

Improving access to finance for the Dutch offshore wind supply chain

Final Report | February 2025

INVESTNL



tki offshore energy
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Enhanced Financing for a Robust Offshore Wind Sector

Investing in innovations and scaling up offshore wind is essential for achieving Dutch climate goals and enhancing our competitive position. International competition is intensifying, particularly from China. The European market share in turbine assembly has declined from 58% to 30% between 2017 and 2022. Companies in the supply chain encounter significant financing bottlenecks.

We commissioned JBR to examine the bottlenecks in innovation and growth financing within offshore wind, with the aim of stimulating investments in renewable energy sources and accelerating the energy transition.

This research concentrates on the financing perspective. It demonstrates that financing innovations and scaling up within the value chain pose challenges at three levels: the business case for companies, the broader offshore wind ecosystem, and the financing landscape itself. JBR's primary conclusion is that a coordinated approach is essential to address these bottlenecks. This is vital for both the industry and its export position, as well as for meeting climate goals.

In addition to this main conclusion, the report offers concrete recommendations that can be implemented in the short and medium term. Research indicates that investors often view offshore wind innovations as risky due to their unfamiliarity with the sector, the substantial capital demands of innovative companies, and the mismatch between the supply and demand for financing. These issues can be addressed by better aligning innovation subsidies and other financing sources, fostering collaboration between public and private entities, and enhancing knowledge exchange with investors.

Our Role as Invest-NL and TKI Offshore Energy

Invest-NL and TKI Offshore Energy will take the lead by:

- Bringing together entrepreneurs, knowledge institutions, investors, and policymakers, and improving the dialogue between them.
- Fostering a more supportive financing environment for offshore wind innovations and scaling up, including through Investor Readiness programs, new financing instruments, and enhanced market conditions.
- Enhancing the demonstration climate by further investigating proof-point facilities.

This research represents a first step towards enhancing the financing of offshore wind innovations. We urge policymakers, investors, and entrepreneurs to collectively implement the necessary structural changes. If the Netherlands aims to sustain and expand its leading position in offshore wind, action is essential – and we are commencing this effort.

Invest-NL & TKI Offshore Energy

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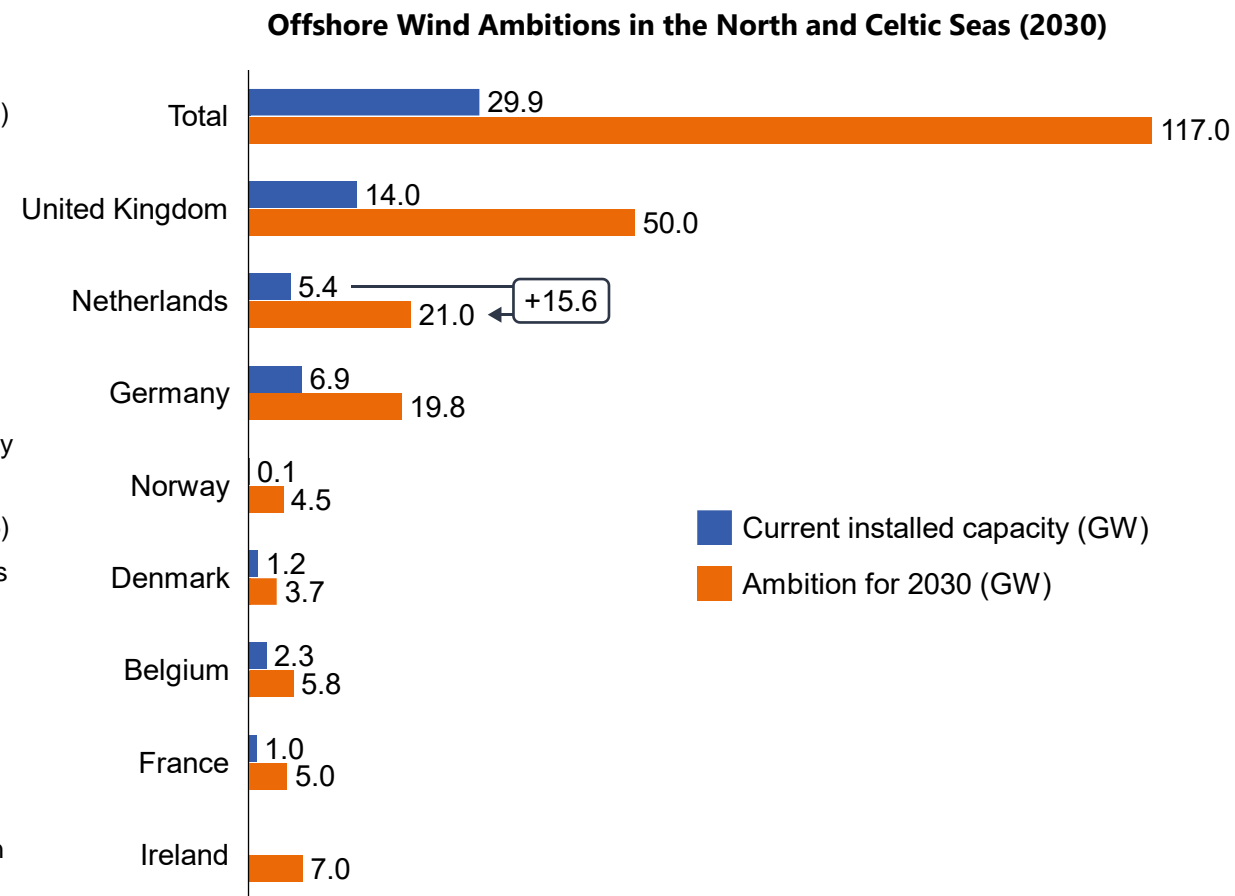
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A supportive financing landscape across the entire supply chain is crucial to avoid bottlenecks throughout the industry and its value chain

