrastructure are used.
- Under the hyperscale model, complete data centres are used by a single customer, which in turn provides cloud services for end customers.
- Full-service providers offer the entire service range: from individual racks to complete data centres for a single customer.
- 52% of operators are conventional full-service providers or retailers, although 40% are wholesale and hyperscale operators, and represent a fast-growing segment.

T109 Operator models (DBO): "In which market segment does your firm operate data centres?"

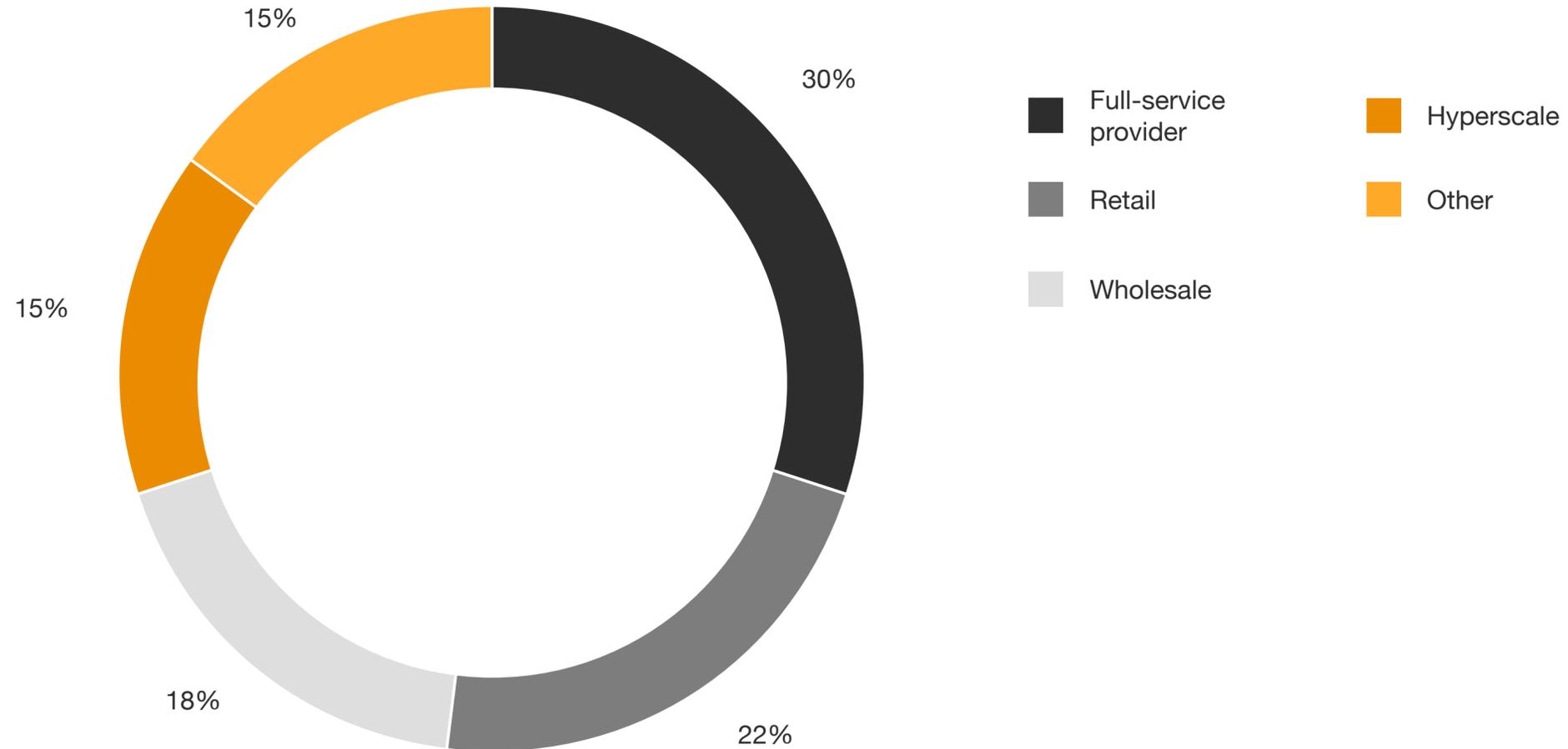
Basis: all data centre operators

Operator models

The majority of data centre operators are (still) active in the retail and full-service provider segments



Operator models (options)



Findings

Future edge strategy

- 47% of operators already have an edge offering, cooperate with such operators or plan to establish themselves in this segment.
- However, there is still no apparent standardised offering throughout this market segment, which reflects the fact that 47% of those surveyed still do not have any edge strategy.
- Only 6% of operators have no interest in the segment. Thus, it can be assumed that interest in edge computing will continue to grow significantly.

