# Cleantech in the Nordics

## Market study

May 2024

Tesi CLIMATE FUND Industrifonden almi invest GreenTech EIFO nysnø Climate Investments Investinor

# The cleantech industry is a major innovation driver and employer in the Nordics – capital demand for upcoming years north of 15 b€

## Executive summary – cleantech companies and industrial projects in the Nordics

- In this study, we have studied Nordic startups and scaleups in the cleantech industry, and evaluated the funding dynamics of venture capital investments behind them. We have leveraged HolonIQ's Global ClimateTech taxonomy, mapping companies into 10 distinct categories considering e.g. the business models, technologies and relationships among the ecosystem companies.
- Cleantech companies play a significant role in the Nordics: not only do they develop and commercialize crucial innovations aiming towards a net zero future, but they also provide jobs, investments and wealth to the Nordic societies.
- The number of founded cleantech companies in the Nordics has been rather stable in recent years, with around 140 firms being founded annually. The figures are somewhat lower for 2022-23; likely a combination of a bearish overall market and the difficulty of identifying recently launched startups.
- Circular economy is by far the largest segment of the Nordic cleantech industry with 385 companies, whereas Storage is the largest category by employees (approx. 6,600 employees) and Built environment by net sales (1.7 b€).
- Storage is a clear outlier in terms of VC funding received per category, with over 7 b€ in VC funding between 2018-23. This is, however, largely due to Northvolt's 6.3 b€ funding rounds. Other significantly funded categories are Circular Economy (3.3 b€, of which 1.9 b€ H2 Green Steel) and Data + Finance (2.2 b€).
- First VC funding rounds are typically around 0.5 m€. The funding is typically multiplied by a factor of 3.3x in the next funding round, with multiple contraction in subsequent rounds. In general, round sizes have increased during 2017-23 in the three initial funding rounds. The funding typically lasts around 16-30 months, with the time between funding rounds decreasing second and third rounds, and a later uptick for further funding rounds.
- The overall cleantech VC funding market peaked in rounds below 100 m€ in 2022 with a slight decline in 2023. The overall market is, however, notably volatile due to the large effect of >100 m€ funding rounds (such as in the cases of H2 Green Steel and Northvolt). Based on historical funding development, we estimate the cleantech market to realistically[1] demand over 15 b€ equity funding between 2024-28, with a clear weight towards later funding rounds.
- To concretize the later-stage capital demand, we also have looked at >100 cleantech industrial projects being planned at the moment. The projects are weighted towards Resources and Circular Economy companies, and we estimate that for all those planned projects to be successful, they would need approx. 17 b€ equity funding in the upcoming years. These figures are, however, not comparable to the realistic funding demand estimate of 15 b€, as many of these industrial projects carry both technological and financing risk that is likely to lower the likelihood of completion.

1) Not all ventures receive, or deserve, further funding. Thus, we have relied on historical funding rates and figures rather than estimating the equity demand a startup company may wish to have funded.

# There's currently approx. 6 b€ cleantech-dedicated dry powder aimed at the Nordics – not nearly enough to cover the demand

## Executive summary – cleantech investors

- In this study, we have also looked at venture capital, growth, buyout and industrial infrastructure[1] equity investors based in the Nordics and estimated their capital availability for cleantech investments in the Nordics. The most relevant source of funding for rapidly growing startups is venture capital investors; in later stages of the growth journey also growth, buyout and industrial infrastructure investors become relevant.
- In general, we see a trend of equity funding becoming more and more dependent on foreign investors, whether non-Nordic European funds or funds based outside of the Nordics. The phenomenon is especially clear in later funding rounds and large investments.
- Relevant investors can, beyond the asset class division presented above, also be categorized by their focus. There's a growing number of investors dedicated specifically to the cleantech market, but also many generalist investors with a significant track record of doing investments in the cleantech market. Looking purely at the HQ locations of the Nordic cleantech and (relevant) generalist investors, Sweden stands out as by far the largest HQ country. Most of the available dry powder is, however, not aimed at any single country, but rather follow a pan-Nordic strategy or have an even wider geographical focus.
- We estimate there to be approx. 6 b€ Nordic cleantech-dedicated dry powder[2] available for investments in the Nordics, with most of it targeted at buyout and industrial infrastructure investments. The roughly 1.6 b€ VC and 0.9 b€ growth equity dry powder dedicated for cleantech investments is to some extent complemented by 8 b€ generalist VC dry powder and 2 b€ growth equity, but the generalists' funds should be seen more as opportunistic capital potentially available for cleantech investments rather than a commitment to green ventures.
- Comparing our conservative estimate of >15 b€ funding needed to continue financing the growth of Nordic cleantech firms to the dry powder available in the market, it is evident that there is not enough Nordic dry powder available in the market to fund the growth of Nordic cleantech companies. This statement holds true both on a general level, but especially in the later stages of the startups' development where larger rounds are needed to fund e.g. internationalization and industrialization of growth ventures. Currently, much of the gap is capitalized on by non-Nordic investors as the availability of Nordic later-stage VC financing is limited.
- To bridge the Nordic funding gap, there are three simplified options: more cleantech-specific funds targeting Nordic cleantech firms especially in their later stages; a continued dependence on international investors; or a larger allocation of generalists' funds directed towards cleantech investments.

1) The definition of industrial infrastructure excludes investors focused e.g. on wind farms or transport infrastructure
2) Dry powder refers to cash or highly liquid securities that investors have at hand but not yet deployed, i.e. capital available for new investments

# Study fundamentals

**7**
collaborating organisations

**8**
weeks of analysis

**1,590**
identified cleantech firms

**101**
identified industrial projects in planning

**84**
identified cleantech-focused Nordic investors

## Background and objectives

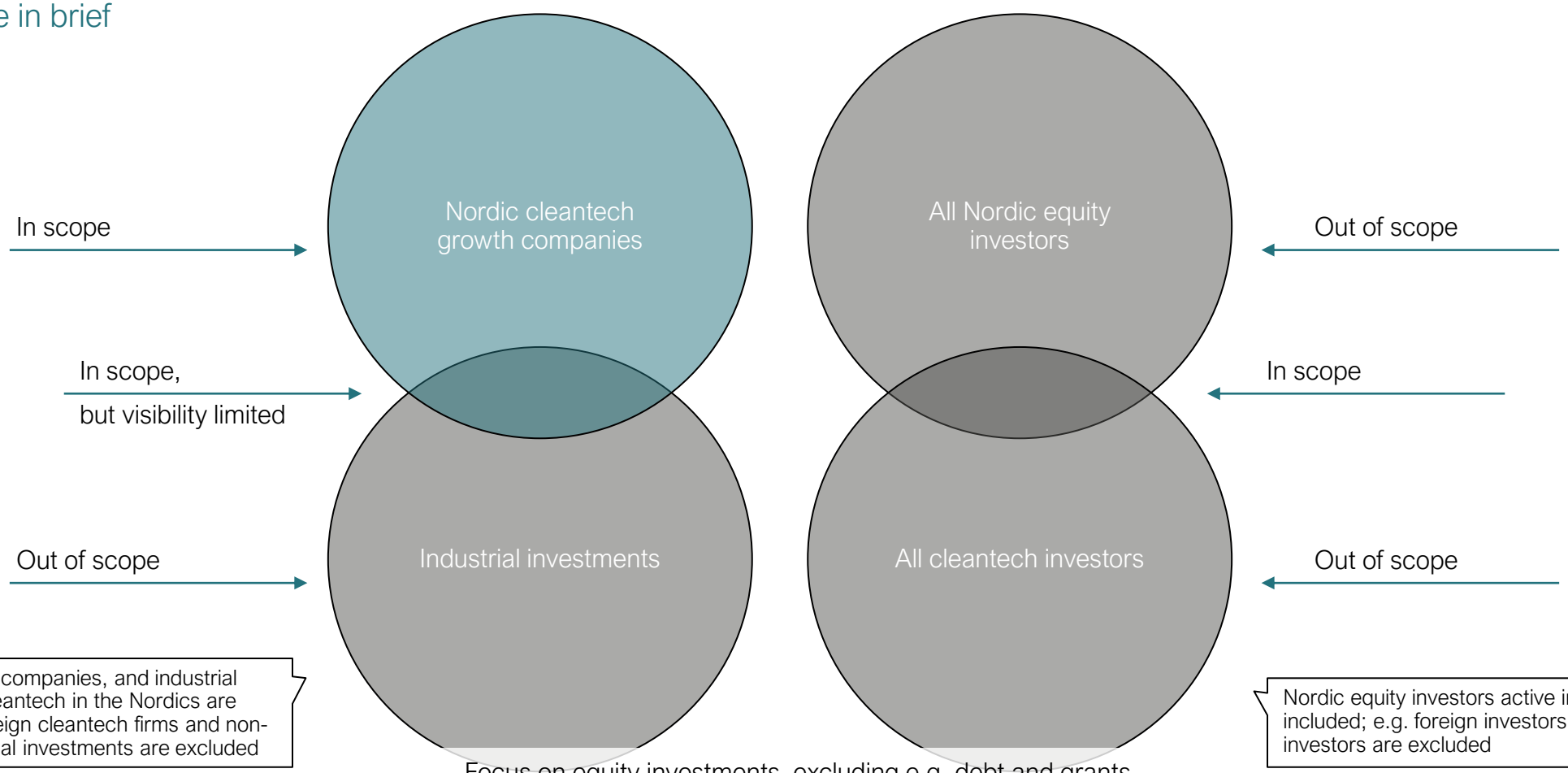
- Our mission is to enhance the transparency of the cleantech ecosystem by fostering collaboration among an increasingly diverse group of market participants, thereby creating a comprehensive perspective.
- By partnering among Nordic public investors, we have set out to increase the transparency of the cleantech market and disseminate market developments.
- The primary goal of the research is to create a fundamental understanding of the Nordic cleantech industry, and evaluate whether there is sufficient funding available by Nordic investors to Nordic growth companies.
- In addition to providing a view on market participants, both in terms of growth companies and their investors, we have mapped industrial investments currently being planned across the Nordics.

## Limitations

- We recognize that our study may not include all relevant companies in the Nordics. This is partially due to limitations in data availability – to our knowledge, there is no fully accurate and up-to-date database of Nordic cleantech firms or investors. Furthermore, the evaluation of ”cleantech” is subjective, and differences both in categorization and inclusion/exclusion between our study and others’ are likely.
- The data used for this study has been collected from several databases (listed in the appendix) and by the local market knowledge of the study participants. Slight deviations in definitions between the sources are possible, data utilized may be incomplete or faulty, and in cases where data is not available, we have given a rough estimate.
- Financial information for smaller Danish companies is limited, lowering the comparability in financials between the countries.
- This study mostly looks at the Nordics as a whole; country-by-country differences are possible.

# Our analysis of the Nordic cleantech market is focusing on Nordic companies, industrial projects and Nordic equity investors

## Study scope in brief




Nordic cleantech companies, and industrial investments in cleantech in the Nordics are included; e.g. foreign cleantech firms and non-cleantech industrial investments are excluded

Nordic equity investors active in cleantech are included; e.g. foreign investors and debt investors are excluded

Focus on equity investments, excluding e.g. debt and grants

# We have mapped the Nordic cleantech market by including active growth companies headquartered in the Nordics and focusing on cleantech

## Inclusion criteria for company analysis

### Growth companies

VC funding received between 2018-24

or

Over 10 FTEs, and >20% CAGR in sales or FTE count

Manual adjustments for most relevant companies not captured by above metrics

### Headquartered in the Nordics

Standalone firm or mother company with headquarters in Finland, Sweden, Norway or Denmark

### Focused on cleantech

- The company has an emissions-focused or net zero–focused strategy
- The company addresses a challenge area or lever of critical importance to reaching net zero
- The company demonstrates innovation or use of technology

### Active company with financial data available

We have leveraged a wide number of company and transaction databases to identify relevant companies active today; see appendix for detailed sources. We do, however, note the lack of transparent financial data for smaller Danish companies (e.g. in terms of revenues and profitability).

# The categorization used in this study is based on HolonIQ's Climate Tech taxonomy, which splits cleantech/climatetech into 10 distinct categories

## HolonIQ Global Climate Tech Landscape 1.0 Taxonomy

| Category | Renewables | Resources | Storage | Biosphere | Agriculture + Food | Circular Economy | Carbon Markets | Data + Finance | Built Environment | Mobility |
|---|---|---|---|---|---|---|---|---|---|---|
| Description | Technologies and systems for generating energy from renewable sources | Management and conservation of natural resources | Solutions for storing energy sustainably, particularly from renewable sources | Preservation and restoration of ecosystems and biodiversity | Innovations in agriculture and food production to reduce environmental impact | Systems designed to eliminate waste and continuously reuse resources | Carbon capture and trading of carbon emission allowances to incentivize reduction of greenhouse gases | Data and financial services to support climate initiatives | Sustainable construction and infrastructure development | Transportation solutions that minimize ecological footprint |
| Sub-categories | • Solar<br>• Wind<br>• Hydro<br>• Geothermal<br>• Biomass | • Hydrogen<br>• Nuclear<br>• Minerals<br>• Oil Transition<br>• Gas Transition | • Batteries<br>• Alternative, Grids<br>• EV Charging<br>• P2P | • Land<br>• Forests<br>• Oceans<br>• Ice and Snow<br>• Air | • Smart Farming<br>• Crops<br>• Livestock<br>• Meat + Seafood<br>• Dairy + Egg | • Materials<br>• Recycling<br>• Solid Waste<br>• Water Waste<br>• Textiles | • Carbon Capture and Storage<br>• B2B/B2C Offsets<br>• Carbon Intelligence | • IoT<br>• Climate Data<br>• Climate Finance<br>• Climate Risk<br>• Insurance | • Design and constr'n<br>• Heating and Cooling<br>• Residential<br>• Commercia<br>• Transport Infra | • Micro Mobility<br>• Vehicles<br>• Trains, Boats and Ships<br>• Aircraft |
| Example firms | BIOGASOL, skyrex | UMOE, nel | ferroamp, northvolt | QleanAir, SMART OCEAN | OATLY!, ODDLY GOOD | Spinnova, BETOLAR | Ocean GeoLoop, ZERO NORTH | KELLUU, Logmore | polarmatic, LEMKEM | NORSEPOWER, einride |

Note: The company categorization is subjective, and many cleantech firms can be argued to belong to several categories.

# Our analysis consists of approximately 1,600 companies across the cleantech spectrum – sample weighted towards firms with low or no revenue

## Key figures by category and revenue size group

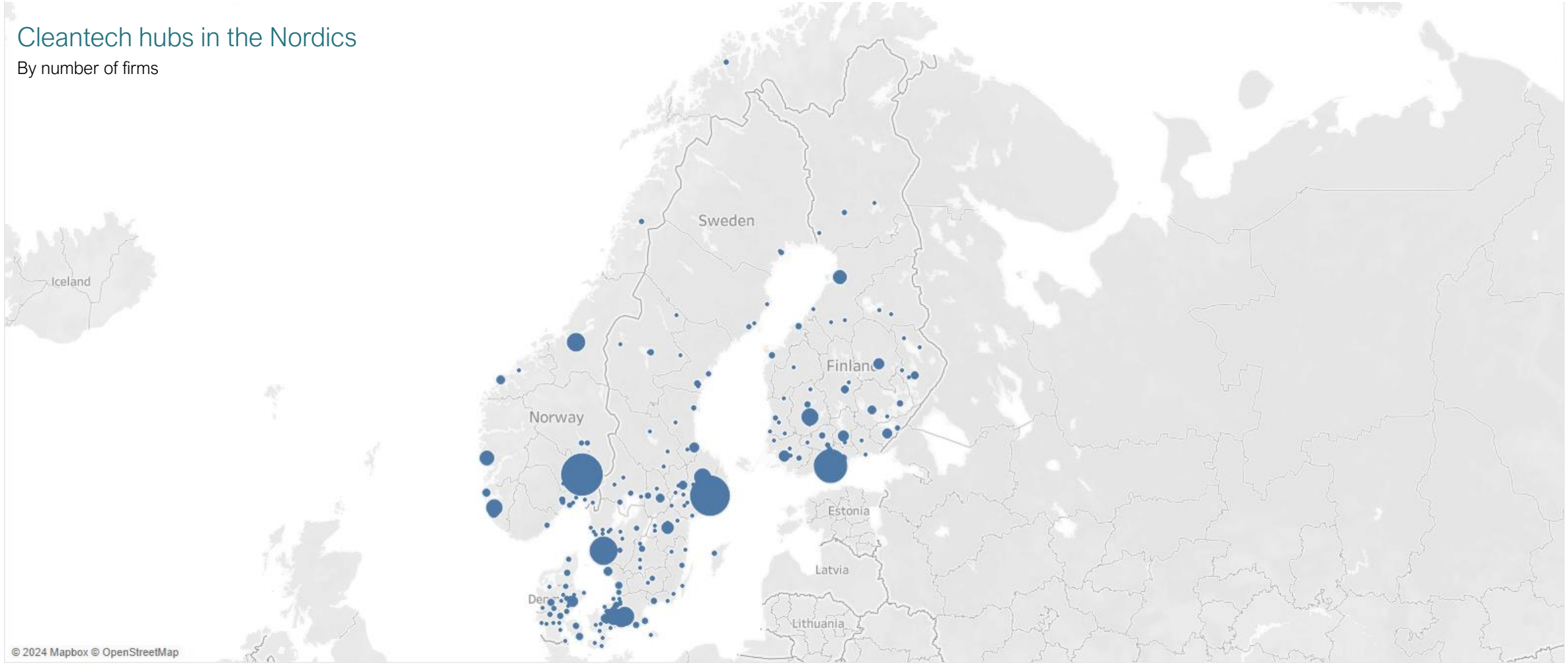
| | | Renewables | Resources | Storage | Biosphere | Agr. + Food | Circular Economy | Carbon Markets | Data + Finance | Built Environment | Mobility |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sales >50 m€ | Example firms | | HEXAGON PURUS, nel | northvolt, easee | | humble group, OATLY! | Swappie, GEMINOR | AKER CARBON CAPTURE | tibber, RELEX | Adapteo. | NAVTOR |
| | # of firms | | 2 | 5 | | 4 | 10 | 1 | 5 | 3 | 2 |
| | Median sales, m€ | | 93 | 109.3 | | 247.7 | 69.2 | 77.3 | 150.1 | 349.5 | 63.1 |
| | Median sales CAGR, % | | 13.9 % | 61.9 % | | 26.5 % | 11.0 % | 0.0 % | 34.4 % | 9.2 % | 22.9 % |
| | Median EBITDA, % | | -21.6 % | 4.9 % | | -17.8 % | 4.1 % | -27.1 % | -3.6 % | 33.0 % | 0.6 % |
| Sales 10-50 m€ | Example firms | qmatec, SAALASTI | POWERCELL, UMOE | eways, ferroamp | AIRTHINGS, QleanAir | ODDLY GOOD, Redox | Spinnova, FINTOIL | Ocean GeoLoop | enerim, Normative | LEMKEM, Plejd | HYRE, GreenMobility |
| | # of firms | 3 | 3 | 13 | 2 | 5 | 19 | 1 | 4 | 7 | 5 |
| | Median sales, m€ | 15 | 23 | 19.3 | 38.6 | 13.3 | 16.9 | 12.7 | 30.3 | 27.3 | 13.9 |
| | Median sales CAGR, % | 13.7 % | 18.2 % | 36.5 % | 15.1 % | 21.5 % | 7.0 % | 0.0 % | 127.2 % | 37.6 % | 56.0 % |
| | Median EBITDA, % | 8.4 % | 5.4 % | -20.7 % | -10.1 % | 1.2 % | 6.4 % | -25.2 % | -26.9 % | 7.1 % | -34.8 % |
| Sales <10 m€ | Example firms | QHEAT, skyrex | elcogen, Everfuel | ENEQUI, MORROW | arbonaut, SMART OCEAN | NETLED, Aquabyte | IMPACT COATINGS, Norditek | ZERO NORTH, EKOLUTION | Logmore | polarmatic, ChromoGenics | NORSEPOWER, einride |
| | # of firms | 62 | 43 | 76 | 57 | 102 | 242 | 48 | 150 | 102 | 71 |
| | Median sales, m€ | 0.3 | 0.2 | 0.4 | 0.2 | 0.2 | 0.2 | 0.1 | 0.3 | 0.4 | 0.3 |
| | Median sales CAGR, % | 26.5 % | 5.0 % | 30.1 % | 21.8 % | 20.2 % | 23.5 % | 45.5 % | 22.2 % | 18.5 % | 31.0 % |
| | Median EBITDA, % | -134.9 % | -201.8 % | -65.3 % | -135.9 % | -154.2 % | -76.8 % | -138.5 % | -82.2 % | -61.5 % | -124.7 % |
| No fin. data | # of firms | 68 | 25 | 45 | 18 | 81 | 114 | 31 | 67 | 46 | 48 |