The Dutch offshore wind ambitions are at risk without sufficient scaling up and innovation

- With only five years left until 2030, the target to build another 87.1 GW of offshore wind in the North Sea is ambitious. The goal for 2050 is even more ambitious, aiming for at least 300 GW
- Three countries (UK, Netherlands, Germany) will be responsible for 64.5 of the 87.1 GW (74%)
- Around 5.4 GW in the Netherlands is operational at this moment , ~1.5 GW is under construction and ~14 GW is being planned
- The Netherlands aims for 21 GW operational in 2032, and 70 GW by 2050
- The Dutch offshore supply chain ranks among the top 5 globally¹ and plays an essential role throughout the entire lifecycle of an offshore wind farm. Given the international nature of this market, the Dutch supply chain is also involved in developments abroad
- There is a risk of a capacity gap for Dutch offshore wind ambitions if the value chain cannot sufficiently scale up and innovate. This risk is further increased by export of production capacity
- An example of a capacity gap is the 'walk to work' (W2W) vessel sector. The demand for bottom-fixed wind installation and O&M vessels far exceeds the supply (see appendix page 45)
- Innovation and ramping up production capacity require investments. Ranging from investments of small to large ticket sizes depending on the investment propositions
- A supportive financing landscape is crucial to innovate and scale-up and avoid bottlenecks throughout the industry and its value chain
- This research focuses on the relationship between the offshore wind supply chain in the Netherlands, and the financing landscape for innovation and increased production capacity. The primary goal is to identify and understand the financing bottlenecks, and to propose strategic directions to improve access to finance for the sector (for complete research question setup, see page 14)



Source: Noordzeeloket for ambition (2022), 4C Offshore for current installed capacity (2024)
Since 2022, some of these targets have shifted somewhat, such as the Dutch 21 GW to 2032

1) According to IRO (Association of Dutch Suppliers in the Offshore Energy Industry)

The financing bottlenecks and difficulty for innovative suppliers to scale-up are driven by companies facing pressurized business cases and insufficient innovation infrastructure,...

Under the assignment of Invest-NL and TKI Offshore Energy, JBR conducted a desk research analysis on the investor landscape and transactions in the Dutch offshore wind sector. This has been supplemented with an analysis of the relevant investor landscape, interviews and an online questionnaire¹. Multiple sources have been used to complete this analysis: pitchbook, Capital-IQ, IRO, Topsector Energie, Invest-NL database and websites of companies active in the supply chain. Some clear findings can be derived that **hamper scaling-up and innovations** in the Dutch offshore wind supply chain:

1. The **business cases of suppliers in the Dutch offshore wind sector are under pressure** driven by the specific risk-reward profile, industry structure and challenging factor conditions:
 - The risk-reward profile has deteriorated in recent years as a lot of business cases have been affected by growing CapEx and increasingly uncertain returns. This is amplified by the increasing interest rates (higher costs to finance CapEx) and inflationary building costs (material and labor costs)
 - The industry structure poses challenges for suppliers. Limited value is available for downstream suppliers, caused by the price-focused tender structure, the volatile electricity prices, insufficient appetite for PPA's, and the power imbalance in the industry. Moreover, there is increasing competition threat from China putting pressure on pricing
 - Factor conditions are generally good in the Netherlands. Ambitious goals have been set by the government and a smooth permitting procedure is in place. However, there are also significant issues such as net congestion (making it difficult for wind farms to connect and for the industry to electrify), nitrogen regulation (limiting expansion of production facilities), and the shortage of technical personnel (engineers as well as installation capacity)
2. It is **difficult for innovative players to create proof points** needed to attract financiers and customers which has various reasons: subsidies create a financing gap, there is limited room in tenders, wind farm operators are 'tight on cash' in the first years, and the innovation infrastructure to prove its attractiveness is lacking:
 - Innovation subsidies have been instrumental to the success of almost all startups and scale-ups. The HER+ subsidy, which was one of the most effective subsidies, has been terminated. Innovative start-ups and scale-ups rely on subsidies to escape the 'valley of death'. The current DEI and MOOI subsidies have a different scope compared to the former HER+ subsidy, resulting in the exclusion of some parts of the value chain causing a financing gap
 - The innovation 'bonus points' in recent tenders have included subjects such as circularity and biodiversity. These topics are of increasing importance for business-critical purposes as they are increasingly seen as a 'right-to-play' by European regulation. However, these innovations do not necessarily increase cost efficiency and thereby might not contribute to the long-term economic viability of the supply chain
 - Wind farm operators tend to push back the implementation of innovative solutions to later stages of a project, due to the insurability of innovations and their conservative risk appetite. Moreover, the tender structure leads to developers having exclusivity rights with innovative companies, resulting in innovators being dependent on the success of a tender bid
 - Wind farm operators are limited in their ability to provide working capital to innovative companies as the business case is already 'tight' and the cash outflow in the first years of the project have the biggest impact on the project IRR
 - Innovative companies lack dedicated innovation infrastructure to create technology proof points at scale. Currently the only possibility is to win a position in a tender and create proof points 'on the fly'. However, the impression (based on interviews and questionnaire results) is that it is (too) risky for innovative companies and wind farm operators to implement these innovations at scale rather than just in a small part of the farm for 'bonus points'



1) ~ 20 interviews were conducted and ~50 respondents completed the questionnaire. Engaged companies and knowledge institutes are active in the offshore wind supply chain and financing landscape

... a general low appetite among investors to finance innovation in the sector, and a mismatch between financing demand and supply

3. There is generally **low appetite by investors to finance innovation** in the offshore wind sector due to the expected rates of return and associated risks:
- Most innovative suppliers develop niche products as they operate with one product in one market segment. As innovative suppliers typically do not yet have a large market share in the specific niche, their risk-reward profile usually exceeds the risk appetite of traditional Venture Capital funds
 - Investors are of the opinion that the business cases are often too risky to fit their fund structure. The industry faces an inherent market volatility driven by the electricity price market and the fact that it is a project market. Innovative companies in the offshore wind supply chain have relatively long 'cash burning trajectories' due to the high initial CapEx and time-to-market creating a long and deep 'valley of death'. Furthermore, investors lack access to liquid collateral to be recuperated in case of bankruptcy, as the assets are industry specific and have little value outside the industry. This substantially impacts the liquidity of the asset
 - Most equity investors have funds with an average exit period of 5-7 years, which does not fit with the dynamics of innovative companies in the industry. Generally, it takes more time to create the needed proof points and build commercial traction in a tender dominated market
 - In the last decade, the interest rates have been low with low investment hurdles hence making it easier for investors to finance a business opportunity. The interest rates have risen in the last couple of years, which has an upward impact on investors' required returns (and a negative impact on the project returns). Furthermore, offshore wind opportunities compete with investment opportunities in other sectors, and funds active within 'Climate Tech' often have the choice to invest in better alternatives (higher returns with lower risk profile)
4. The **financing landscape in offshore wind is not aligned with the specific financing demands of companies** active in this sector. There is a lack of large ticket sizes and funds targeted at long-term investments, investors lack sufficient sector knowledge, and strategic investors have incentives that do not align with maximizing the growth of their investees:
- The investor landscape is fragmented in the Netherlands and Europe and lacks qualified lead investors. In the Netherlands, there is a shortage of equity¹ in ticket sizes between EUR 5-10 million, making it difficult for companies to raise such amounts. Regional Development Agencies (ROMs) typically provide venture capital with ticket sizes ranging from EUR 1-5 million within their respective regions. Invest-NL operates on a national level, offering investments starting at EUR 1 million and co-investing with ROMs for tickets under EUR 5 million. Both ROMs and Invest-NL generally require private investors to participate as part of the investment consortium
 - Investments in the supply chain are generally long-term infrastructure investments, which need to be matched with long-term financial capital. Traditional equity investors such as Venture Capital and Private Equity have a shorter investment horizon. Besides, there is a general lack of infrastructure investors active across the entire offshore wind supply chain. Consequently, there is a shortage of long-term capital available to the sector
 - A lot of 'Climate Tech' investors have insufficient knowledge of the offshore wind sector and dynamics, which is caused by the general shortage of sector investment opportunities (and hence reason to spend time on analyzing the sector), and the sector idiosyncrasies (investors need sufficient time to gain understanding)
 - The rationale for strategic investors is mainly driven by securing ability to service existing customers. This defensive strategy ensures that the companies they invest in do not fall in the hands of competitors, which is not aligned with maximizing the growth of the acquired companies. This hampers production capacity of innovate suppliers in the industry, as strategic investors are primarily focused on protecting their own business