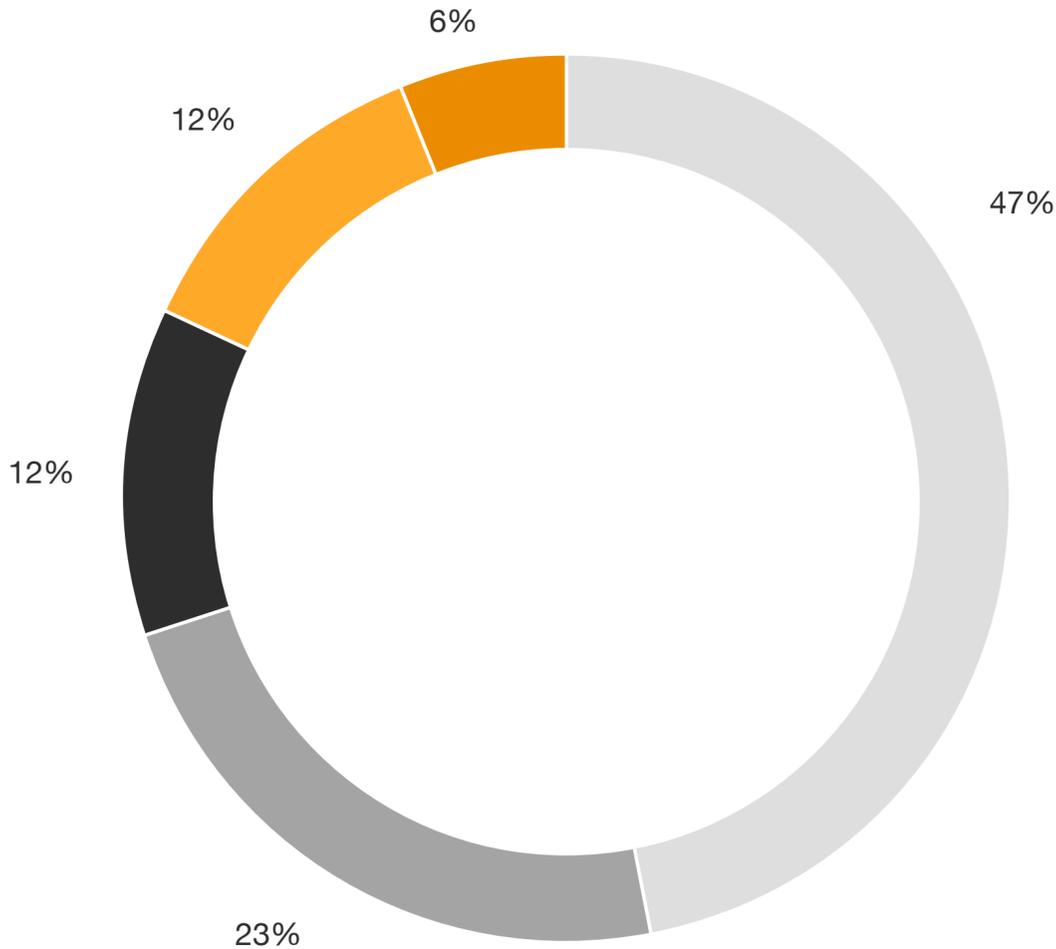
T116 Strategy for edge locations (DBO): "Which of the following strategic options is your firm pursuing with respect to edge locations over the coming three years?"

Basis: all data centre operators

Edge offerings have yet to be standardised but are on the growth path



Future planning



- Become own edge location
- Cooperate with edge location operators
- Have already established edge locations, but do not intend to continue to pursue this strategy
- Other
- Other is not relevant to us

Edge computing involves the distributed processing of data where corporate applications are in closer proximity to data sources such as IoT devices and local edge servers. Thus, edge data centres are data centres which are in close proximity to where data is created. Such locations are given preference in instances where the volume of data is too large to be transferred to a more distant data centre without first having been processed.



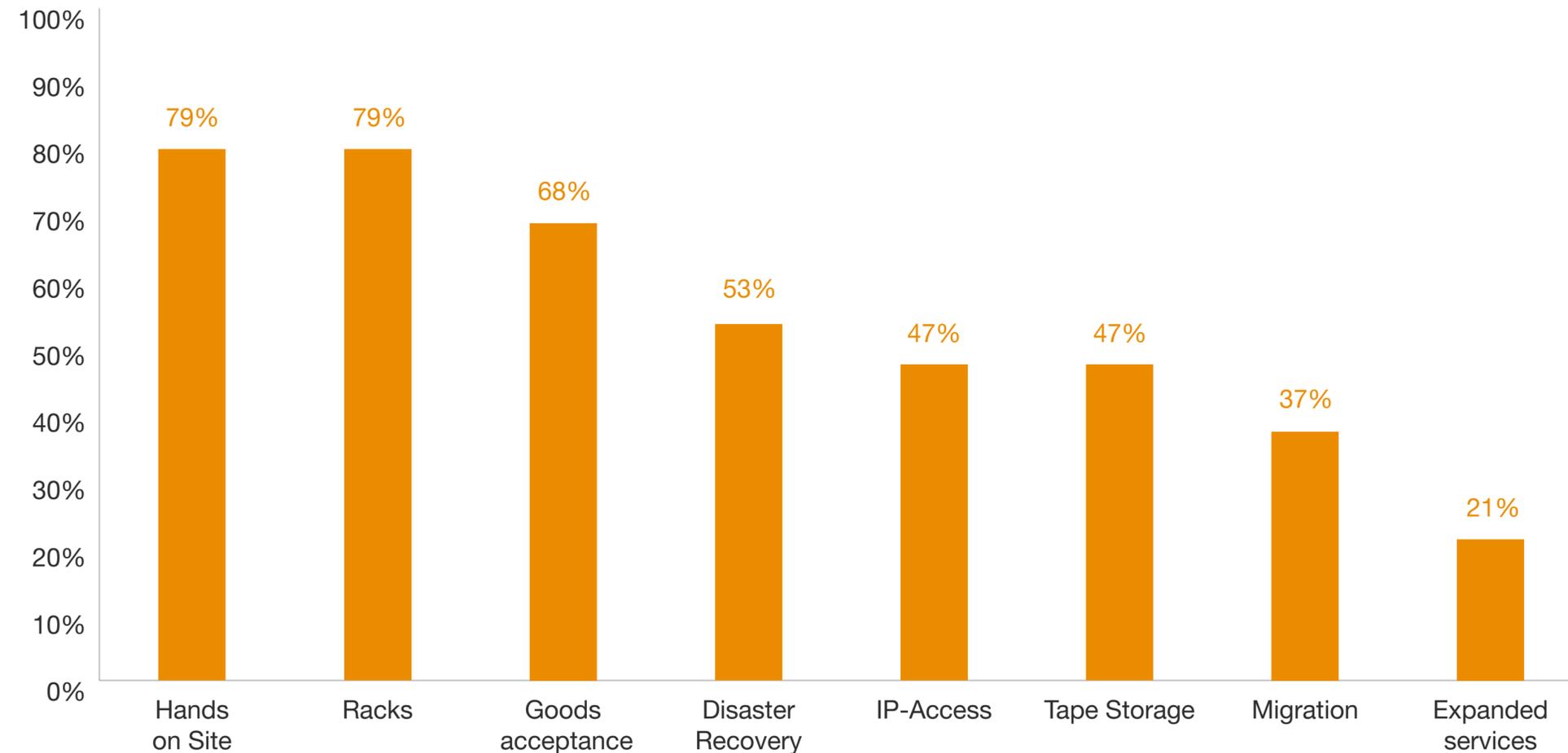
Hands on site and racks are the services most commonly offered by operators

Findings

Operator service portfolio

- Hands on site (meaning 24/7 on-site IT troubleshooting support), racks and goods receiving are the (standard) services most frequently offered by operators
- By contrast, IP access, data centre migration and disaster recovery are not yet in the standard offering
- Expanded services are offered by only a minority (5%) of operators.
- There is therefore still potential room for

Service portfolio (options)



Hands on Site: 24/7 on-site IT troubleshooting support

Racks: (Lockable) frames to house servers, routers and other IT and network components

Goods acceptance: Goods acceptance as a logistics service

Disaster Recovery: Resumption of operations after an unexpected event (Damage or destruction of data, software and hardware systems)

IP-Access: Securing IP connectivity

Tape Storage: Tape-based storage media as a solution for long-term data storage

Migration: Planning and executing switch of data centre environments.