Note: Many smaller Danish companies have limited financial transparency, and are as a result missing from the comparison.

# The Nordic capitals and Gothenburg stand out as key locations by number of firms

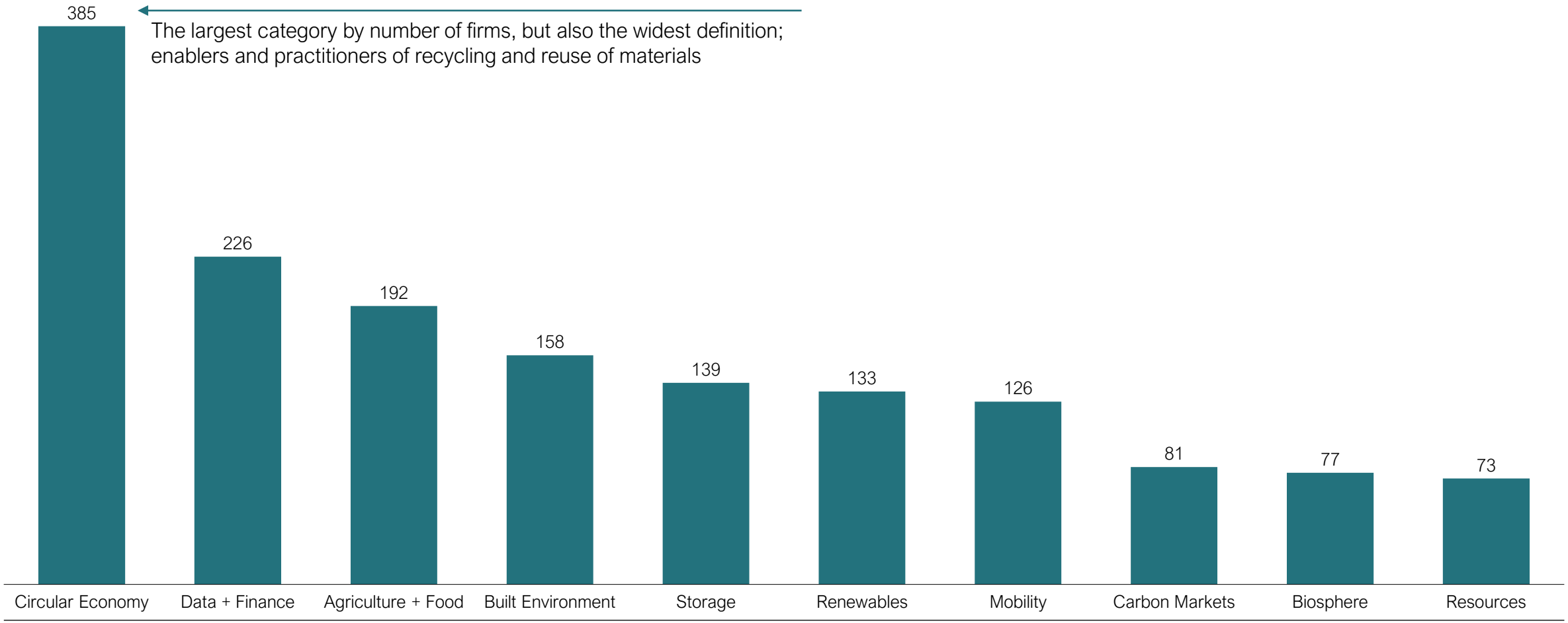
## Cleantech hubs in the Nordics

By number of firms



# Circular economy is by far the largest cleantech category by number of firms among Nordic growth companies

## Number of companies per category

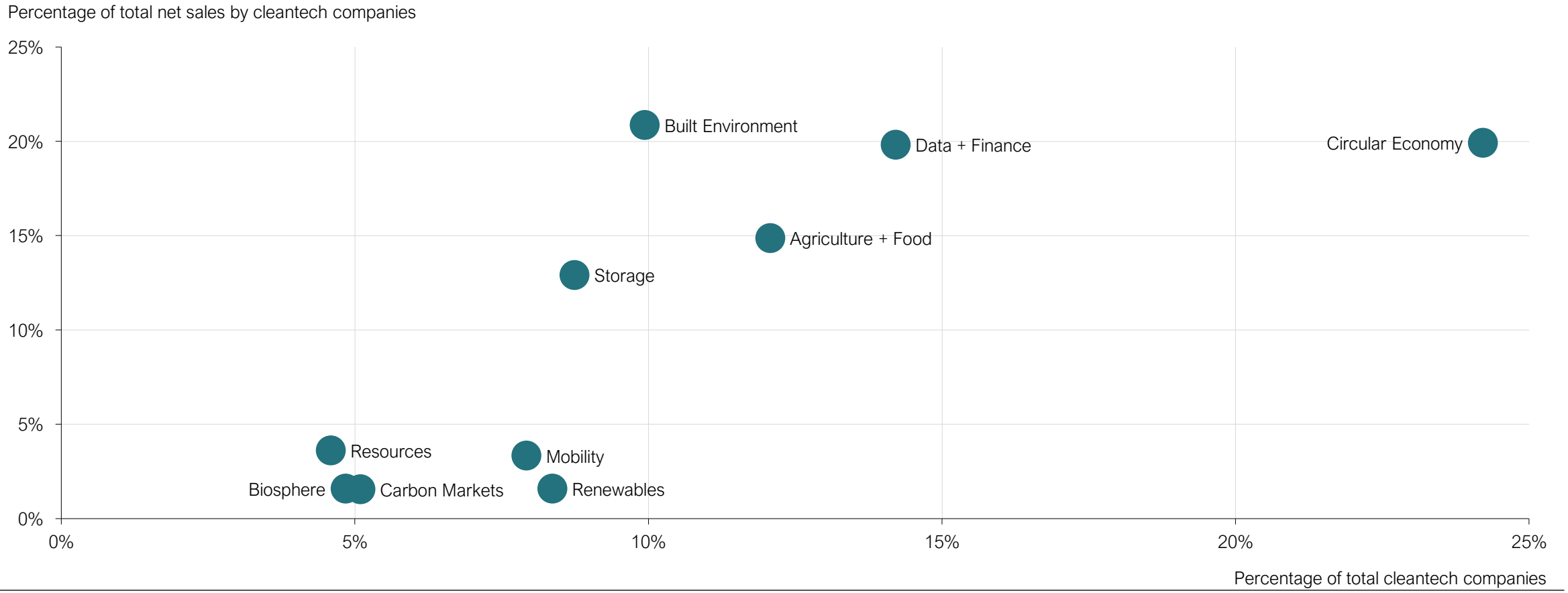



Source: Team analysis, Nordic Statistics

# Circular economy is the largest category both by firm count and share of total sales, followed by Data + Finance and Built Environment

## Categories compared by share of total sales and share of number of companies

2022, %

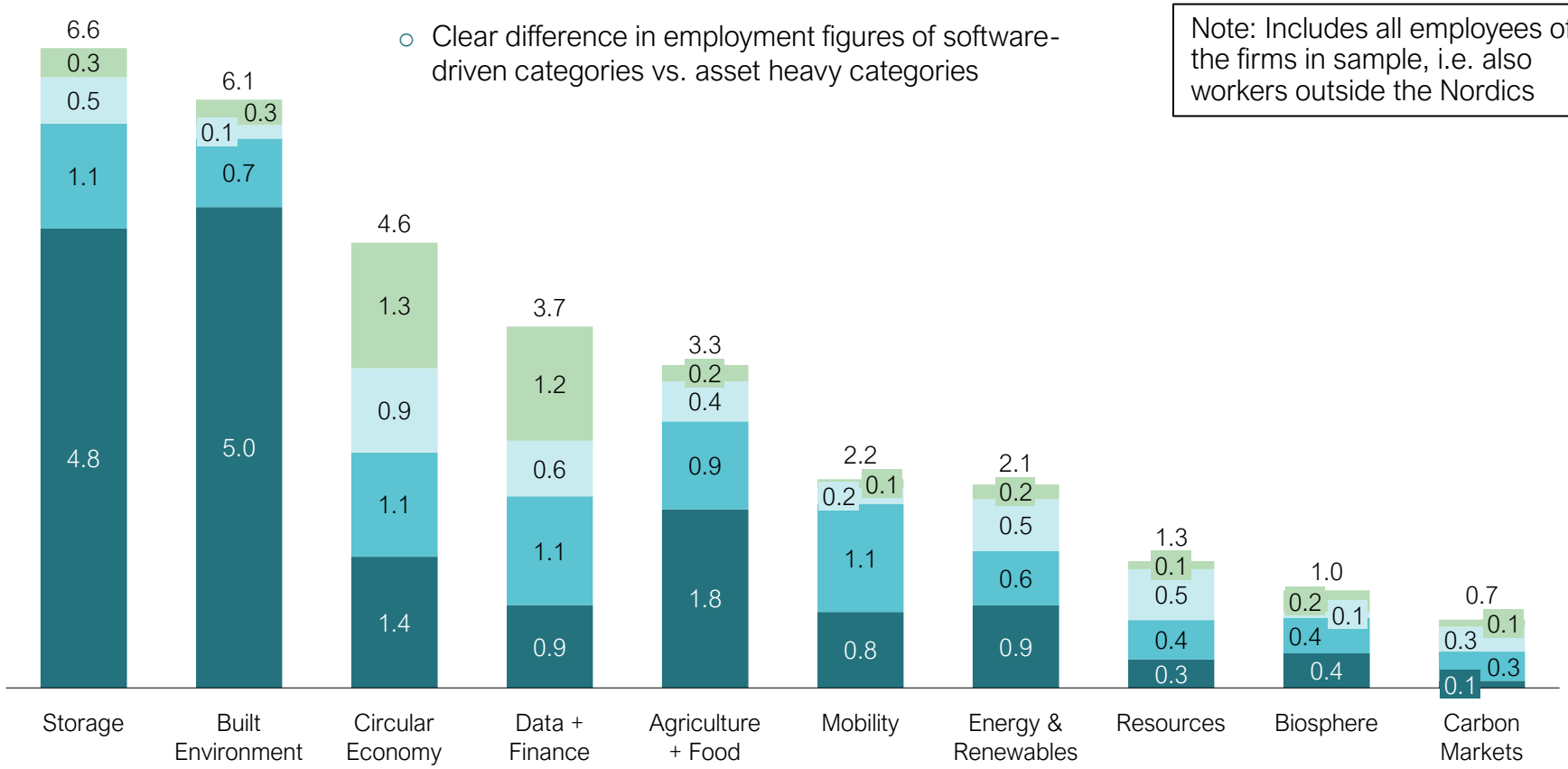



Note: Many smaller Danish companies have limited financial transparency, and are as a result missing from the net sales comparison.

# Storage and Built Environment are the largest employers, likely due to their asset-heavy nature

## Number of employees per country and category

Employees in thousands, 2022

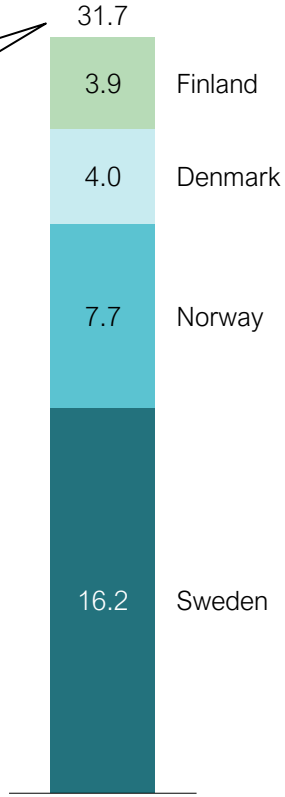



- Clear difference in employment figures of software-driven categories vs. asset heavy categories

Note: Includes all employees of the firms in sample, i.e. also workers outside the Nordics

## Employees per HQ country

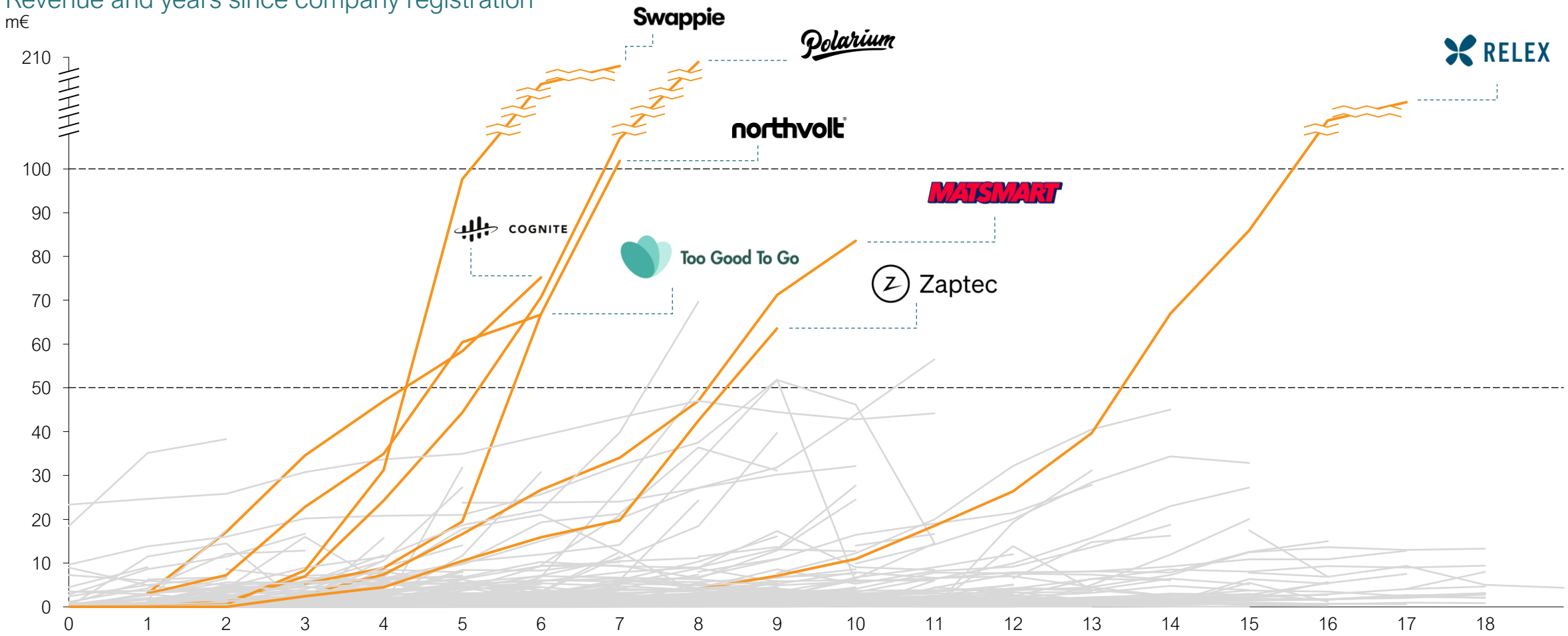
Employees in thousands, 2022




Source: Team analysis and Nordic Statistics

# The largest scaleups have taken years to build to revenues over 100 m€

## Revenue and years since company registration

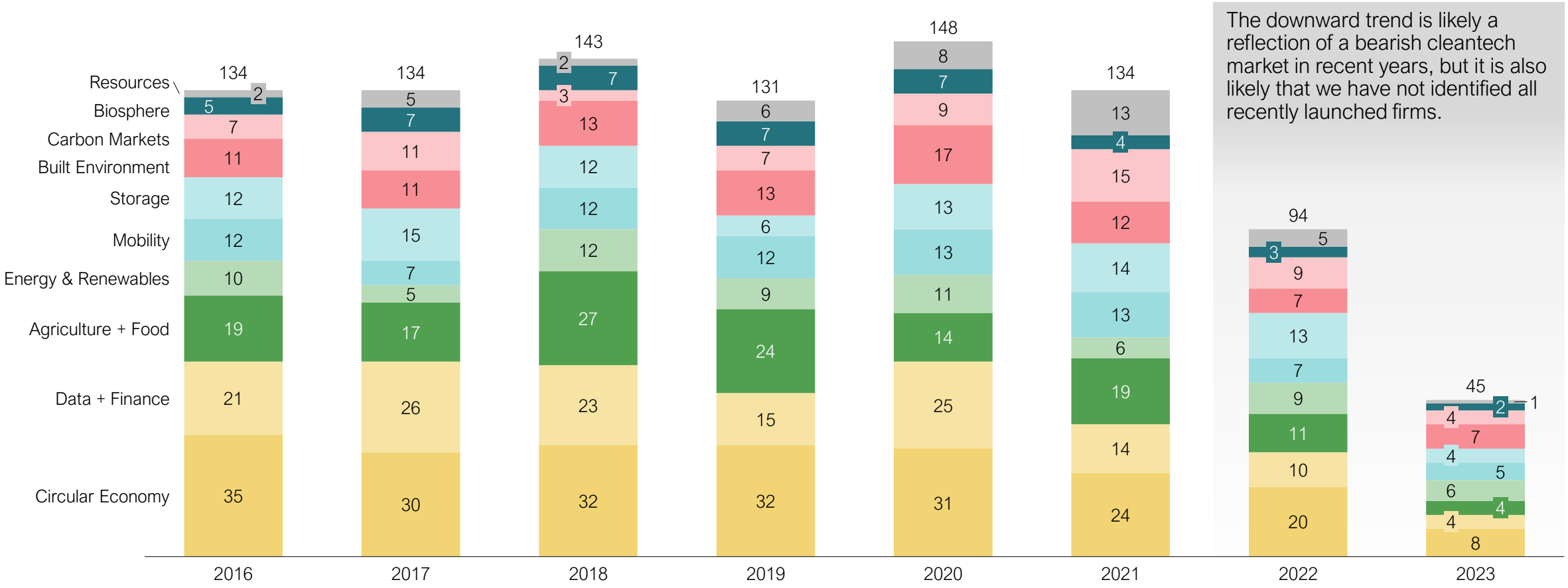



Note: Financial data for all companies all years not available; especially many smaller Danish companies have limited financial transparency and are as a result missing from the comparison.