1) Debt data has been omitted from desk research due to a lack of data on the investor landscape and transactions, however debt providers have been part of the interview process

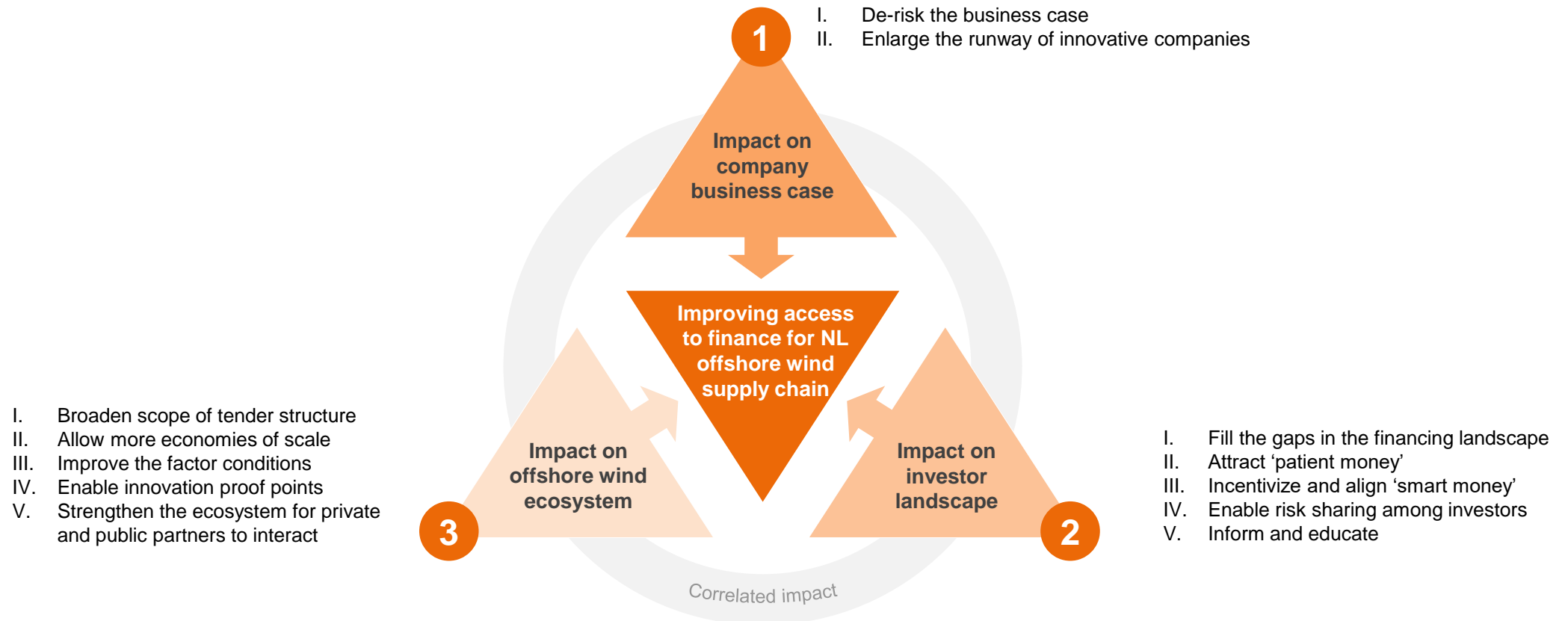
2) Dutch public and local (organized per Province) Venture Capital investors executive body of a specific Dutch Province and the Ministry of Economic Affairs

The Dutch market needs to be approached from different angles simultaneously to enhance access to finance for the offshore wind supply chain

Main conclusions based on the findings:

- The offshore wind targets for the Netherlands are 'at risk'
- Detailed analysis shows a mismatch between financing supply and demand, which hinders innovations required to significantly scale-up the supply chain
- Coordinated and simultaneous actions are required to address this issue

Recommendations have been structured around the company business case, the investor landscape, and the offshore wind ecosystem¹:



1) An overview of how the recommendations link to the specific findings can be seen on page 26

To stimulate the scaling up of Dutch offshore wind supply chain a list of possible improvements with regards to finance structures has been identified...