WT12 Service portfolio – range and managed services: "Which of the following services does your firm offer?"

Basis: all data centre operators

Findings

Relevant certifications

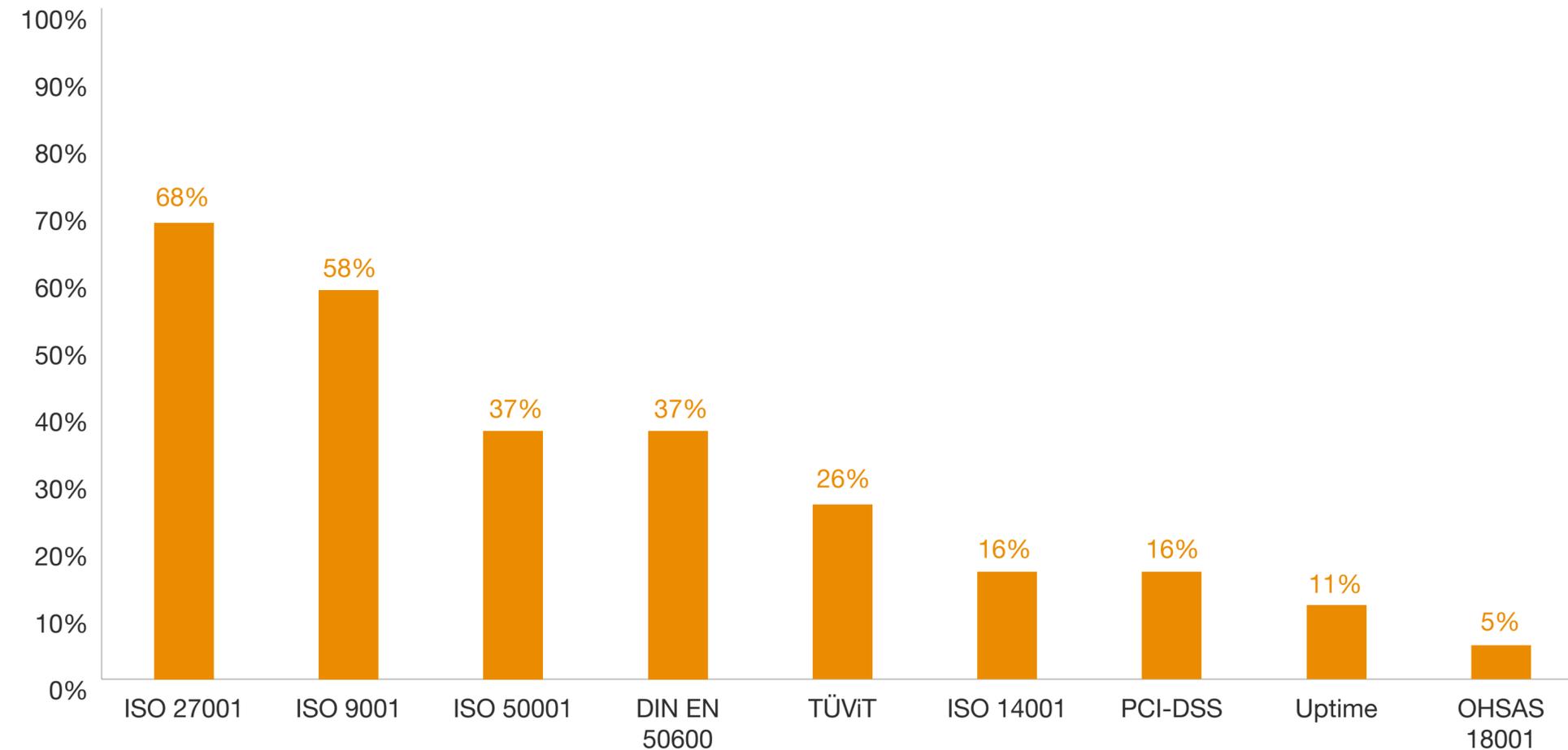
Operators mainly have standard certifications, and specialised certifications remain the exception



Relevant certifications

- It appears that ISO 27001 and 9001 currently represent the market standard and thus the baseline for operating a data centre. These certifications are held by 68% and 58% of operators surveyed, respectively.
- ISO 50001 (Energy management) and EN 50600 (Measures, design, operation of data centres) are relatively recent standards on the market, although they are not yet widespread
- ISO 14001 (Environmental management) is surprisingly common (16%), and can be expected to increase in significance going forward.

Certifications



ISO 27001: IT security processes – Information security management systems – requirements

ISO 9001: Minimum requirements for quality management systems

ISO 50001: Energy management systems – Requirements and application guidance

DIN EN 50600: Rules for technical/organisational measures, design and operation of data centres

TÜVIT: Audit of availability and reliability

ISO 14001: Environmental management – certification and application guidance

PCI-DSS: Rules for payments (settlement of credit card transactions)

Uptime: Standard issued by Uptime Institute for assessing data centres with respect to potential website infrastructure performance or operating time

OHSAS 18001: Basis of certification for occupational health and safety (OHS) management systems

WT13 Operators – certifications: "Which of the following certifications do you hold as data centre operators?"