# Cleantech companies have been founded at a steady rate during the past eight years, slight downturn in recent years

## Companies by category and founding year

Count of companies, 2016-23



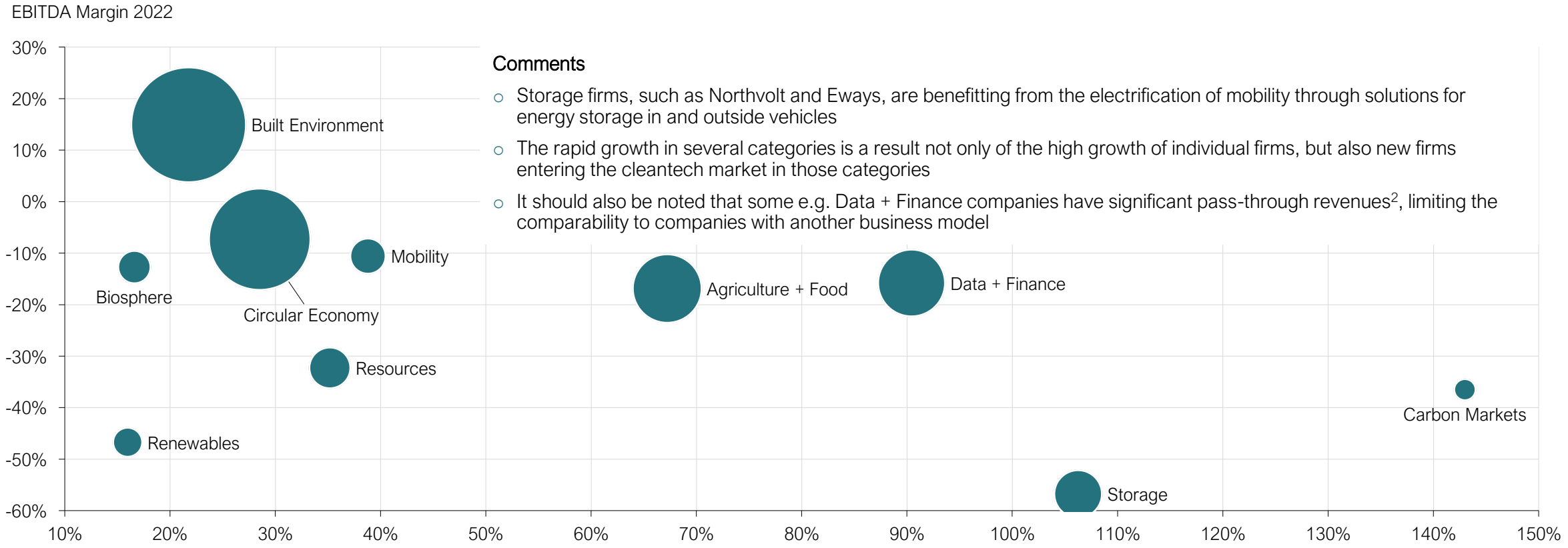

Note: The study sample also includes firms founded prior to 2016, but the count of them is significantly lower due to the criteria for startups to have received VC funding between 2018-24.

# Growth correlated with unprofitability; Built Environment is enjoying post-growth profitability, while Carbon Markets & Storage show triple-digit growth rates

## Sales, sales development and profitability by category[1]

Category total sales (2022), Category total sales CAGR (2018-22), Category total EBITDA margin (2022)

*The area of the circle is proportional to the category total sales 2022*




**Comments**

- Storage firms, such as Northvolt and Eways, are benefitting from the electrification of mobility through solutions for energy storage in and outside vehicles
- The rapid growth in several categories is a result not only of the high growth of individual firms, but also new firms entering the cleantech market in those categories
- It should also be noted that some e.g. Data + Finance companies have significant pass-through revenues[2], limiting the comparability to companies with another business model

1) Many smaller Danish companies have limited financial transparency, and are as a result missing from the comparison
2) Pass-through revenues could stem from e.g. reselling electricity and recognising the price of the resold energy in their revenues

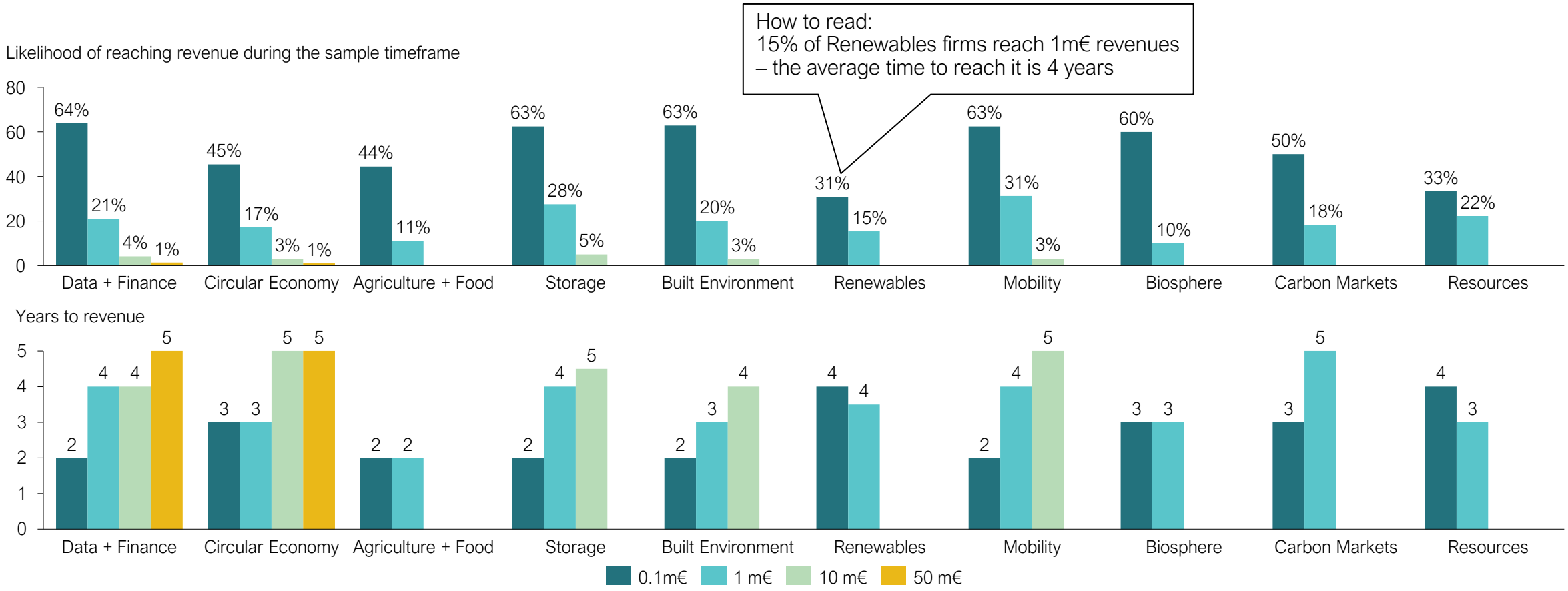
# Few companies scale from €1 million to €10 million in revenue, but those who do achieve it rapidly

## Likelihood of reaching revenue thresholds, and time needed for it

% of companies reaching revenues within 6-8 years; Years since business registration

Sample of firms[1;2]

Registered between 2016-18 (n=417)




1) The sample only includes companies still active today; many cleantech firms founded in those years have likely already ceased operations
2) Many smaller Danish companies have limited financial transparency, and are as a result missing from the comparison.

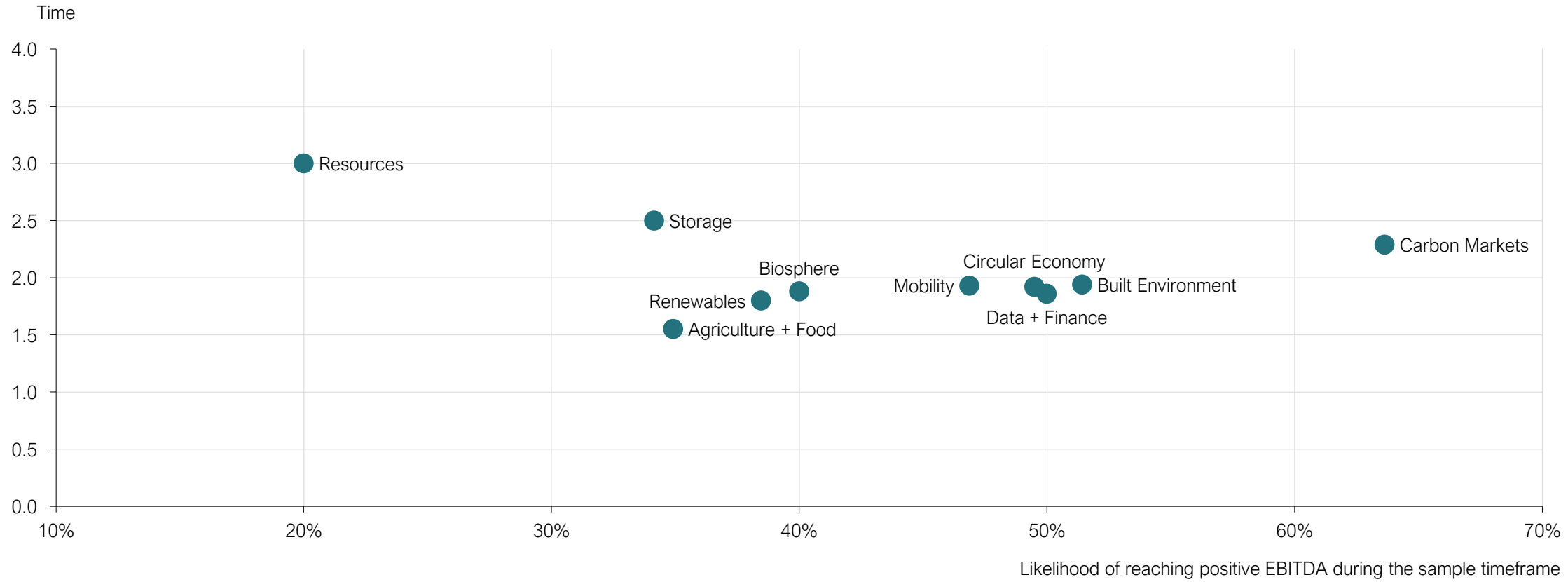
# The proportion of companies achieving positive EBITDA varies significantly across cleantech categories

## Likelihood of reaching positive EBITDA, and time needed for it

% of companies reaching positive EBITDA within 6-8 years; Years until (first) positive EBITDA since business registration

Sample of firms[1;2]

Registered between 2016-18 (n=417)

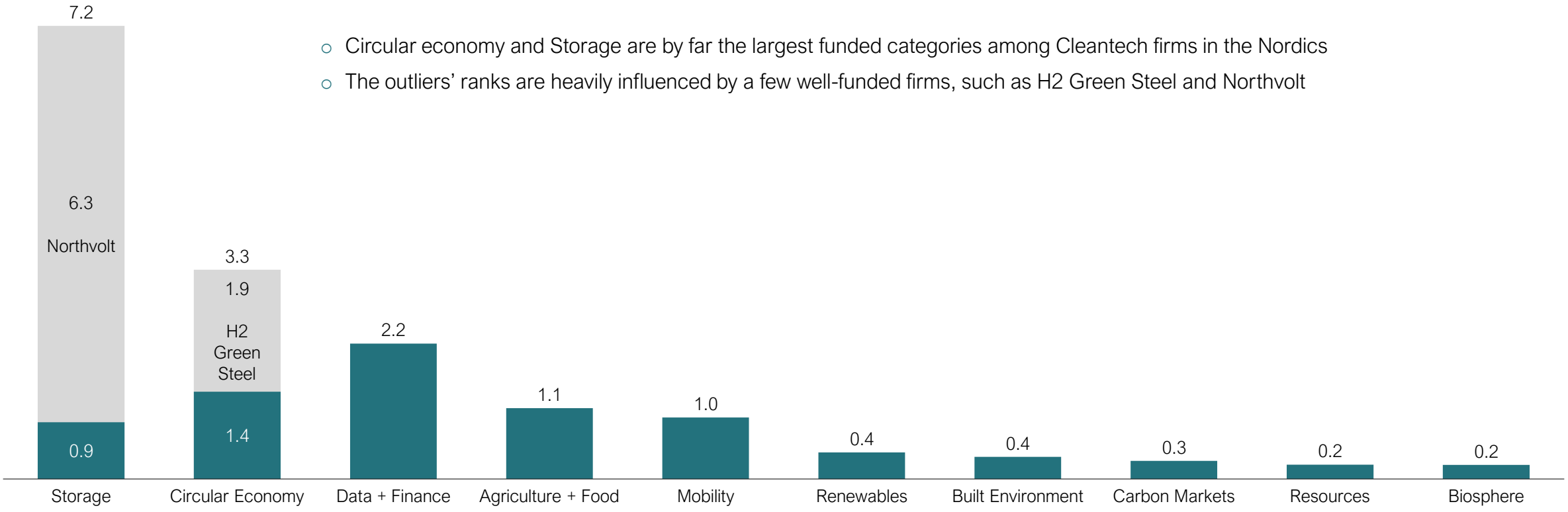



1) The sample only includes companies still active today; many cleantech firms founded in those years have likely already ceased operations
2) Many smaller Danish companies have limited financial transparency, and are as a result missing from the comparison.