Company business cases

Investor landscape

Offshore wind ecosystem

The **main possible improvements with regards to company business cases** are organized around two themes: (1) de-risk the business case, (2) enlarge the runway of innovative companies:

I. The business cases for upscaling capacity of offshore wind suppliers can be de-risked by introducing guarantees to improve the risk profile and hence gearing of companies (and access to capital), create improved long-term certainty on electricity demand and prices, and promote industry standardization to make upscaling less costly and risky



- Guarantees can be introduced by stimulating the Dutch systemic banks to become intermediaries for the EIB's WindPowerPackage, and OEM companies and wind park developers to make use of its counter-guarantee facility.
- Furthermore, a PPA (corporate offtake) guarantee fund (first loss facility) can be set up to help to organize a 'pool' of parties' so that a portfolio of PPAs is created with an average lower risk profile thereby decreasing the barriers to close PPA's
- Promote industry standardization in the field of contracting and physical sizing without derailing innovation within these standards, which improves the long-term predictability, making the sector more efficient and easier to justify CapEx investments (e.g. for scaling up factories or a vessel fleet)

II. The runway for startups and scale-ups can be enlarged by public guarantees, blended finance structures within winning tenders, and the stimulation of green finance instruments



- A dedicated Public Guarantee Fund can further decrease the risk for debt providers and thereby increase potential gearing for offshore wind firms
- Offer financial instruments (e.g., subordinated loans) to wind park developers using (semi-) public funding (or blended finance) to include and promote innovative startups as part of the tender submission/process and make them more bankable
- Stimulate the use of the AFIF subsidy of the European Commission that can be used to speed up the transition to alternative fuels and increase the investments into new vessels
- The securitization of green bonds (e.g. with other sustainable energy sectors to enable risk diversification) can decrease the overall risk profile of green bonds and provide companies access to lower interest rates
- Directly impact the runway for FOAK Venture Capital funds by offering debt capital (e.g. seed capital facility by the RVO or a growth capital facility). This creates the opportunity for them to keep their standard return requirements while increasing the investment horizon, as the risks associated with the early phase of the investment are largely mitigated


... as well as recommendations for the investor landscape...


Company business cases


Investor landscape


Offshore wind ecosystem


The **main possible improvements with regards to the investor landscape** are organized around the following themes: (1) fill the gaps in the financing landscape, (2) attract 'patient money', (3) incentivize and align 'smart money', (4) enable risk pooling between investors and (5) inform and educate both the financing supply and demand side:

- 

I. The financing landscape can be improved by **stimulating more cooperation, co-investment, and pooling of investments**. Barriers can be decreased for foreign investors to enter the Dutch market by offering due diligence assistance and pre-produced market analyses. Cooperation needs to be stimulated between Invest-NL and Venture Capital to close the gap of the EUR 5-10 million ticket sizes. Furthermore, a specialized Venture Capital fund to co-invest with corporate venturing can ensure long-term capital availability and investor lock-in. Enable SFDR article 8 funds to become article 9 funds by assisting funds in identifying suitable offshore wind investments and supporting impact reporting through standardized tools
- 

II. **Infrastructure and long-term investors can be attracted to increase their presence in the offshore wind sector** as many of the assets have an economic lifetime that exceeds 15 years and provide potential stable incomes using (long-term) offtake agreements. These characteristics fit well with infrastructure investors. Among others this can be stimulated by decreasing the barriers for pension fund investors to calculate with lower required returns on equity for their beneficiaries and to help concretize the added societal value associated to investing in offshore wind with clear KPI's (scope 1-3 of CSRD-reporting). A trade-off can be observed between energy independence, sustainability and returns. Infrastructure investors can be helped to find co-investors that have the same goals. Furthermore, stimulate infrastructure investment funds and pension funds (globally) to create a consortium that develops a pool of offshore wind farms in North-West Europe, based on the principle of risk diversification and economies of scale (e.g. knowledge, contract, due diligence, buying power)
- 

III. **There should be an increase of 'Smart money'** (e.g., angel and strategic investors) active in the sector. These can be incentivized to take their role by providing specific tax exemptions or reductions (focus not only on reducing their cost, but also on mitigating their riskiness). This can be achieved by offering upfront tax credits or loss relief on a more favorable basis than the baseline tax system). Facilitate angel investments by creating investment groups or platforms focused on the Dutch offshore wind sector (e.g. for knowledge sharing or co-investing opportunities, just like "het Financieringsloket" of the Topsector Energie). Furthermore, stimulate innovation by corporates by providing tax benefits to in-house developed demo projects (e.g. energie-investeringsaftrek EIA). In addition, as strategic leasing companies can better value collateral compared to traditional banks, they can potentially finance against better terms
- 