Basis: all data centre operators

Findings

Price trend

- 88% of operators assume stable or rising prices for data centre services.
- Only 12% of operators expect prices to fall. In such cases, this may be due to regional peculiarities, a strong competitive environment, the age of the data centre or a direct connection with the target customer group.
- The price trend analysis is based on fixed cost factors such as investments and capital expenses, as well as variable expenses such as for energy, service providers and personnel (for sales/ operations, repair and maintenance). Data centres usually do not cover their operating costs until they are operating at more than 50% of available capacity.

WT01 Future price trend (DBO): "What future price trend do you predict for your services in the coming three years?"

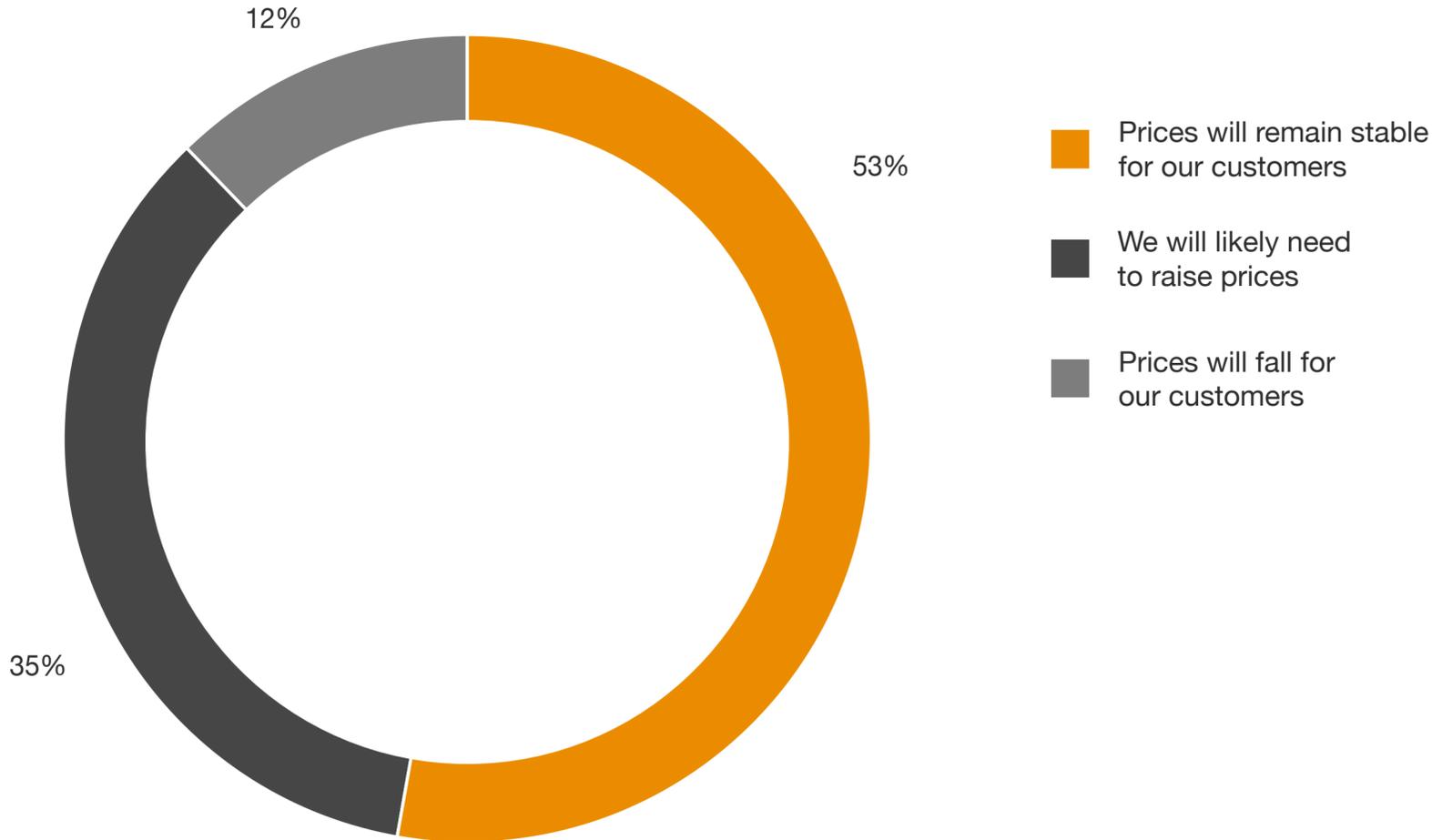
Basis: all data centre operators

Future price trend



88% of operators assume stable or rising prices

Price trend



Findings

Operator efficiency

- The survey revealed a PUE ratio ranging between 1.05 to 2.20, with the median ratio being 1.38. The rather broad range of responses may lie in the wide variety of factors influencing the PUE ratio.
- The PUE ratio is below the figure revealed in prior studies in 2014 and 2017, due overall to optimised energy efficiency over recent years.* This may be due to improved technology as well as primarily to increased capacity utilisation and thus improved data centre efficiency. It can be expected that simple, inexpensive efficiency enhancement measures have been implemented and significant investments are necessary to further significantly enhance the efficiency of existing facilities.

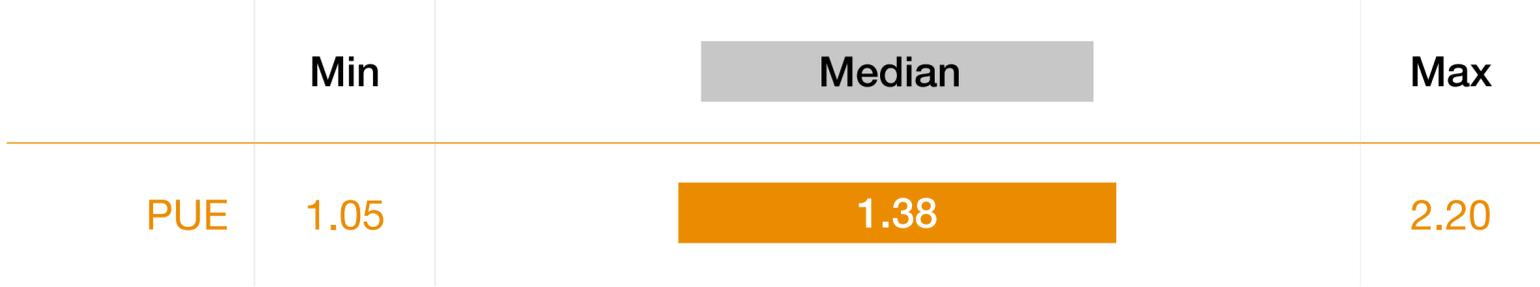
Borderstep Institut, Rechenzentren in Deutschland aus 2014, update 2017, Fig. 7

T110 Efficiency (DBO): "What is the approximate PUE (power usage effectiveness = total power used by data centre/power used by IT devices) at the most efficient and the least efficient data centres operated by your firm?"