# Circular Economy and Storage are the best-funded cleantech categories – largely due to H2 Green Steel and Northvolt

## VC funding by category

Funding in b€, 2018-23

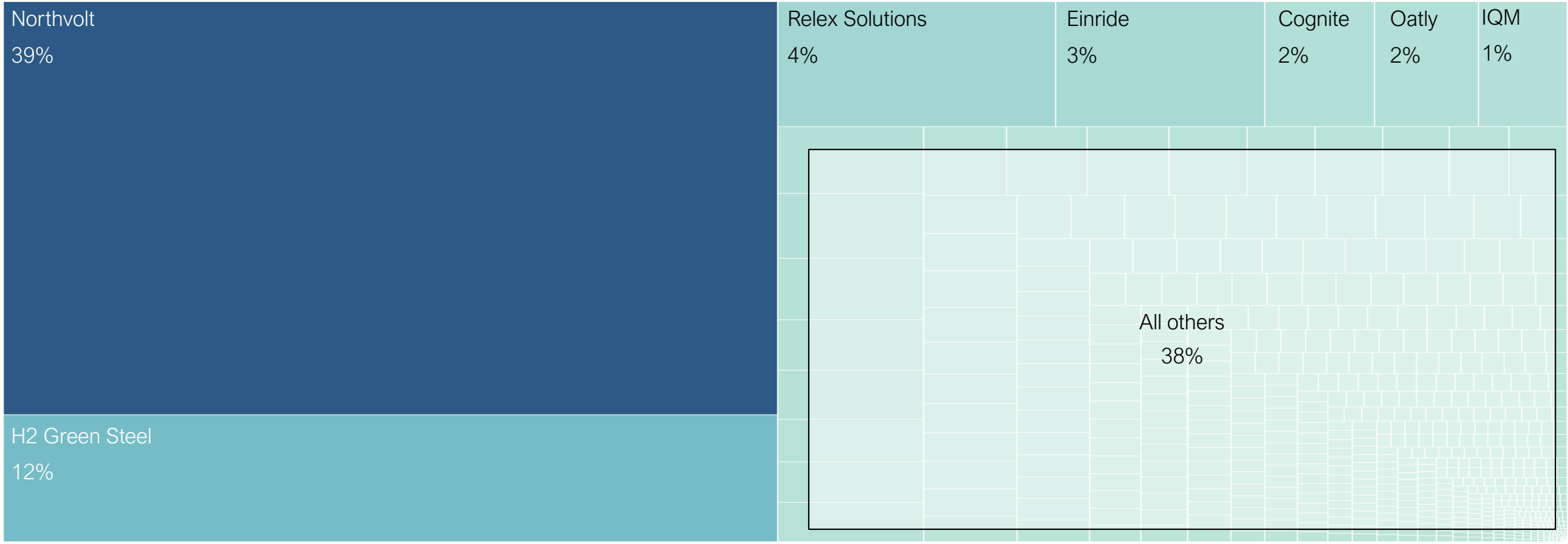



- Circular economy and Storage are by far the largest funded categories among Cleantech firms in the Nordics
- The outliers' ranks are heavily influenced by a few well-funded firms, such as H2 Green Steel and Northvolt

# The two largest fundraisers, H2 Green Steel and Northvolt, have collected over half of the VC funding in recent years

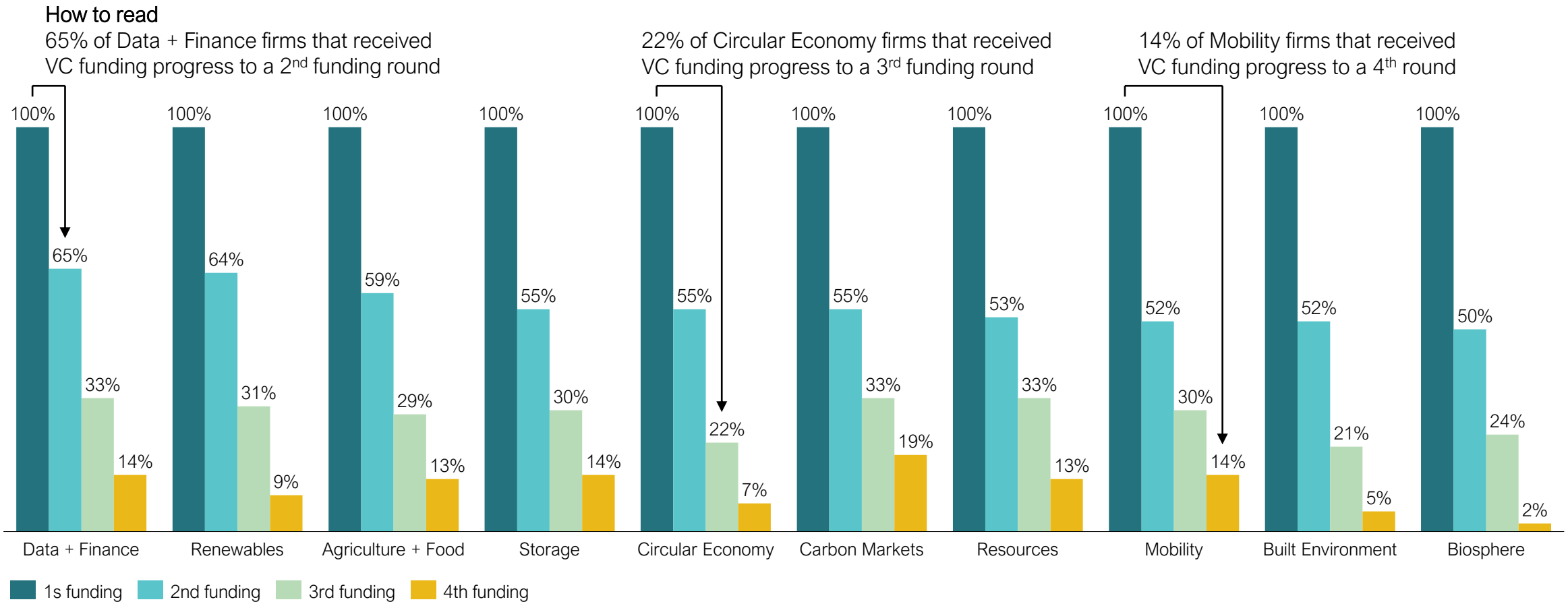
## Equity funding by firm

% of total identified VC funding rounds, 2018-23



# Over half of the cleantech firms that have received VC funding progress to the next funding round

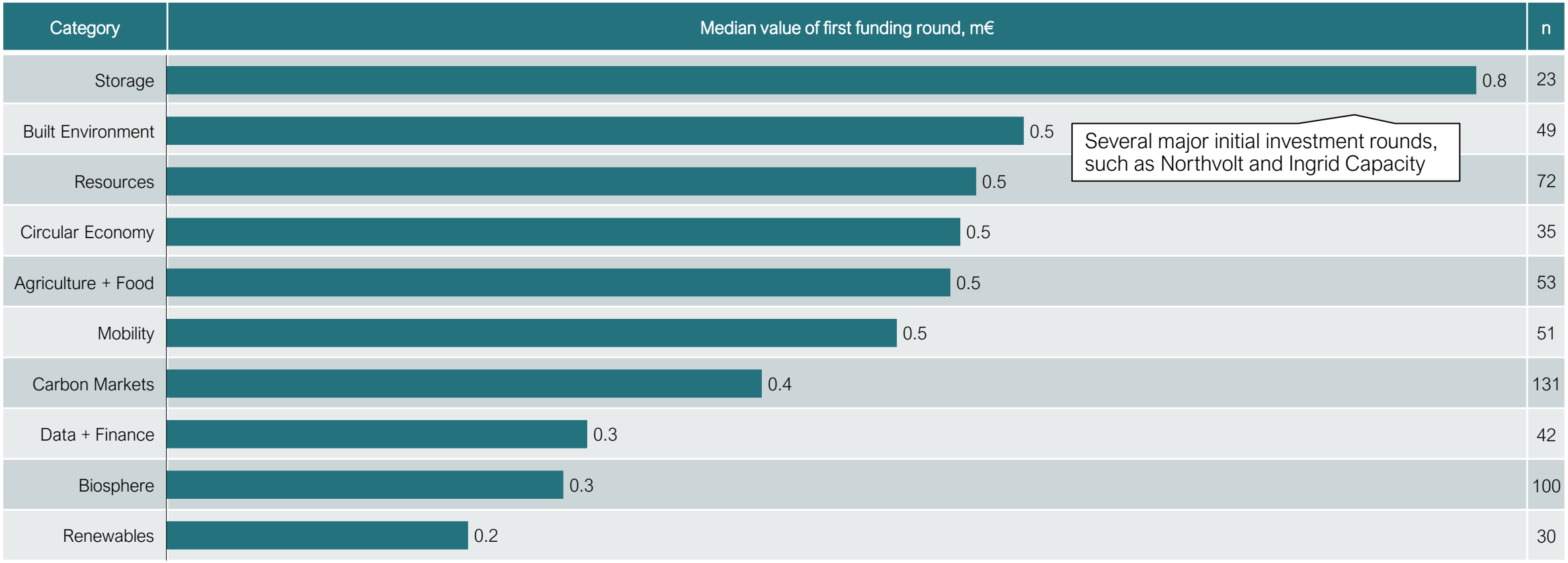
## Graduation rate analysis – the share of firms that have received VC funding receiving later financing



# Typical first VC rounds are around 0.5 m€, Storage leads the way in the first funding round size

## Median first funding round size by category

m€

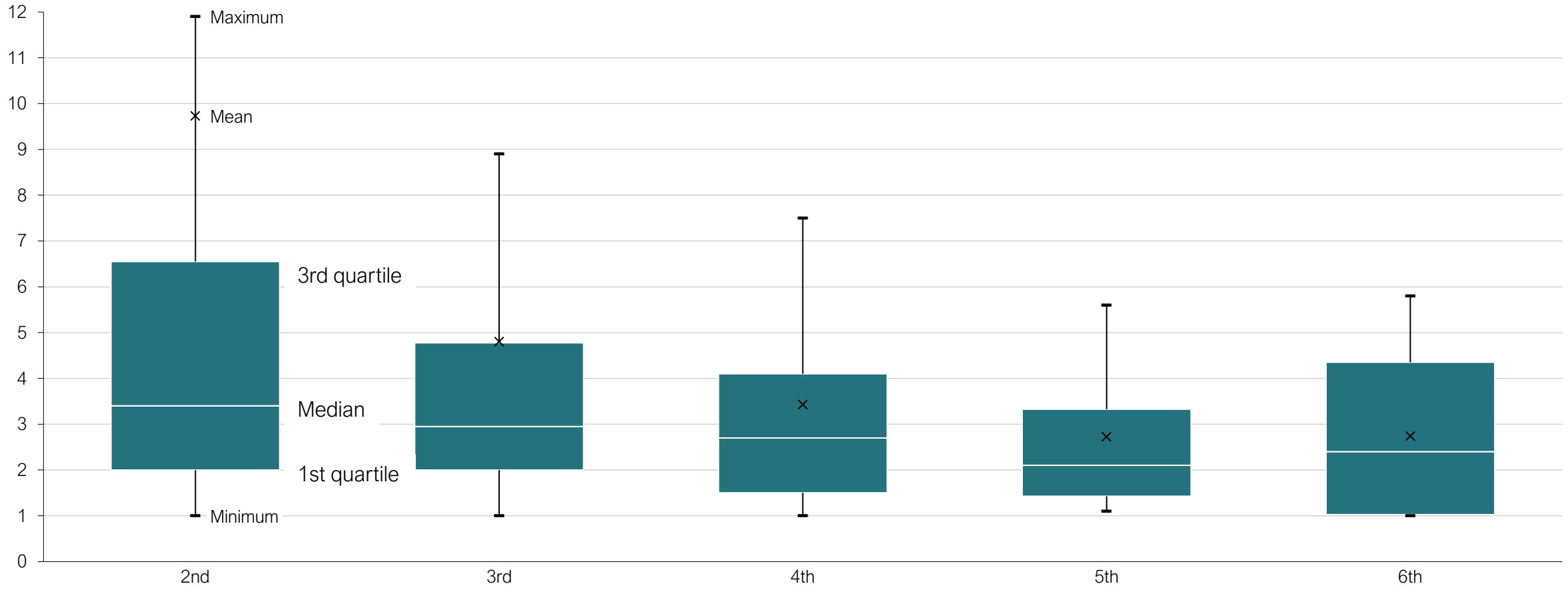



| Category | Median value of first funding round, m€ | n |
|---|---|---|
| Storage | 0.8 | 23 |
| Built Environment | 0.5 | 49 |
| Resources | 0.5 | 72 |
| Circular Economy | 0.5 | 35 |
| Agriculture + Food | 0.5 | 53 |
| Mobility | 0.5 | 51 |
| Carbon Markets | 0.4 | 131 |
| Data + Finance | 0.3 | 42 |
| Biosphere | 0.3 | 100 |
| Renewables | 0.2 | 30 |

# The typical second VC round is 3.3 times the size of the first round – the difference between round sizes decreases gradually by each further round

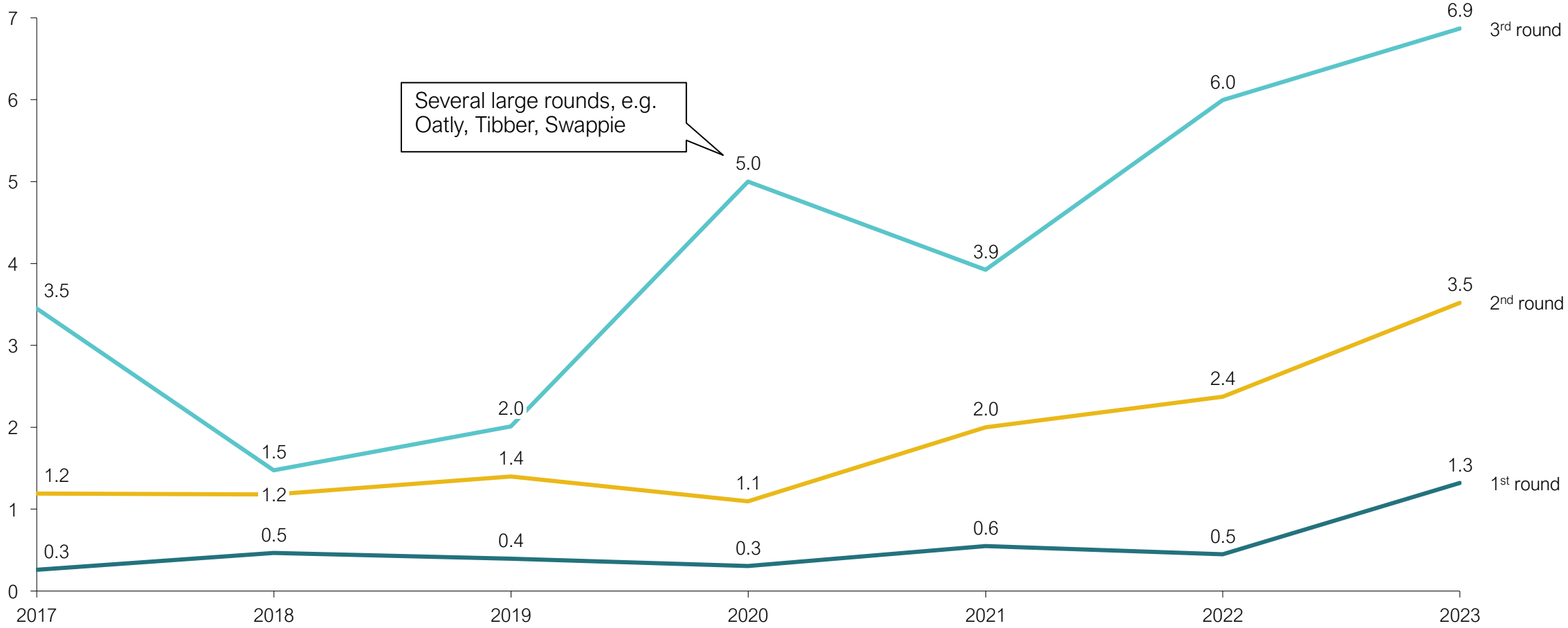
## Round size multiple compared to previous round

Firm-by-firm comparison between round sizes



# Round sizes have been increasing in the early VC rounds

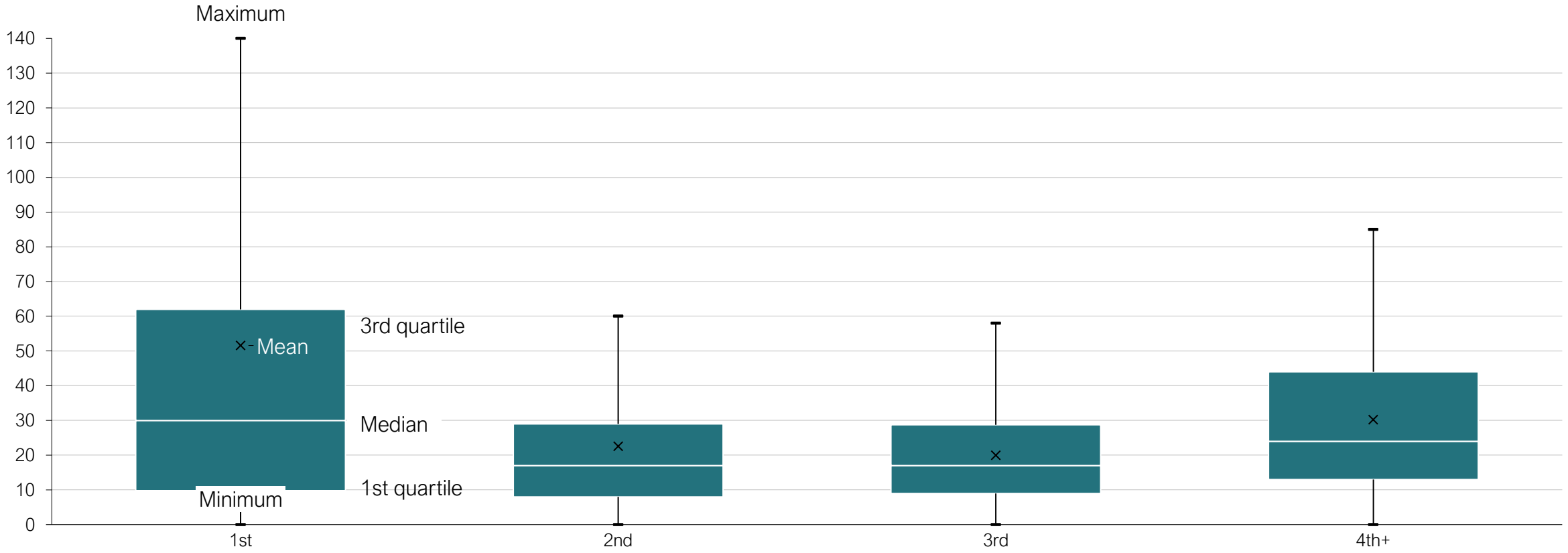
## Annual median funding sizes in early VC funding rounds



# The typical cleantech startup received their first VC funding round after around 30 months of setting up the firm; later graduation times typically around 1.5-2 years