IV. **Stimulate local and international cooperation and risk pooling between investors** by setting up a blended finance structure (and layered fund) (see page 46 for more detail) to enable the industry to increase its capacity. Additionally, enhancing and sustaining collaboration by enabling public investors (ROMs and Invest-NL) to share expertise and co-invest in offshore wind projects, and simplifying the process of pooling funds, is essential. Besides the national funds, a European offshore wind energy fund could be established with pooled contributions from public and private investors and financial institutions to invest in companies within the supply chain (startups to corporates)
- 

V. **Inform and educate investors** by stimulating the usage of the investor readiness programs (to increase the conversion rates and compressing the timelines). Stimulate trade organizations and knowledge institutes (such as TNO, Nedzero and TKI) to 'educate' investors on the industry specific risks and opportunities and general sector- and innovation trends and share collaboration opportunities with other investors and funds

... and the offshore wind ecosystem

Company business cases

Investor landscape

Offshore wind ecosystem

The **main possible improvements with regards to offshore wind ecosystem** are organized around five themes: (1) broaden scope of tender structure, (2) allow more economies of scale, (3) improve the factor conditions, (4) enable innovation proof points, and (5) create an ecosystem for private and public partners to interact

:



- I. To stimulate innovation and the scaling up of suppliers, the **tender structure should further broaden its scope beyond efficiency and lowest pricing**. This could potentially be achieved by rewarding the (longer term) contributions to the value chain (e.g. employment, capacity increase and innovation) to strengthen the offshore wind value chain for the future ambitions. Furthermore, to limit potential unfair competition and to create a fair pricing mechanism for global competition, the government should include the impact (at minimum the CO₂-footprint) of the supply chain as an integral part of the tender assessment system



- II. To allow the potential 'International Champions' to reach the much-needed scale it is important to some degree **further harmonize tender requirements within Europe**, making it easier for companies to tap into the market potential and economies of scale and become more competitively resistant. Furthermore, the current regulation framework (by local and the European competition authorities) should be brought in line with the importance of the realization of sustainability goals and strategic autonomy of the Netherlands and Europe (ensure European energy independence). An example of further harmonization could be to introduce a time horizon on when certain innovations will be part of the tender criteria



- III. To increase the sector's international competitiveness, it is also paramount to **improve the local Dutch factor conditions** and to provide a stable investment climate. A way to do this is by incentivizing the Dutch energy intensive industry to invest in the electrification of its core processes and accelerate permits for factories supplying the offshore wind sector. Furthermore, the government can incentivize technical personnel to move to the Netherlands (e.g. tax exemption) and to minimize subsidies of fossil fuel alternatives. The Dutch government should also analyze the potential for the contracts-for-difference (CFD) in the Netherlands as this reduces price risks and therefore creates more stability in the supply chain



- IV. **Altering the scope of the DEI and MOOI subsidies**, in line with the former HER+ subsidy, could better enable companies to create the much-needed proof points. Subsidies can cover around ~10% of project starting costs, after which debt and/or equity has to be raised. Moreover, develop a **'proof point facility'** containing various turbines, grid connection at an offshore location where innovative companies can demonstrate technology at scale (analogous to greenhouse horticulture and Food Valley). Thereby making sure lessons learned from previous proof point facilities (Europe wide) are considered. Currently tenders are often used for this purpose, but the incentives of the wind farm operators and suppliers involved are not aligned creating suboptimal solutions. Furthermore, the locations within the wind parks designated for innovations are not always suitable for creating the proof points needed to convince all stakeholders



- V. To increase collaboration among stakeholders, the government can **strengthen the ecosystem with an online platform to find and interact with private and public partners** and improve the sector community and network between suppliers, government and investors. Furthermore, the government can promote and improve participation and cooperation of startups and scale-ups within research consortia like GROW

To create traction, JBR advises to align the suggested improvements with policy makers and organize a round table with suppliers, financiers and relevant government officials



Companies face various financing challenges that hinder innovation to scale up the Dutch offshore wind supply chain. These challenges directly affect company's business cases and are aggravated by the difficult conditions faced by stakeholders in the chain, e.g. wind farm developers. Therefore, coordinated and simultaneous actions are required to enhance access to finance for the offshore wind supply chain (see the overview on page 8), and to avoid bottlenecks throughout the industry and its value chain.