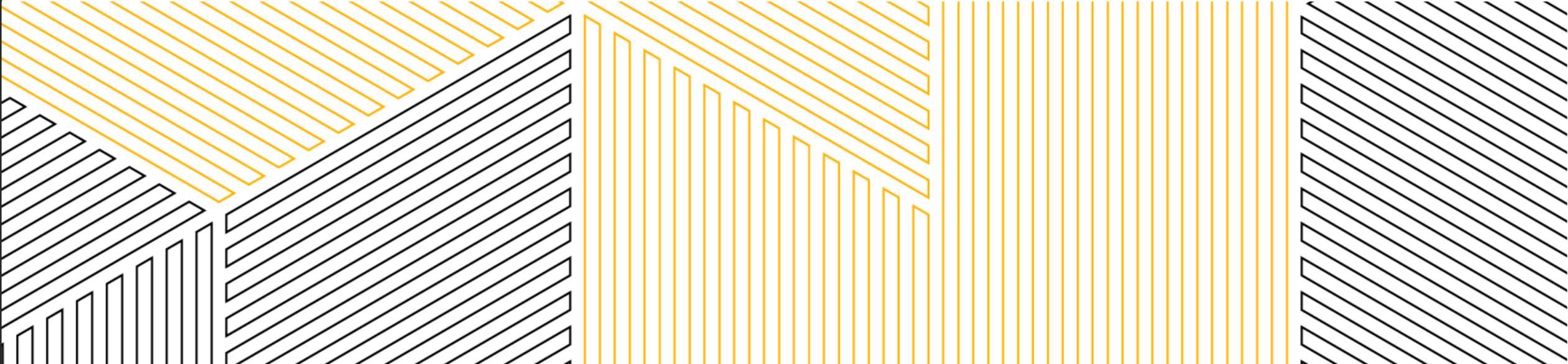
Basis: all data centre operators



Broad range of data centre efficiency



The degree of a data centre's efficiency is commonly indicated using the PUE ratio (power usage effectiveness = total power consumed by data centres/power used by IT devices). A ratio of 1.0 represents the theoretical ideal. This means that energy is used only for the IT devices and there is no power used for ancillary consumption in the data centre – including cooling, uninterrupted power supply, transformers, light, etc.



Findings

Planned utilisation of waste heat

- According to those data centre operators surveyed, 82% utilise little to no waste heat. Only roughly one in ten data centres plans to do so in the future.
- Only 6% of operators reported utilising waste heat to any relevant extent between 50-100%.
- This means that there is still considerable potential for the utilisation of waste heat.
- However, at larger scales this requires an environment in which the relevant technical and commercial requirements are met, there are users in close proximity and a regulatory framework has been established.

T112 Waste heat utilisation introduced (DBO): "Have you already introduced the utilisation of waste heat at at least one of your data centres?"