## Median graduation time by funding round

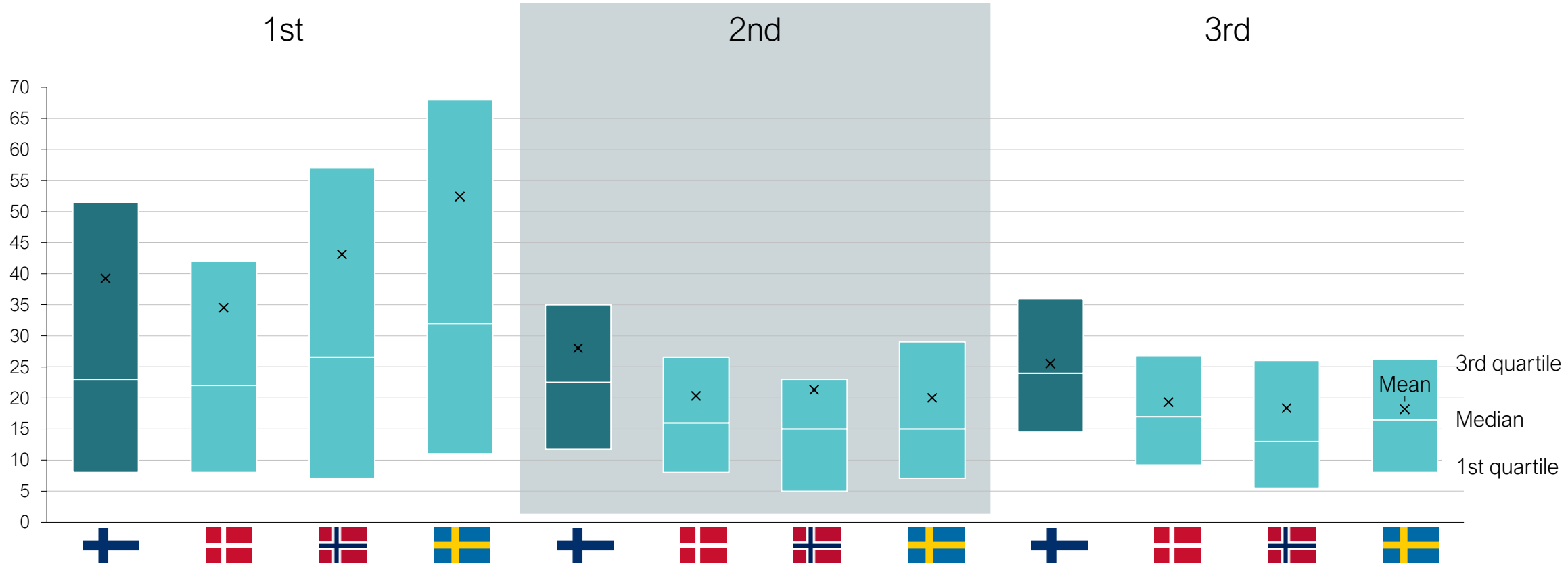
Months from previous round



# Finns and Danes are the quickest in getting the first funding, but slowest in subsequent rounds where Norwegian firms are the quickest

## Graduation time by country and funding round

Months from previous round

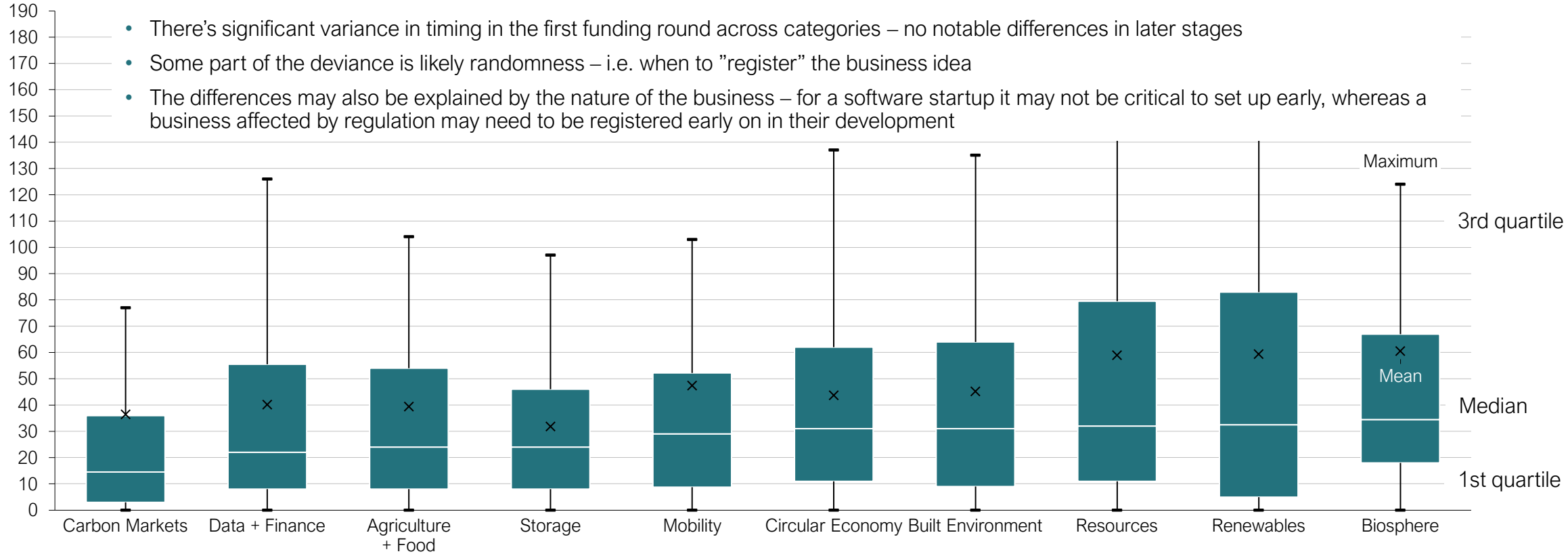


# Deep dive: Software startups are the quickest fundraisers in the first funding round – asset heavy industries such as renewables and resources are much slower

## Median time from business registration to initial VC funding by category

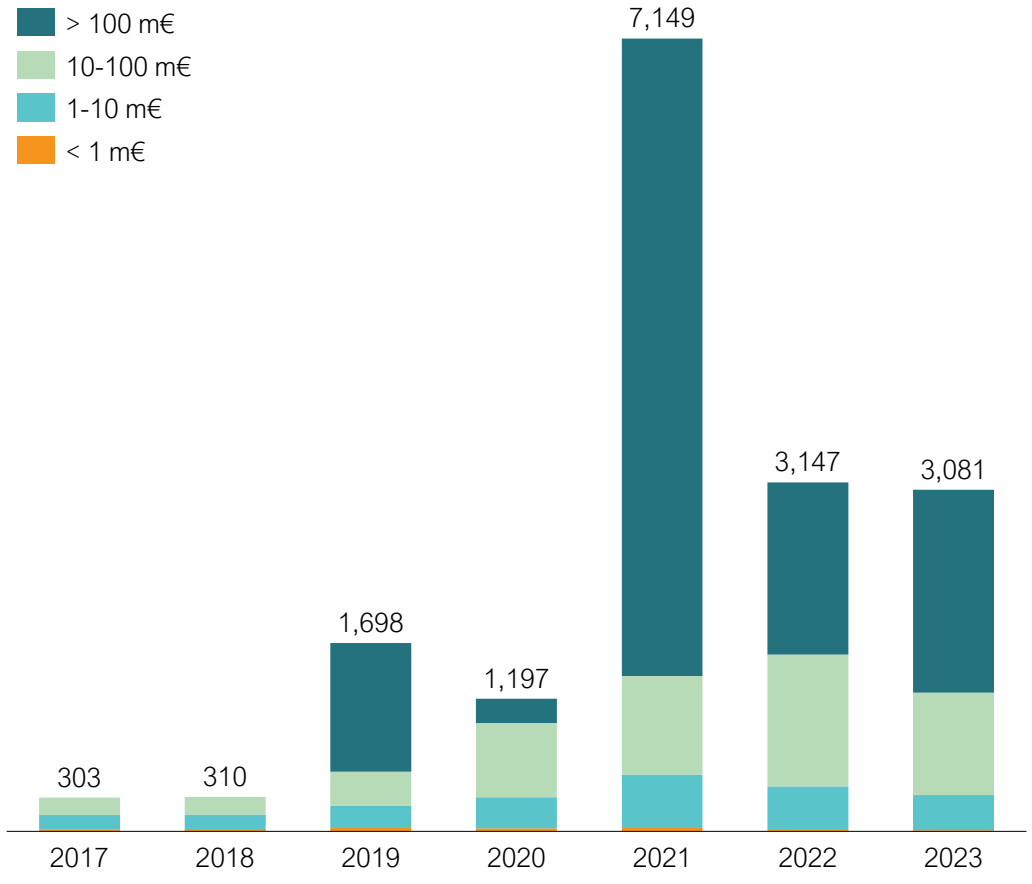
Months from company registration

- There's significant variance in timing in the first funding round across categories – no notable differences in later stages
- Some part of the deviance is likely randomness – i.e. when to "register" the business idea
- The differences may also be explained by the nature of the business – for a software startup it may not be critical to set up early, whereas a business affected by regulation may need to be registered early on in their development

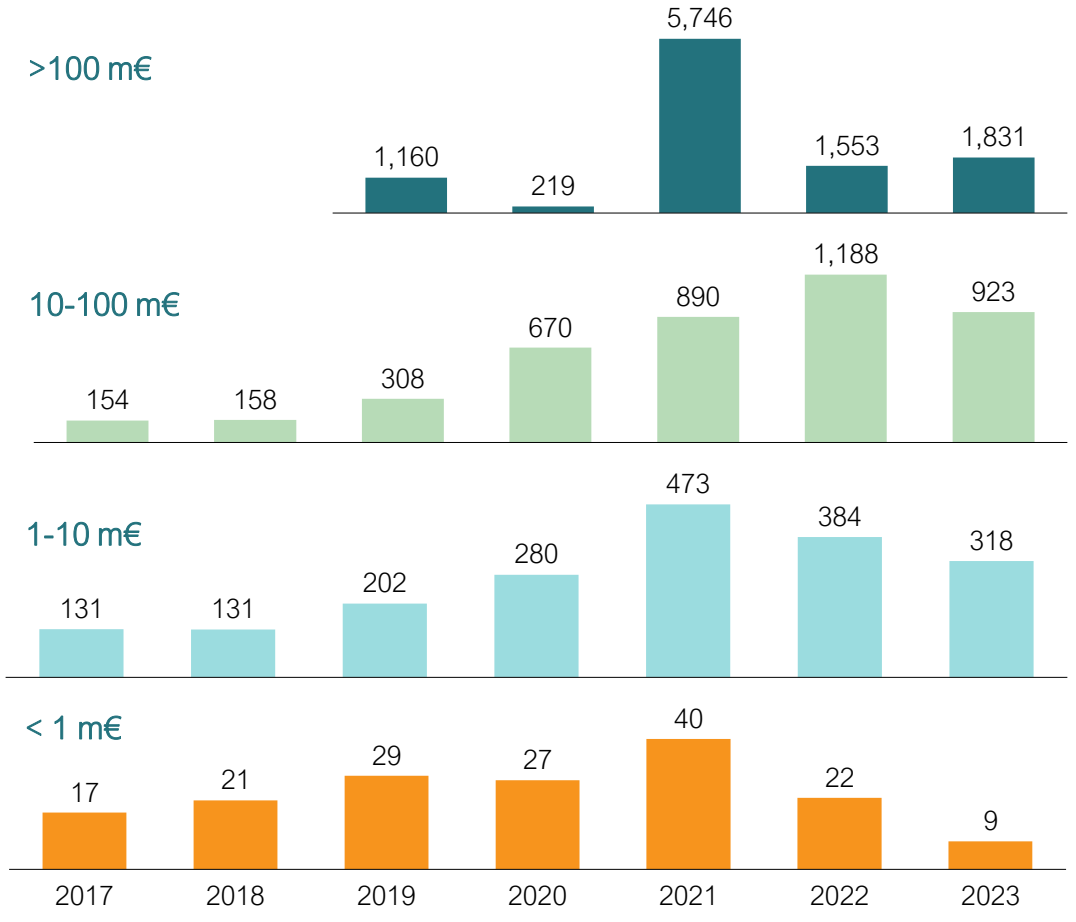


# The total annual funding development is volatile due to a few large funding rounds – slight downturn across the board after peak years 2021-22

## VC funding by round size
Annual sums in m€




## VC funding by round size
Annual sums; Axes not to scale

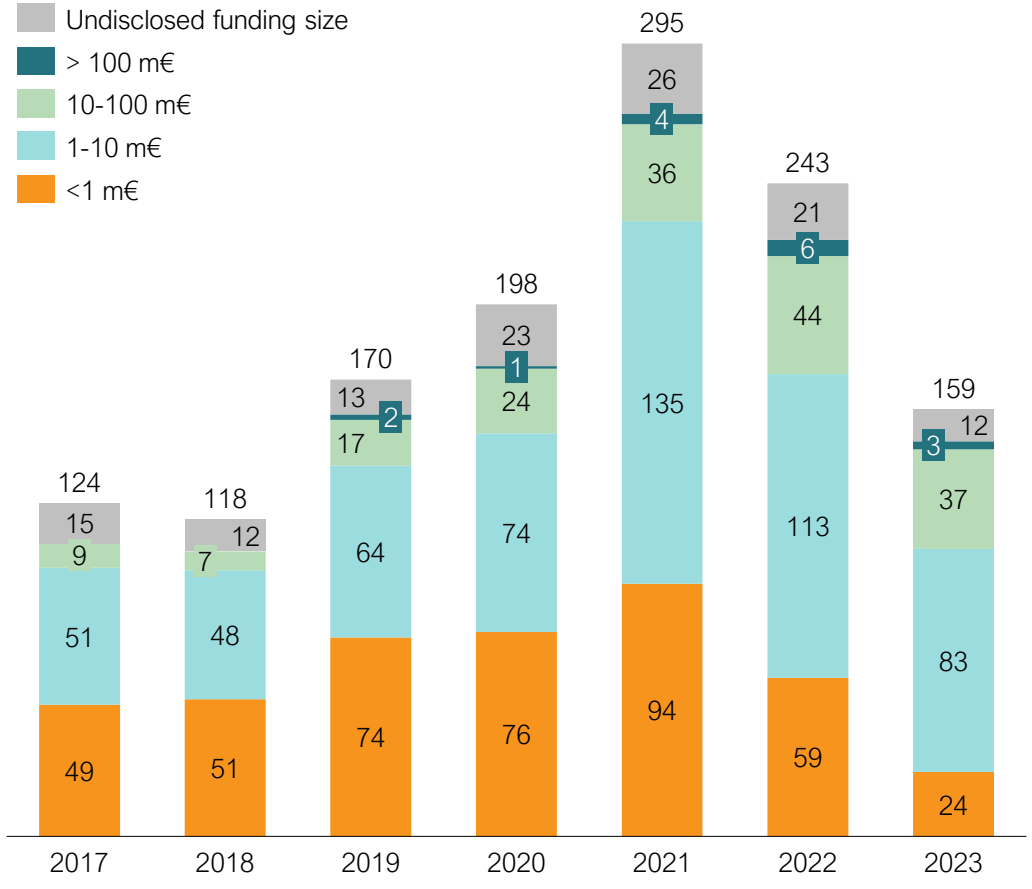



Note: Our company sample only includes still active companies, i.e. a funding round in 2019 for a company that has later ceased to exist is not included in the totals.