This research proposes several directions for solutions to the identified issues in the sector based on the desk research, interviews, and an online questionnaire. JBR advises several concrete next steps to create traction and build momentum for making a meaningful impact. Additionally, further analyses can be conducted to strengthen the conclusions and address any gaps.

JBR advises to take multiple actions based on the research outcomes

- **Align with Policy Makers:** Continuously coordinate the suggested directions for solutions with policy makers and look for ways to support the Dutch offshore wind sector, such as:
 - setting up a coordinated program to address the issues and further work out the directions for solutions (e.g. taskforce, or national coordinator). The scope of this program is to work on all three dimensions simultaneously and supervise progress
 - organizing one or more round tables with companies in the sector, entrepreneurs, financiers, and relevant government officials
- **Create Action Plan:** Address all recommendations (starting with the 'low-hanging fruit') and execute a feasibility study on the directions for solutions that have the highest potential impact. Based on the interviews, deep-dives and existing contacts of Invest-NL and TKI Offshore Energy, JBR has made a list of possible low-hanging fruit which has been drawn up for further discussions as potential follow up of this study (see appendix page 47)
- **Stimulate European Cooperation:** Stimulate cooperation with EIB, Invest International, local ROM's, etc.

Over the course of this research, several potential follow-up studies emerged

- Comparison of the investment landscape with Climate Tech and/or other sectors to get a more detailed view on the relative attractiveness of the offshore wind sector
- Comparison of the Dutch financing landscape with the European financing landscape as the sector is very internationally orientated
- Work out in detail how a blended finance and layered fund would look like (see appendix page 46)
- Analysis of possible guarantee structures that can increase innovation (how could they work, for whom, examples elsewhere?)
- Comparison analysis of local tender requirements. Create insights on how these requirements differ, both on a technical specifications and administrative burdens
 - Analyze what the possibilities are for alignment in tender requirements within Europe
 - Analyze how effective innovations are currently embedded in tender processes and how this can potentially be optimized (including an analysis of lessons learned with regards to proof point facilities and combined financing solutions)

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This research focuses on the relationship between the offshore wind supply chain and the financing landscape for innovation and scaling production capacity



Offshore wind energy plays a **significant role in making the Dutch industry and society more sustainable and achieving energy independence** for the Netherlands. The current offshore supply chain is facing a challenging market situation. The offshore supply chain **must innovate and scale up to achieve offshore wind energy goals** and maintain its strong international position within the wind sector

Goals

Netherlands: The country aims for **21 GW in 2032** of offshore wind energy and **70 GW by 2050**. Additionally, the Dutch offshore supply chain ranks among the top 5 globally and plays an essential role throughout the entire lifecycle of an offshore wind farm. Beyond meeting climate goals and maintaining a strong position in the global market, innovations and scaling up reduce the Netherlands' dependency on technology and capacity from other countries

Europe: At the European level, ambitions are set at **300 GW by 2050**. This means that within Europe, **24 GW per year** needs to be rolled out between 2027-2030

Situation

The offshore sector is facing headwinds that **complicate the scaling and innovation within the supply chain**. The offshore supply chain **requires significant capital investments** to execute complex operations and manage the risks associated with offshore activities. Generally, the supply chain is **not financially robust and lacks sufficient capacity** to achieve the cumulative European ambitions

Complication

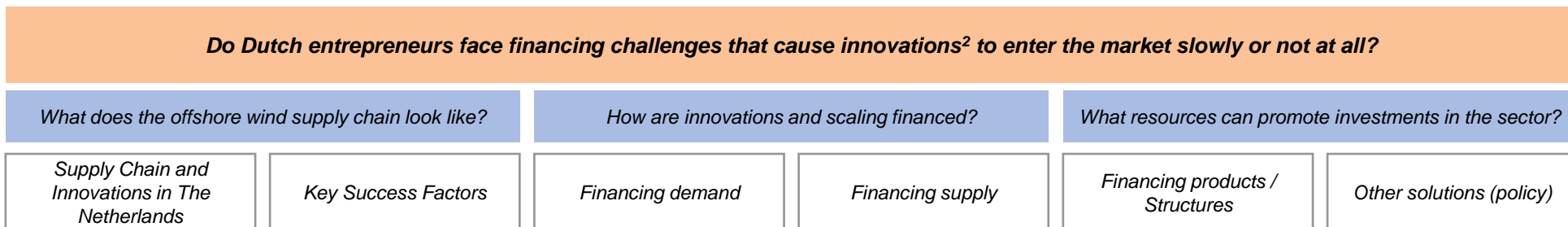
External factors further complicate investments in innovations and scaling. These **factors** include: **i)** increased costs, **ii)** potential mismatch between future electricity production and consumption, **iii)** development of larger wind turbines, in combination with **iv)** the current tender system

Moreover, there are a limited number of companies who secure private financing. Based on available data, 50 companies within the sector have raised funding over the past 20 years, and approximately 10% of the companies supported by TKI Offshore Energy have secured external funding. It appears that a large portion of these companies rely on subsidies or strategic partners.