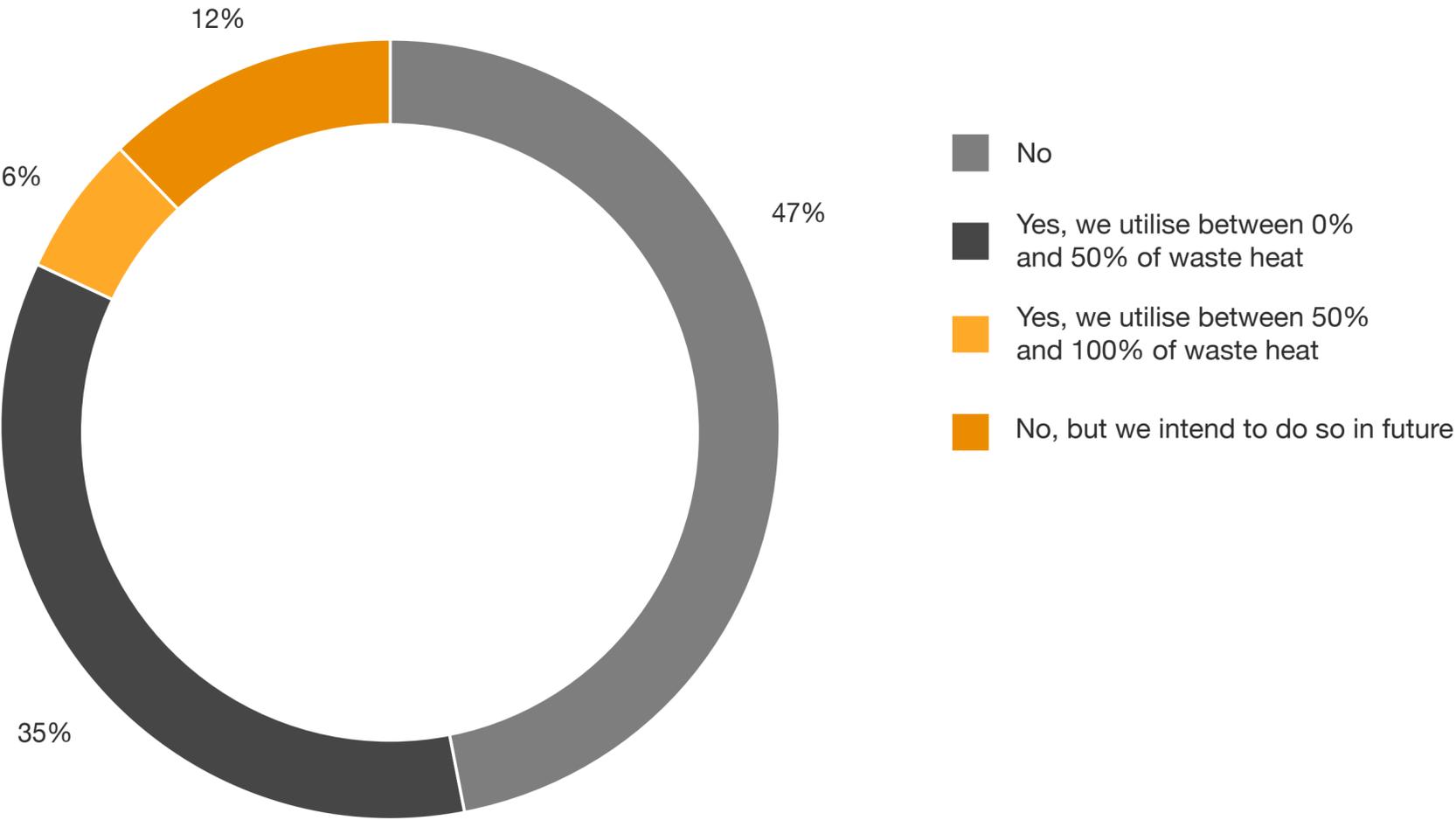
Basis: all data centre operators

Planned utilisation of waste heat



82% of data centres utilise little to no waste heat

Planned utilisation of waste heat



Findings

Use of cooling technology

- Already 44% of operators are able to use free cooling (i.e., the environmental temperature outside the data centre in lieu of conventional compressor-based cooling using grid power) more than 8 months of the year.
- For a further 44%, this is possible for 4 to 8 months of the year.
- Only 12% of operators do not use free cooling at all or for only 4 months maximum.
- Doing without compressor-based cooling altogether, meaning the year-round use of free cooling, is still the exception in Germany. Ultimately, such an approach would require abandoning common technical concepts and making significant investments in order to implement new technologies.

WT06 Cooling technology used: "How many months a year can you rely entirely on free cooling (without the use of compressor-based cooling)?"