# Significant decline in number of seed rounds, only slight decline in larger round sizes

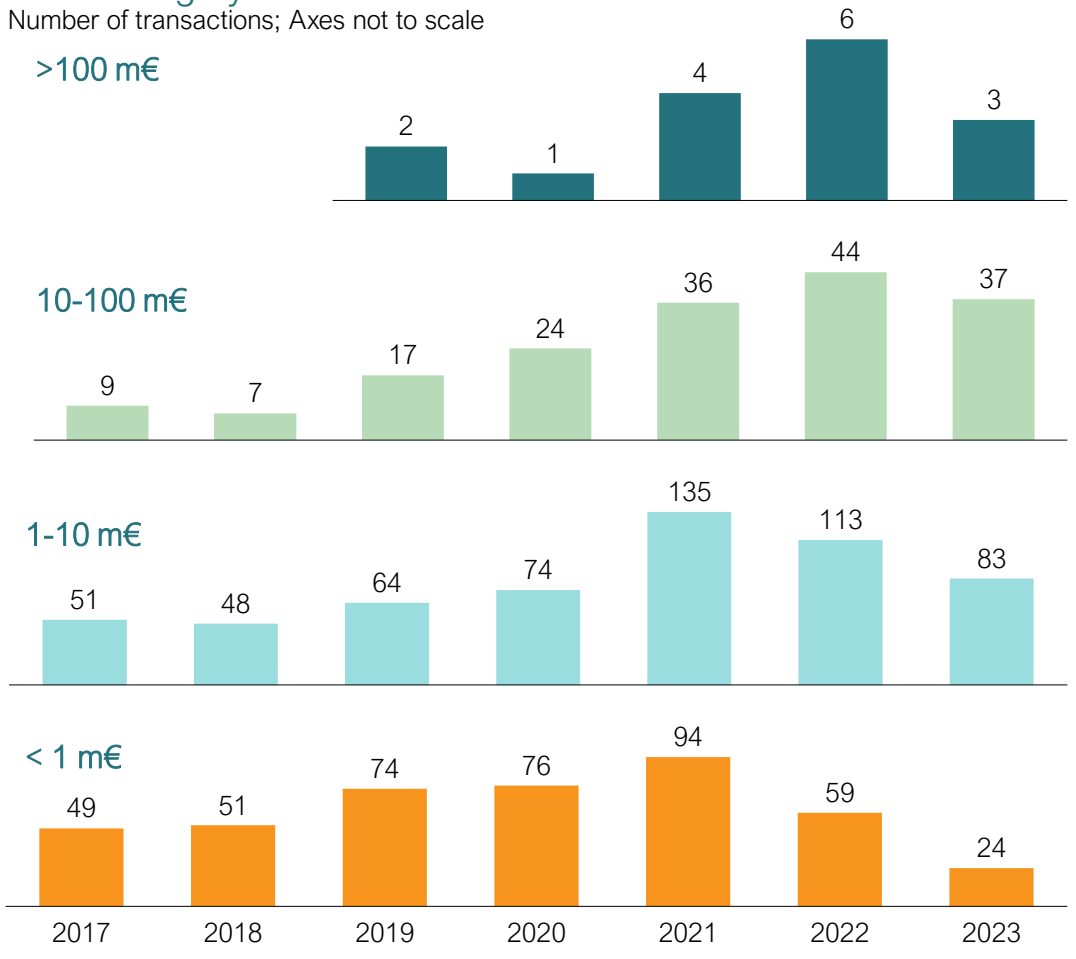
## VC funding by round size

Number of transactions




## VC funding by round size

Number of transactions; Axes not to scale

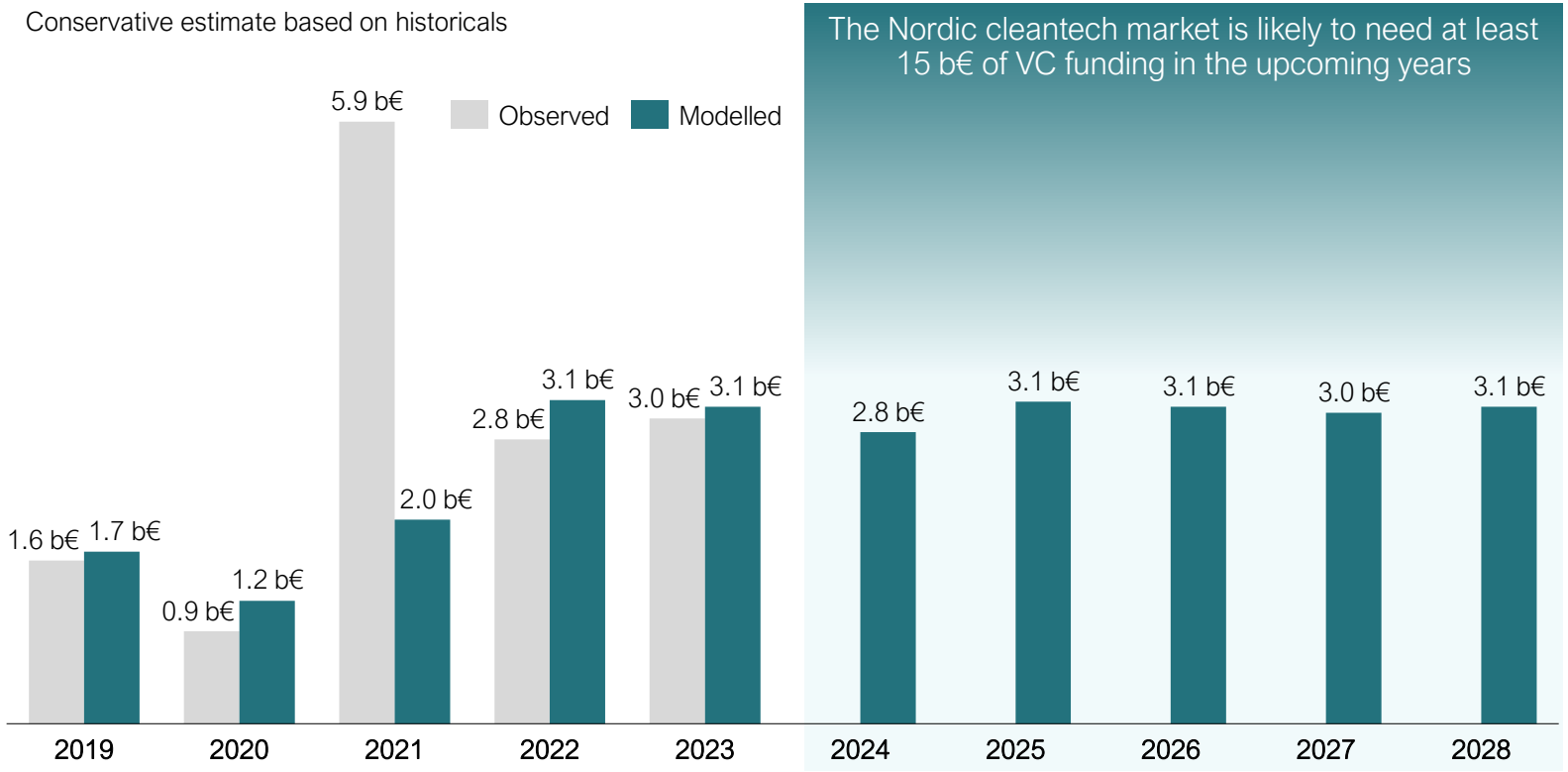



Note: Our company sample only includes still active companies, i.e. a funding round in 2019 for a company that has later ceased to exist is not included in the totals.

# Based on historic funding figures, over 15 b€ VC funding is likely needed in the upcoming years to keep Nordic cleantech firms on their current growth trajectory

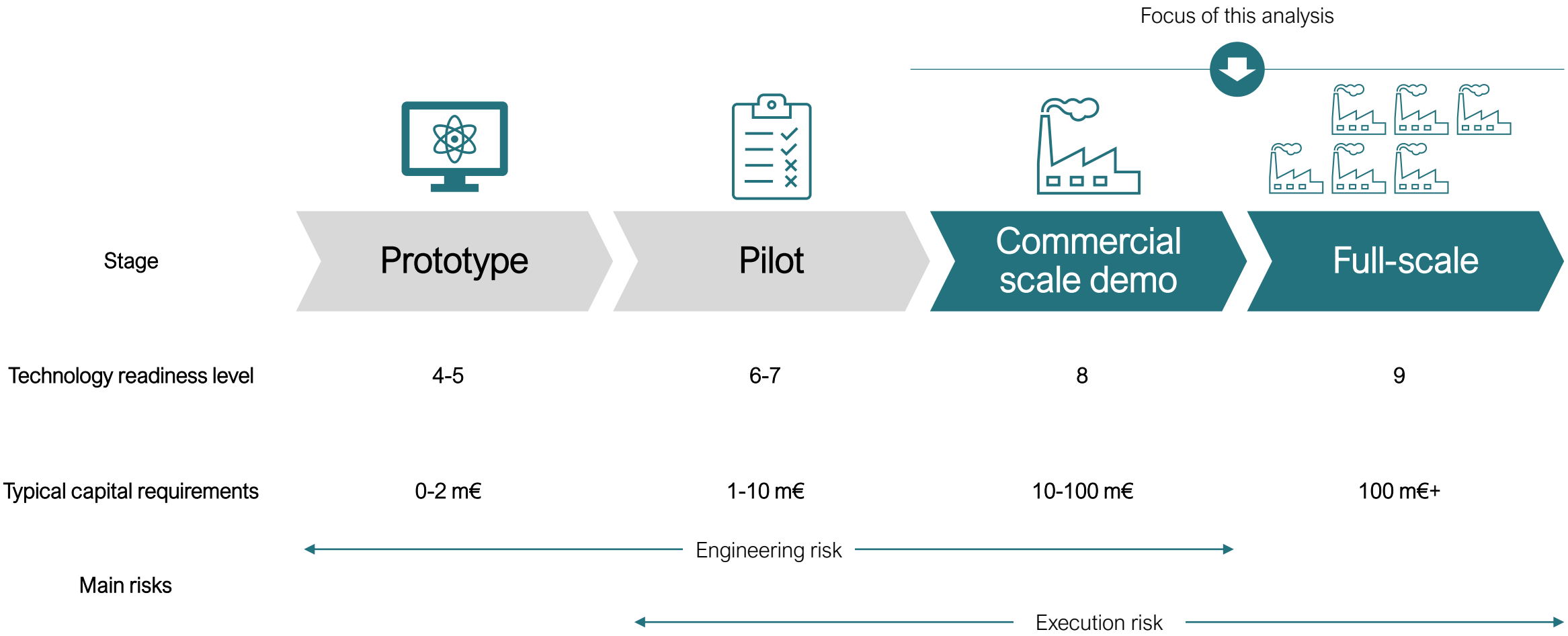
## Cleantech funding model, 2019-28E

Conservative estimate based on historicals



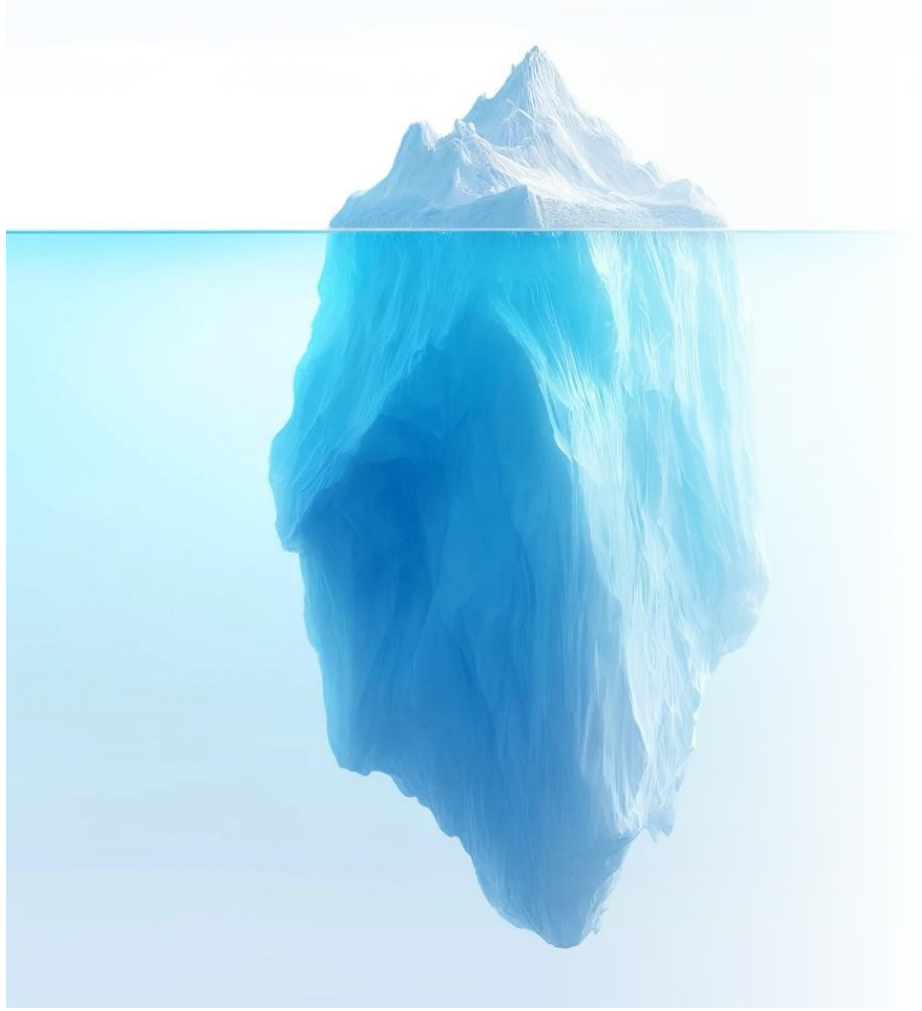

- We have done a conservative high-level analysis on cleantech funding needs, based on the number of companies in each funding stage, historical funding rounds and their average sizes
- Although high-level, the analysis shows the magnitude of capital requirements going forward to keep the Nordic cleantech market on its current growth trajectory – turning up the heat further would require additional capital deployment
- The funding levels are highly volatile due to a small number of extremely capital-intensive projects such as Northvolt and H2 Green Steel. The funding model does not take into account the largest outliers; their funding also reflects an extraordinary effort for their investors and local governments.

# The industrial investments in focus are commercial scale demonstration facilities and full scale repeatable factory setups with funding needs >10 m€




Source: Team analysis, Net Zero Insights, Extantia

# Not all industrial projects are public knowledge ahead of their construction – publicly planned projects typically benefit from, or cannot avoid, publicity



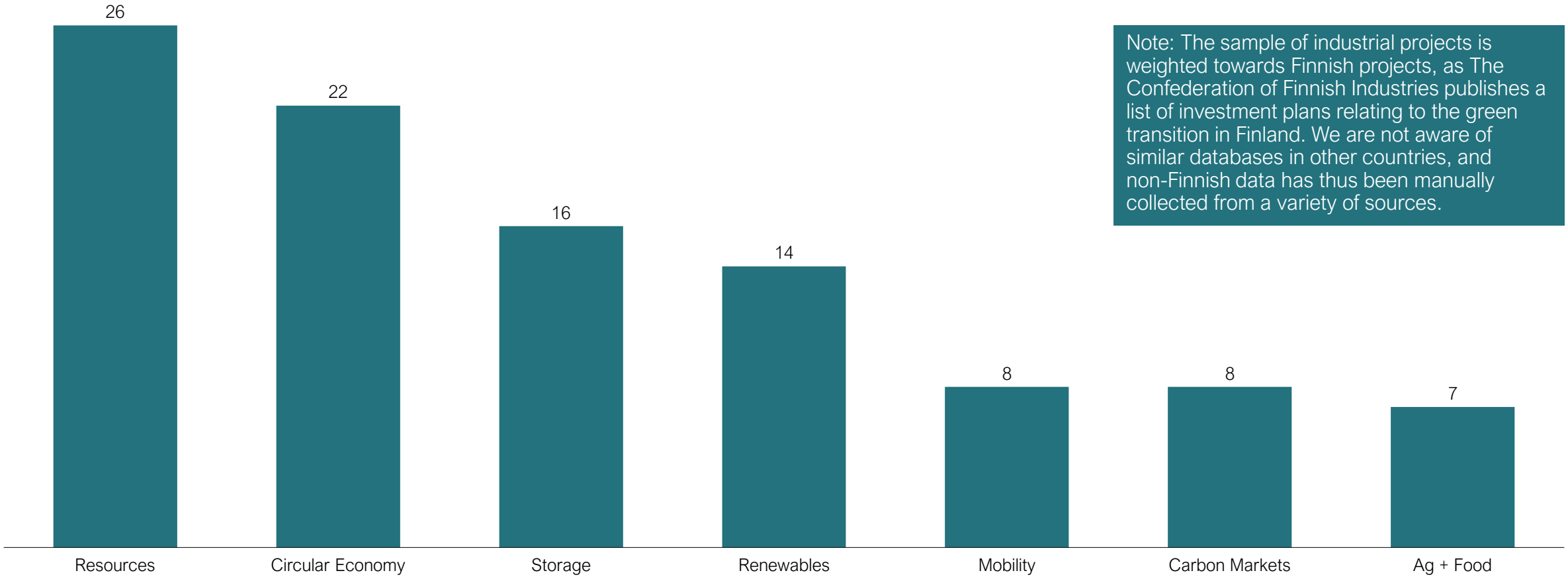
**Only few industrial projects are public ahead of secured funding**

- Although it is evident from many companies' business idea that they will, sooner or later, require a commercial scale demonstration factory, being open about their plans does not necessarily do them any favours
- The projects being publicly announced early in the planning and fundraising process often share a few elements:
  - Larger than usual projects typically require both extensive funding (to which publicity gives further marketing), and lengthy environmental impact assessments (that are public information)
  - Industries with first mover advantages, e.g. in terms of land area, grid capacity or biomass supply, may shield their constrained resources by publicity – a second biomass factory is unlikely in an area where one is already planned, as the supply wouldn't suffice for both
- On the other hand, there are elements that lead to most planned projects not being public early on:
  - Early-stage planning may lead to changes in plan – being public too early on may lead to outsiders thinking that the initial plan failed
  - If the project only needs a few equity investors and the company deems likelihood of finding them as high, publicity only generates extra work rather than significant benefits

# There are over 100 publicly announced mid-sized and large industrial projects currently being planned in the Nordics

## Industrial projects by category

# of publicly announced projects in planning

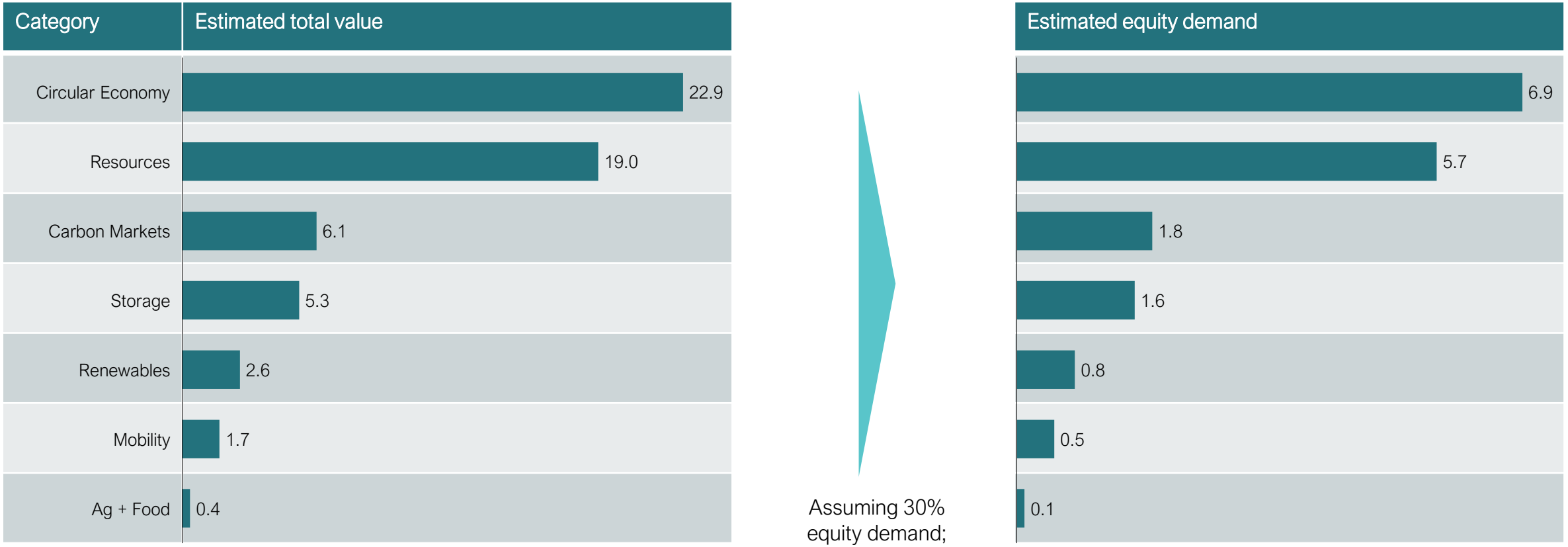



Note: The sample of industrial projects is weighted towards Finnish projects, as The Confederation of Finnish Industries publishes a list of investment plans relating to the green transition in Finland. We are not aware of similar databases in other countries, and non-Finnish data has thus been manually collected from a variety of sources.

# Around 17 b€ of equity would likely be needed just to get the publicly announced industrial projects up and running

## Identified industrial projects and estimated funding requirements

b€

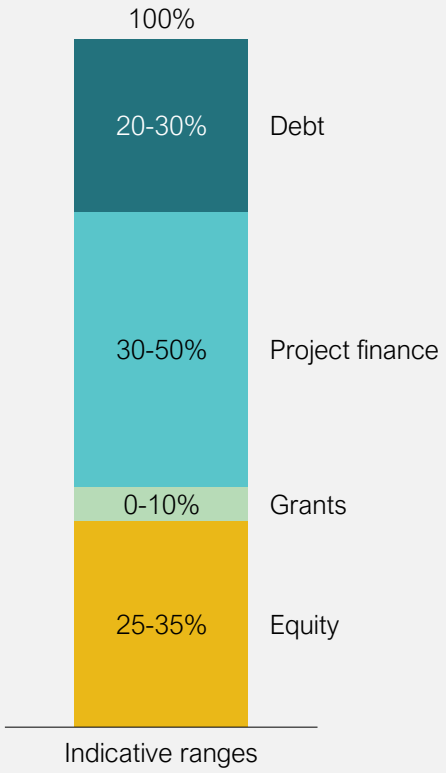



Note: Value estimates not available for all projects; category medians used where needed

# Background: Industrial projects are typically funded by a mix of equity, debt, project finance and government grants

## Financing of industrial projects

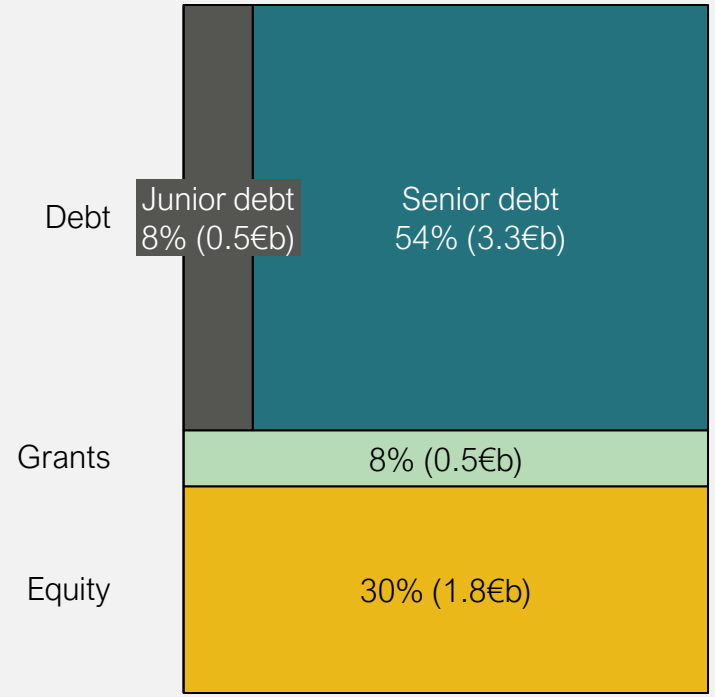
### Typical instrumentation




### Commentary

- The financing of industrial projects in cleantech are typically a mixture of equity, debt, dedicated project financing and government grants; the riskier the venture, the larger the share of equity typically is.
- Many asset heavy cleantech firms are using their corporate equity to develop first of a kind assets before bringing in outside project investors. These assets are often capital-intensive and it can be expensive for companies to fund them entirely through venture capital, a dynamic that can slow the deployment of important climate technologies.
- Debt and equity may be legally and financially separated from the corporate entity via special purpose vehicles and include multiple layers of financing, such as construction debt, tax equity, back leverage, and sponsor equity. With “non-recourse” structuring, lenders and investors typically assume project-level risks and have step-in rights if the project defaults on its debt.

### Case: H2 Green Steel




Source: The Climate Brick, S2G Ventures, Team analysis

# The equity financing of growth companies comes from three main investor types – VC funds being the most relevant for the early stages of the growth journey

## Venture capital

- VC funds typically invest in new companies aiming for high growth through commercialization of research and product development
- The investments are typically needed to fund further research and product development, manufacturing or hiring

## Growth

- More established firms often seek funding to help them expand by restructuring their operations, entering new markets or making acquisitions

## Buyout

- Mature firms may give up majority control to buyout investors to provide liquidity to initial owners, while gaining further resources to institutionalize operations, improve efficiency, and expand to new markets or product lines.

## Infra

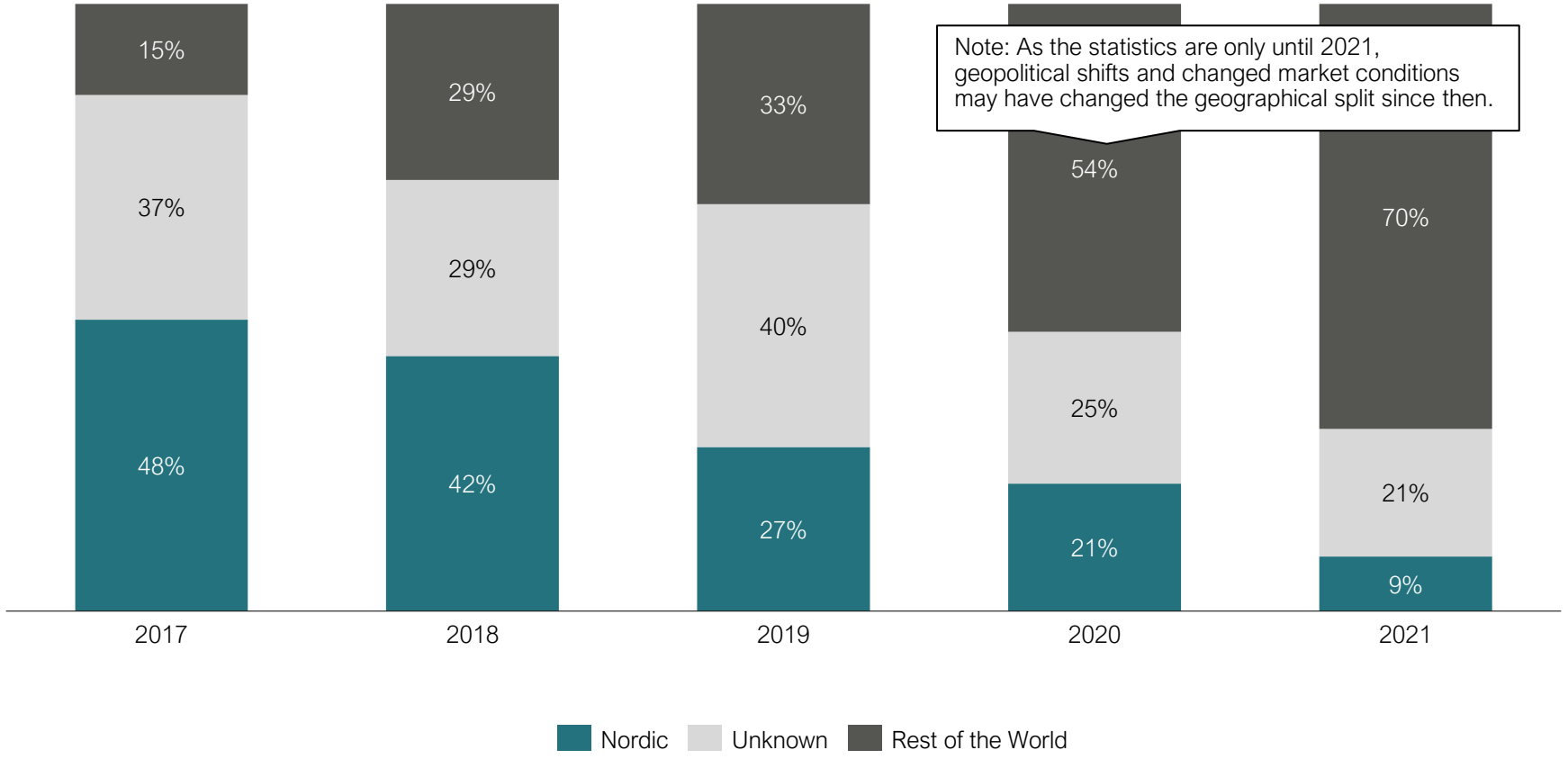
- Infrastructure investors play a secondary role in the growth financing of cleantech companies, with their role potentially relevant in the construction of first of a kind factories and other industrial infrastructure.

Source: Team analysis, Goldman Sachs Asset Management

# Nordic cleantech firms have become more and more dependent on non-Nordic investors

## Equity investments to Nordic cleantech firms by investor origin

% of total funding; all private equity investments




- A study from Cleantech Scandinavia found that the percentage of Nordic capital in later-stage Nordic cleantech company funding rounds has decreased – roughly 48% of the capital came from Nordic investors in 2017, compared to 9% in 2021
- The study is not directly comparable with our analysis as the scope of our study is different, but the CS study still portrays a vivid picture of the diminishing role Nordic equity investors play in funding cleantech innovations

Source: Cleantech Scandinavia

# Cleantech investors include both specialists focusing purely on cleantech, and generalist investors with a track record of cleantech investments

## Cleantech investor archetypes

| Sector focus | | Cleantech specialists | Generalist investors |
|---|---|---|---|
| Description | | Investors who invest only or mainly to companies in the cleantech market. | Investors with a wider investment focus, but with a track record of multiple investments into (or clear strategy of including) cleantech firms. |
| Example investors<br>Illustrative - many investors active in more than one asset class | Early VC | <norrsken>, Nordic Alpha Partners | Industrifonden, EIFO, almi invest |
| | Late VC | Trill Impact, nysnø | Creandum, Investinor |
| | Growth | Hitecvision, verdane, Trill Impact | Kinnevik, Summa Equity, FSN Capital |
| | Buyout | EQT Future, Hitecvision, Alder | FSN Capital, Intera Partners, Altor |
| | Infra[1] | infranode, CIP Copenhagen Infrastructure Partners | CapMan, Bure, Connecting Capital |

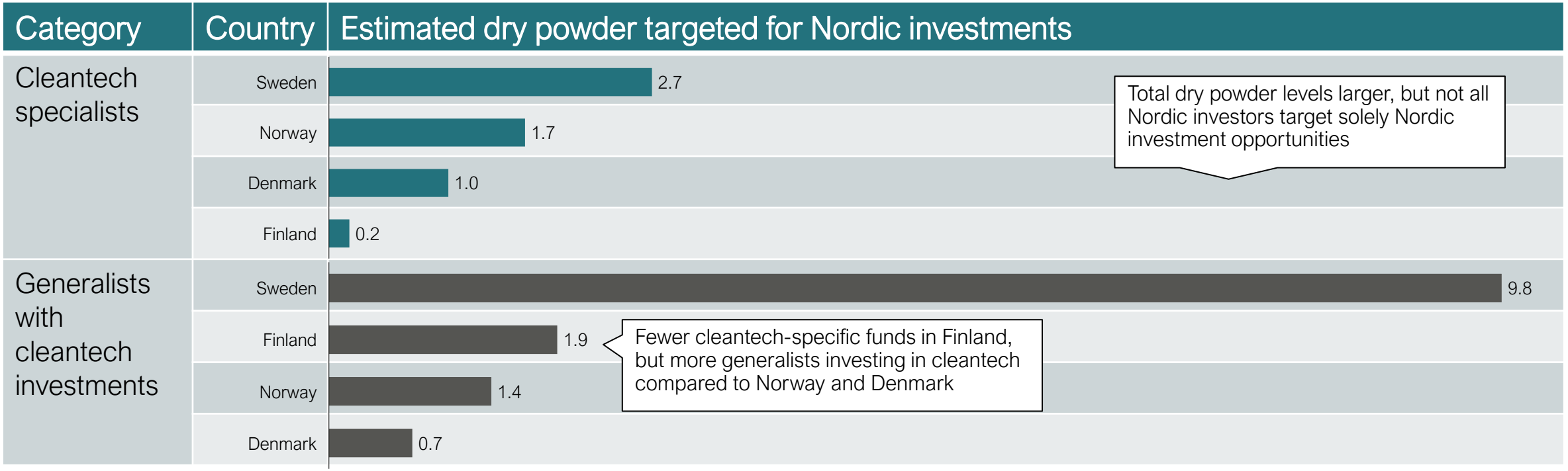
1) There's an even wider array of investors active in infrastructure supporting the green transition; in this study, we focus on the infrastructure investors supporting innovative companies with their industrial infrastructure (thus excluding investors focused e.g. on energy and transit infrastructure)

# Sweden is the largest HQ country for cleantech investors

## Estimated Nordic dry powder by HQ country

b€

HIGH-LEVEL ESTIMATE



# We estimate there to be around 6 b€ of cleantech-focused Nordic dry powder; generalists may complement cleantech specialists opportunistically

## Estimated Nordic dry powder by investment focus

HIGH-LEVEL ESTIMATE

b€

| Category | Stage | Estimated dry powder targeted for Nordic investments |
|---|---|---|
| Cleantech specialists | Early VC | 0.9 |
| | Late VC | 0.7 |
| | Growth | 0.9 |
| | Buyout | 1.5 |
| | Infra | 1.7 |
| Generalists with cleantech investments | Early VC | 2.8 |
| | Late VC | 5.3 |
| | Growth | 2.2 |
| | Buyout | 3.3 |
| | Infra | 0.1 |

Total dry powder levels larger, but not all Nordic investors target solely Nordic investment opportunities

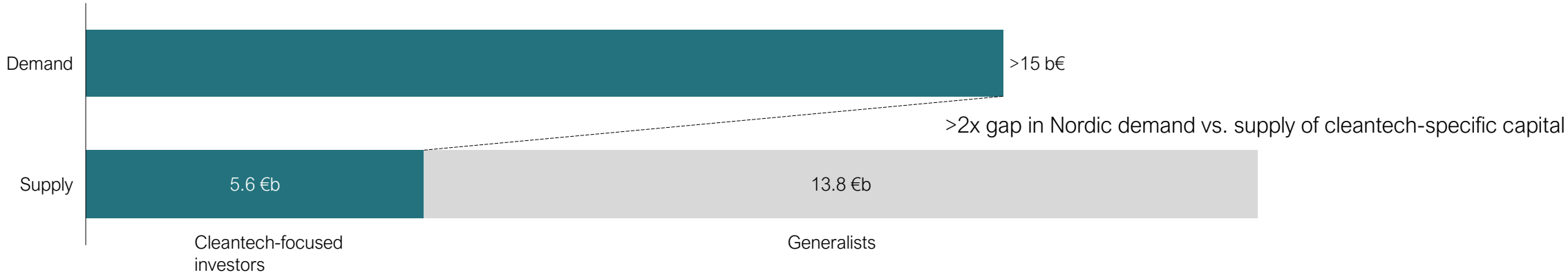
Although the generalists below are likely to deploy some share of their dry powder to cleantech investments, their strategy is not focused solely on it. Thus, most of the dry powder is likely to be spent on other investments.

# Large gap in Nordic cleantech funding – the solution is either more Nordic cleantech funds, international investors, or generalists directing more capital towards cleantech

## Estimated Nordic capital demand and supply

HIGH-LEVEL ESTIMATE

Nordic cleantech capital demand for 2024-28, b€; Estimated Nordic dry powder aimed to Nordic investments, b€




**How is the gap closed?**

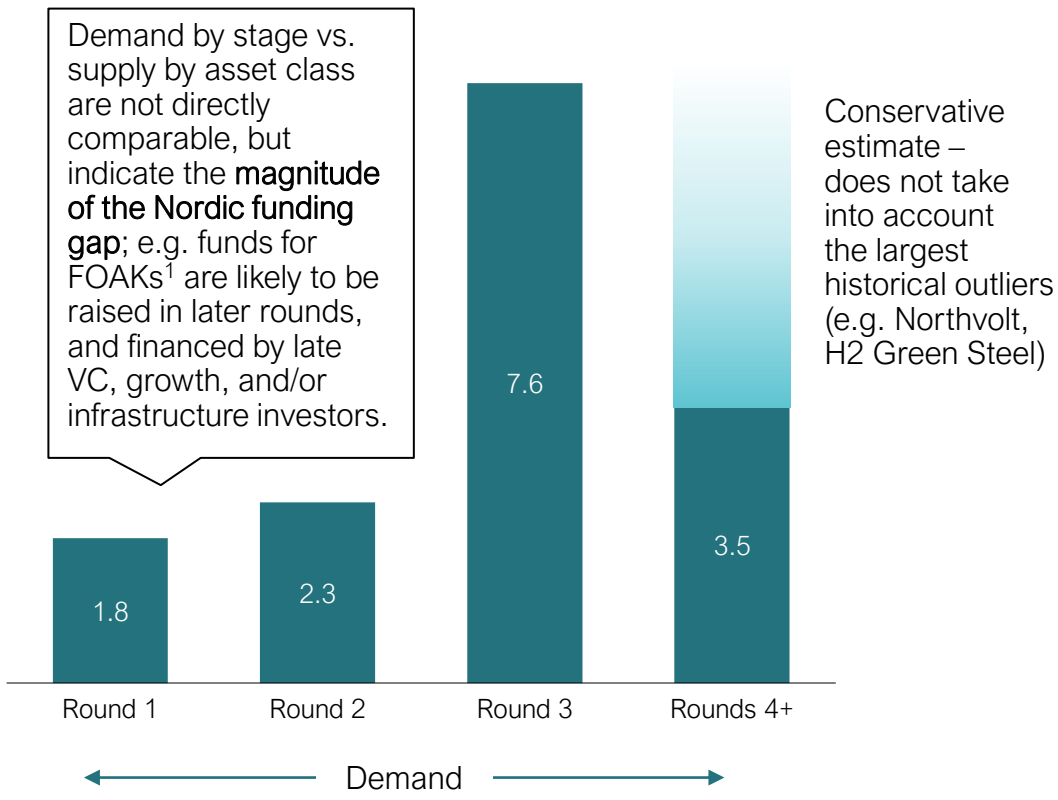
- Relying on international investors (as has been the case historically, with control and returns flowing outside the Nordics)
- More cleantech-specific funds in the Nordics
- Significant share of generalists' funds directed towards cleantech