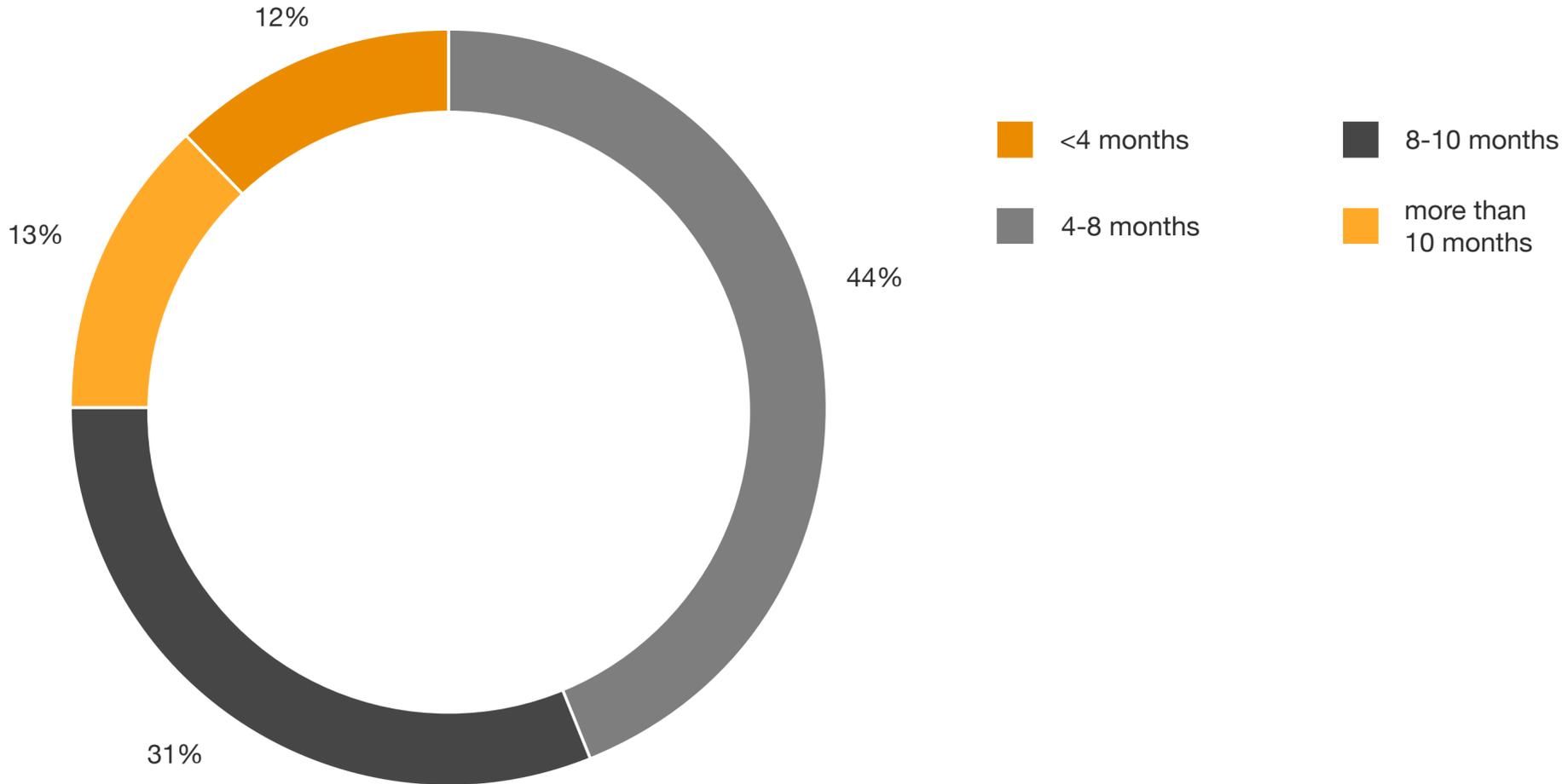
Basis: all data centre operators

Cooling technology used

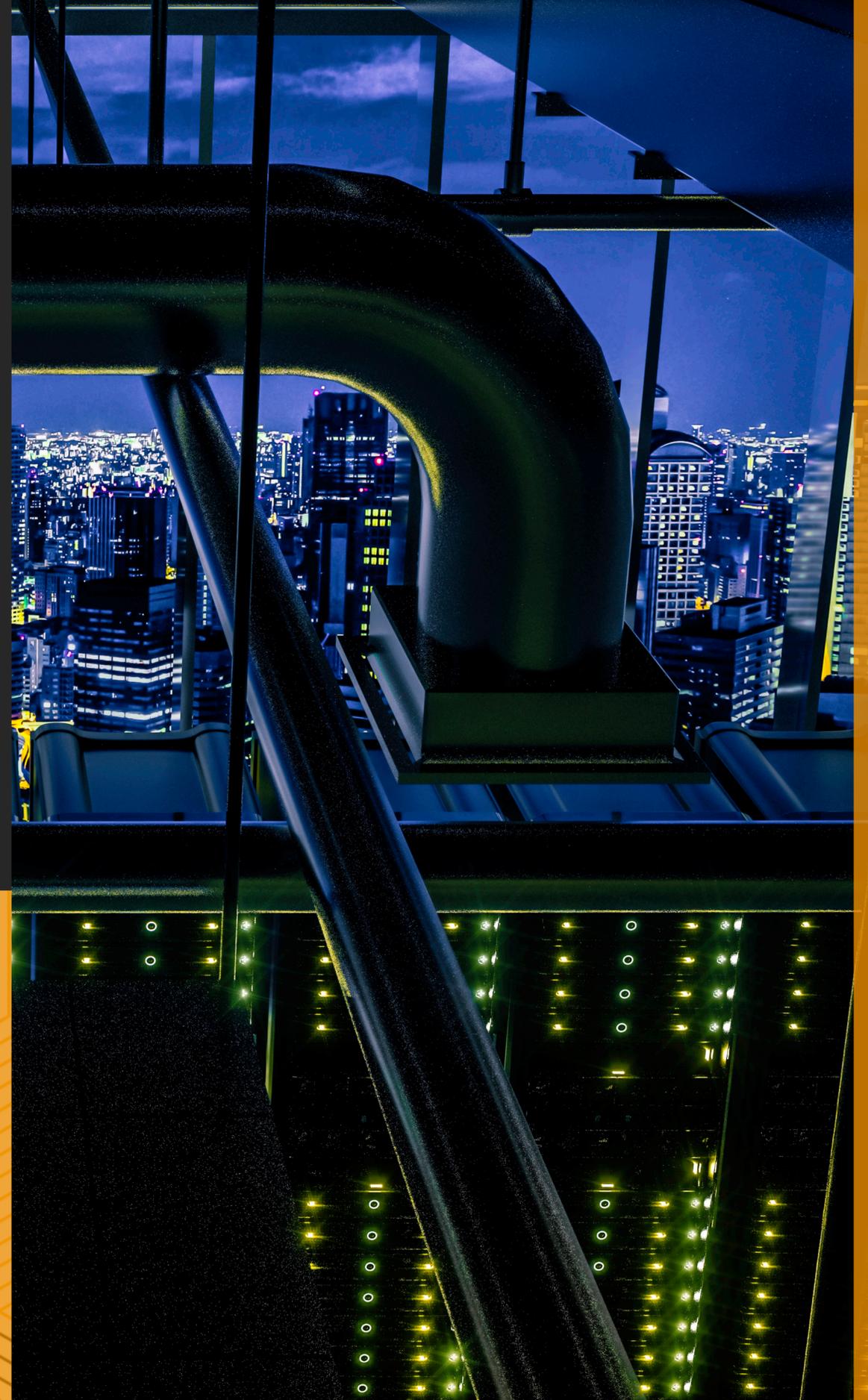
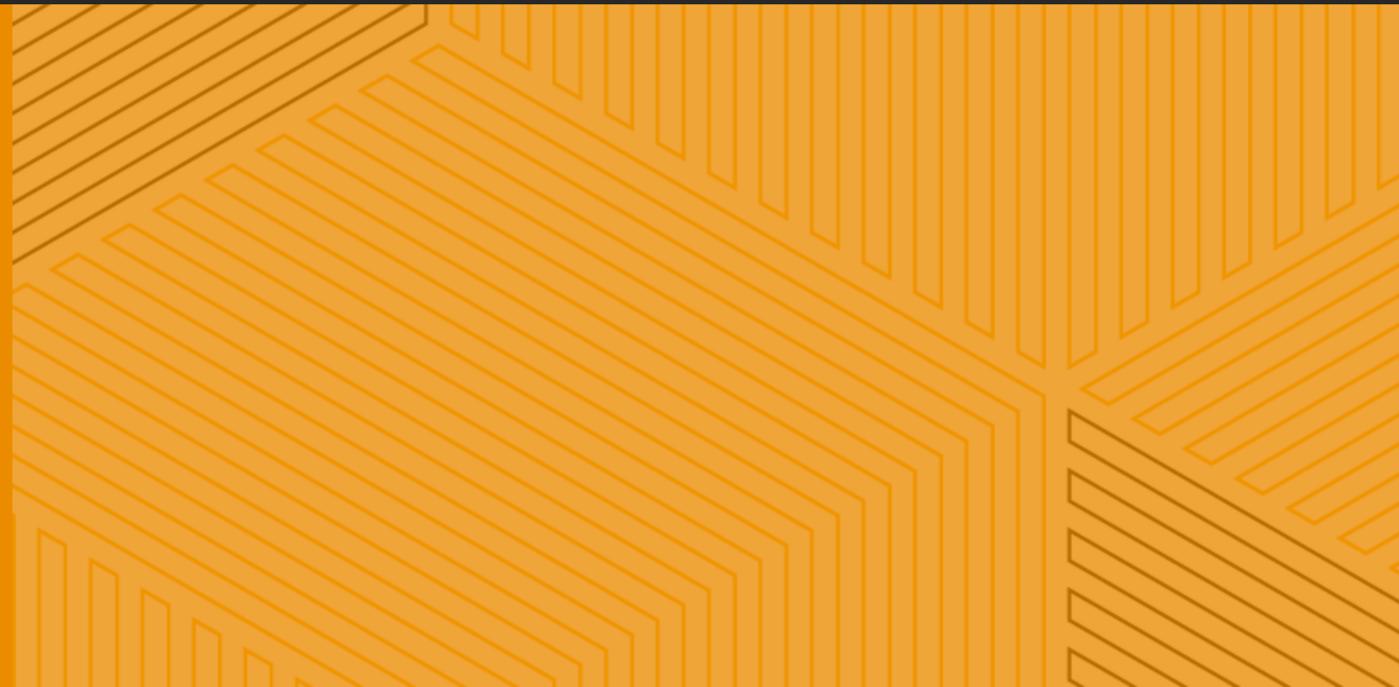
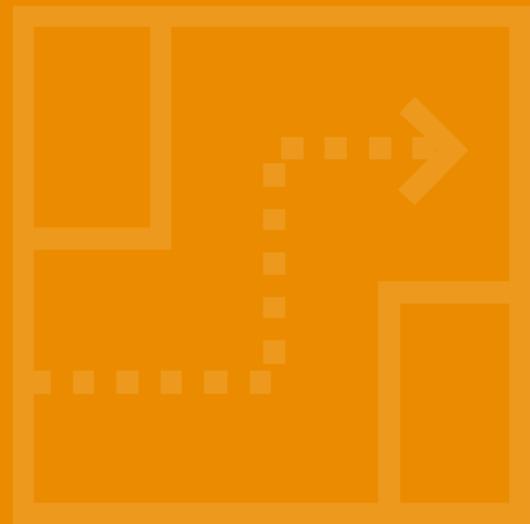
Nearly half of the operators surveyed can use free cooling more than 8 months per year



Cooling technology



Methodology



About the study



Background

This study presents the findings of a survey of real estate investors and data centre operators, performed by PwC and the GDA.

Approach

- Survey method: online-based, structured interviews with experts
- Target group: Decisionmakers at leading firms in the real estate investment sector and data centre operators
- Sample size: n = 72
- Survey period: primarily Q2-Q4
- Results have been rounded

Statistics



Type of firm

	Total
Real estate/infrastructure investor	52%
Data centre operator	48%



Employee headcount at firms surveyed

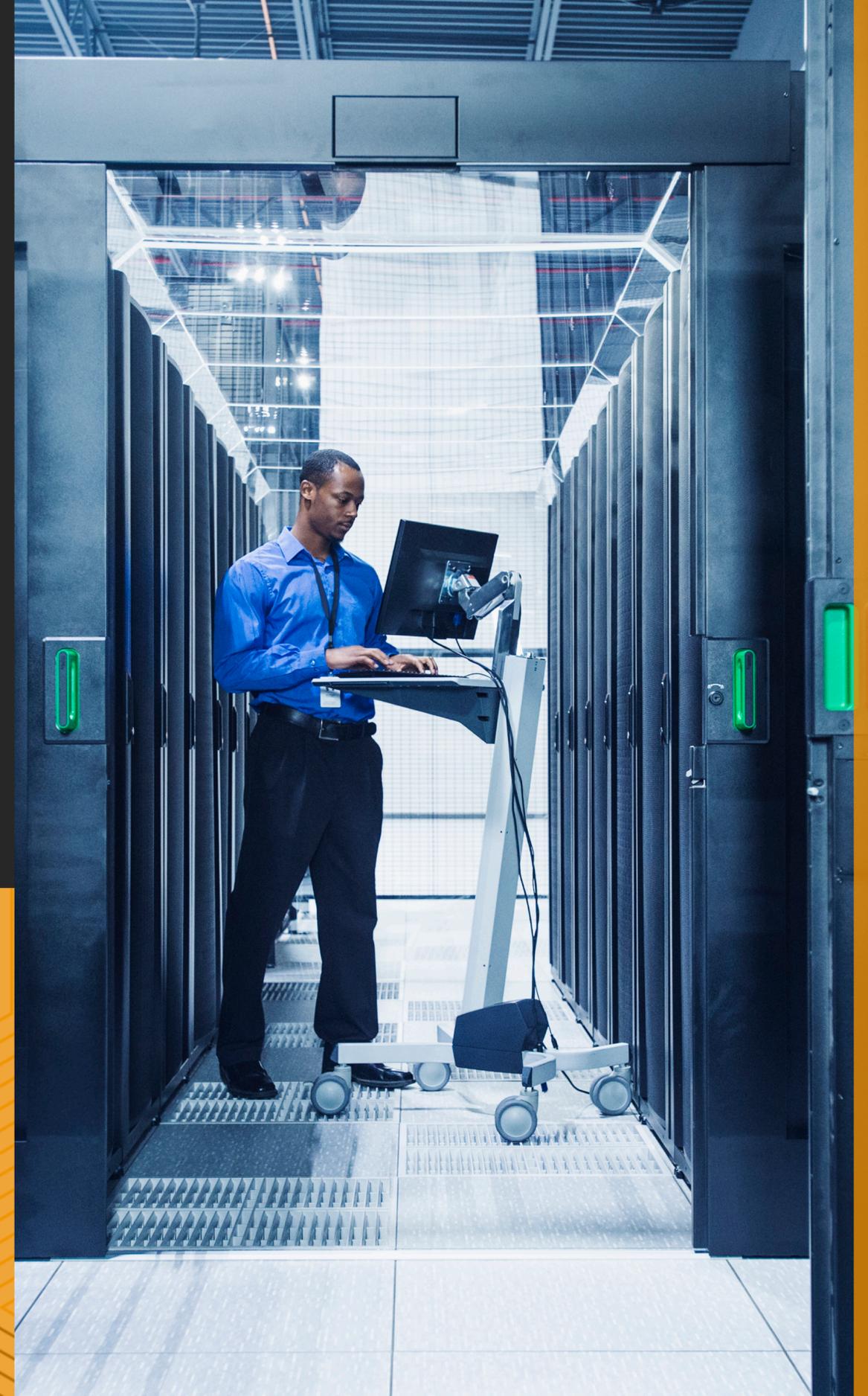
	Total
1-9	19%
10 - 24	8%
25 - 49	11%
50 - 99	11%
100 - 249	13%
250 - 499	11%
More than 500	27%



Assets under management

	Total
Less than €500 million	38%
€500 million to €1 billion	6%
€1 billion to €5 billion	25%
€5 billion to €10 billion	6%
More than €10 billion	25%

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