# The widest funding gap is in later stages, where industrialization happens

## Nordic capital demand by stage

Estimated Nordic cleantech capital demand for 2024-28, b€

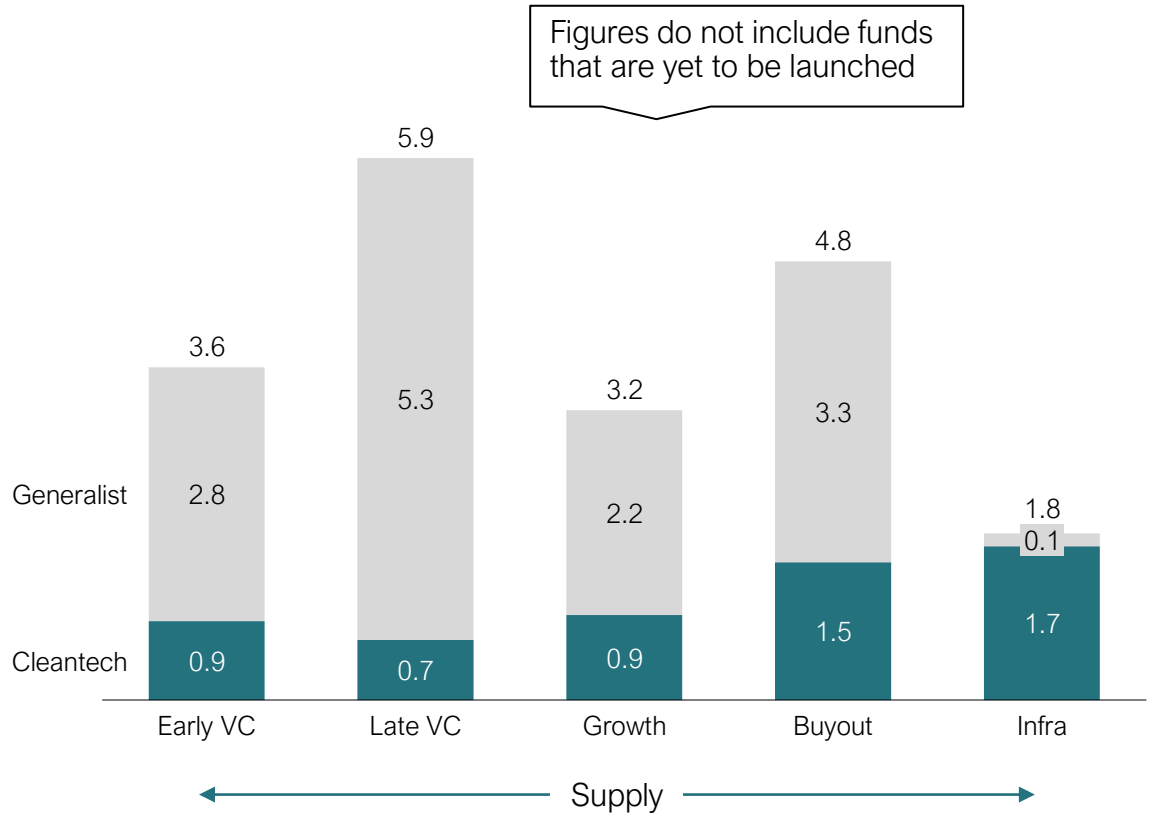
HIGH-LEVEL ESTIMATE




## Nordic capital supply by stage

Estimated Nordic dry powder aimed to Nordic investments, b€

HIGH-LEVEL ESTIMATE



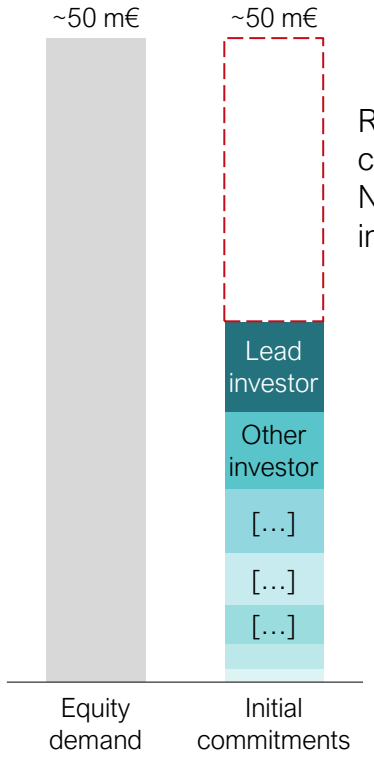

1) "First of a kind", referring to industrial investments with novel technology or processes being deployed for the first time at commercial scale

# The funding gap has very concrete consequences for Nordic cleantech startups

## Case example: Ongoing funding round for Nordic cleantech firm

**Cleantech startup looking to fund next growth phase…** → **… but funding round too big for local investors, and global investors require further commercial progress** → **Funding uncertainty leads to overall uncertainty of the firm's future**

- An undisclosed Nordic cleantech firm has expanded to commercial scale in recent years, and raised tens of millions of equity, debt and grant funding over the years
- The firm is a global leader within its' niche, and possesses unique technology that it has now demonstrated to work at commercial scale
- The firm is funded by a wide array of domestic, Nordic, and European investors, and is currently seeking further growth capital
- The company is seeking scale-up funding to secure 18-24 months runway needed to secure large commercial contracts; technology risk is largely managed

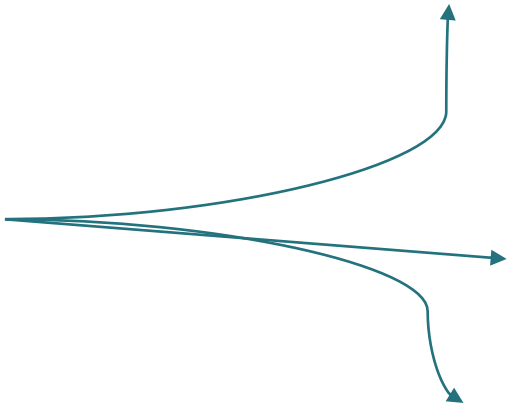



Roughly half of the required capital is missing – very few Nordic investors able to invest sums large enough

"We can support you in your next round, but for this one you'll still need local funding"

Feedback from international cleantech investors

**Best case**: Firm finds foreign investor to fund further growth; control and returns of the commercialized innovation gradually shift to outside the Nordics



**Mid case**: Target funding not achieved, increasing risk of commercial failure risk that round can not be finalised

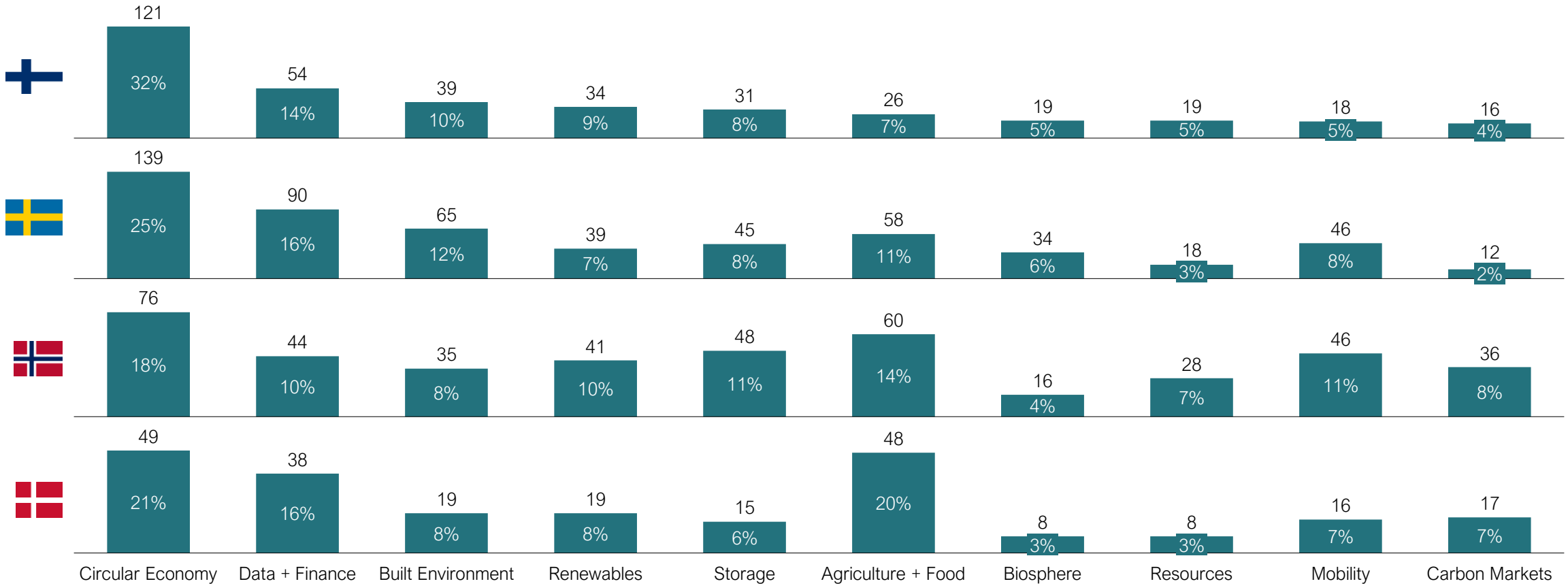
**Worst case**: Not enough funding is found to finance further operations, and company ceases activities

Source: Team analysis based on proprietary knowledge

# Circular economy is the largest cleantech category by number of firms in all Nordics – Agriculture & Food well represented in Norway and Denmark

## Number of companies per country and category

Axes not scale

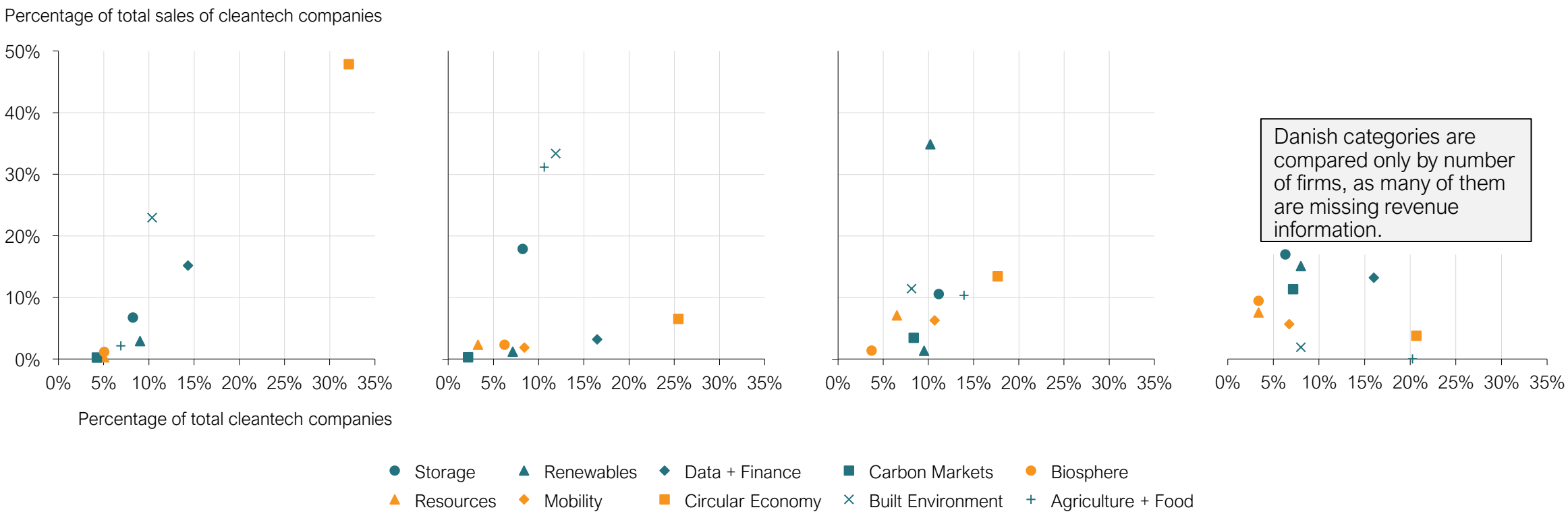



Note: The extent of research done by country is varied, and comparing absolutes between countries may produce a misleading view.

# Circular economy is the largest category both by firm count and share of total sales, followed by Data + Finance and Built Environment

## Categories compared by share of total sales and share of number of companies

2022, %




Note: Many smaller Danish companies have limited financial transparency, and are as a result missing from the net sales comparison. None of the 19 Danish companies belonging to the Renewables category has sales data for 2022

# Over half of the cleantech firms that have received VC funding progress to the next funding round

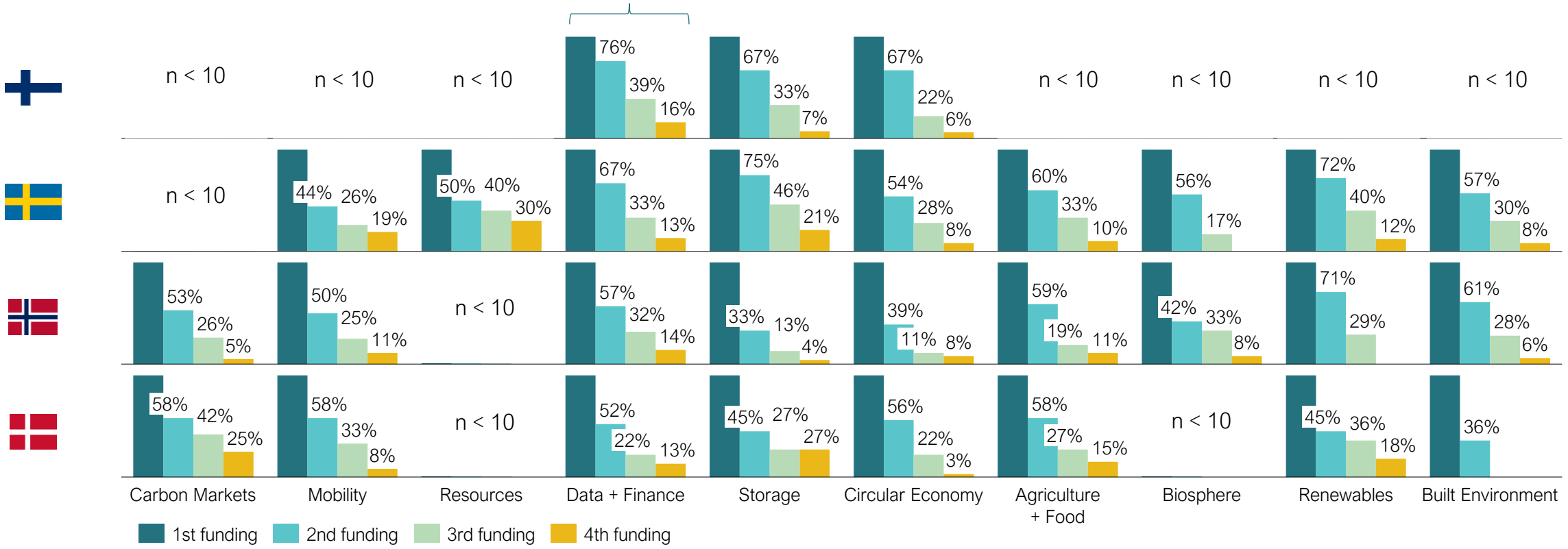
## Graduation rate analysis between countries – the share of firms that have received VC funding receiving later financing

Sample of firms[1;2]

Registered between 2016-18 (n=417)

**How to read**

76% of Finnish Data + Finance firms that received VC funding progress to a 2nd funding round, 39% to a 3rd round, and 16% to a 4th round




Note: Categories with fewer than 10 responses per country are not displayed to prevent potential bias from small sample sizes.

# Our analysis is based on 10+ databases of companies and investors, combined with desktop research on each individual firm

## Analysis methodology in brief

### Long list of possibly relevant companies

Cleantech Scandinavia, dealroom.co, PitchBook, VAINU, Net Zero Insights, Valu8

### Verification and categorization of companies

Manual research based on company websites

### Financials and transactions for relevant companies

dealroom.co, PitchBook, S&P Capital IQ, Mergermarket, Valu8

### Media search on industrial projects

Elinkeinoelämän keskusliitto, BØRSEN., Di, E24

### Gathering key information

Manual research based on company websites and media coverage

### Categorization and estimation of project sizes

Size estimates in media coverage used where possible; category medians used to cover gaps

### Long list of possibly relevant investors

PitchBook, preqin

+ local market knowledge

### Verification and categorization of investors

Manual research based on market knowledge and investor websites

### Estimating AUM and focus

Estimates based on local market knowledge, investor databases and investor websites

# The funding analysis is based on companies' transaction data – round names based on company-level info on date and round size

## Funding analysis in brief

| Company ID, Segment | Company ID | 1st funding round<br>1st equity raise<br>Date<br>€ | 2nd funding round<br>Definition:<br>Date > 1st<br>€ > 1st | 3rd funding round<br>Definition:<br>Date > 2nd<br>€ > 2nd | 4th funding round<br>Definition:<br>Date > 3rd<br>€ > 3rd | Xth funding round<br>Definition:<br>Date > n-1<br>€ > n-1 |
|---|---|---|---|---|---|---|
| Company funding history<br>dealroom.co Crunchbase<br>MergerMarket PitchBook Valu8 | | | Bridge rounds<br>Definition: € < previous rounds | | | |

| | | | | Status | 1st round | 2nd round |
|---|---|---|---|---|---|---|
| Firm A | 2018 200 k€ => 1st | 2020: 1.5 m€ => 2nd | 2023: 2.0 m€ => 3rd | Graduated to 3rd funding round | 200 k€ | 1.5 m€ |
| Firm B | 2018: 200 k€ => 1st | 2019: 150 k€ => Bridge | 2020: 500 k€ => 2nd | Graduated to 2nd funding round | 200 k€ | 150+500=650 k€ |
| Firm B | 2018: 200 k€ => 1st | 2019: 150 k€ => Bridge | | Has not graduated (yet) | 200 k€ | 0 |

Avg. graduation time (excl. bridge rounds)

Avg round sizes (incl. bridge rounds)

Note: Analysis focused on equity rounds only


Tesi
CLIMATE FUND
!ndustrifonden
almi invest GreenTech
EIFO
nysnø Climate Investments
Investinor