Primary research question

Do Dutch entrepreneurs face financing challenges that cause innovations² to enter the market slowly or not at all?

Secondary research questions



1) Innovations that improve wind components or processes (e.g. increasing production of monopiles or reducing installation time with smart technologies)

To gain the quantitative and qualitative insights into the root causes of the issue, JBR started off with demand and supply side hypotheses and test these in an online survey and interviews

Do Dutch entrepreneurs face financing challenges that prevent the scaling up of the Dutch offshore wind supply chain?

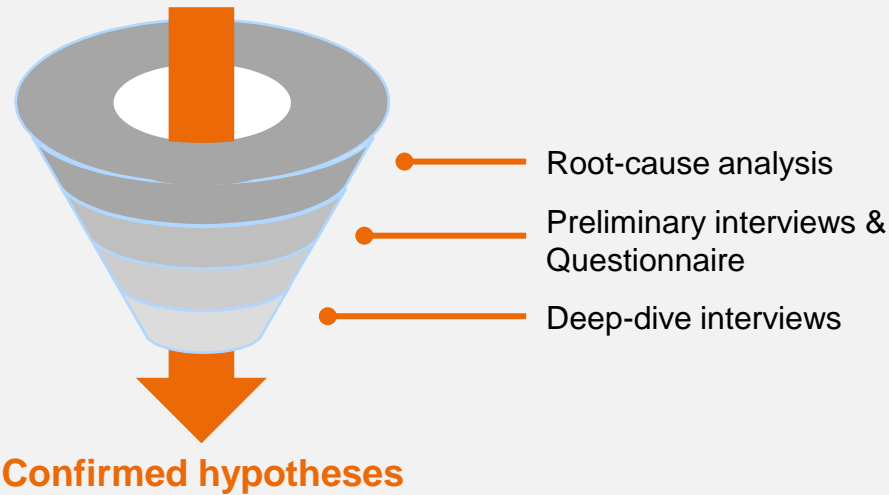


Figure 1: Schematic overview of research design

Root-cause analysis

- The root-cause analysis provided the basis for hypotheses to research on both the demand and supply side of the supply chain

Preliminary interviews & Questionnaire

- Sending out an online questionnaire was an efficient way to get as many answers from as many different companies in the offshore wind supply chain as possible
- The database and relations of both Invest-NL, TKI Offshore Energy and JBR gave a wide range of companies in the offshore wind sector and a high expected response rate
- Preliminary interviews prior to the questionnaire ensured a solid understanding of current market developments and increased the relevance of the questions
- The results of the questionnaire helped to formulate the most essential questions for the deep-dive interviews
- In total around **10 preliminary interviews** were conducted and around **50 respondents have filled in the questionnaire**

Deep-dive interviews

- Deep-dive interviews gave insights in the success stories, but also in the unsuccessful cases
- In total around 10 deep-dive interviews were conducted

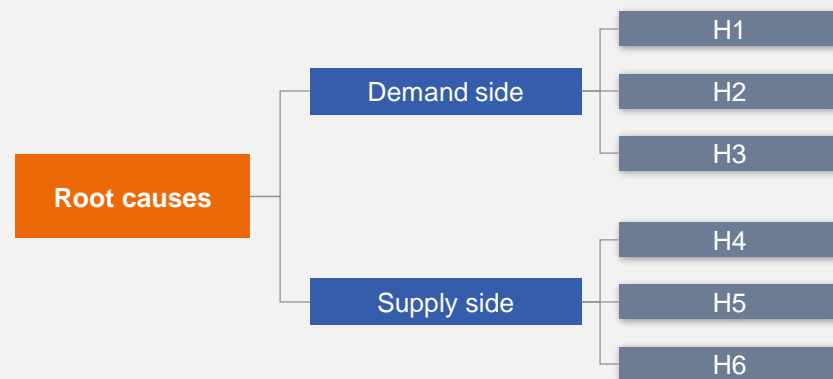


Figure 2: Schematic overview of the root cause framework

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360 companies¹ have been identified to be active in the Dutch offshore wind supply chain, of which many operate in more than one subsector

Data setup and methodology

The setup of the data consists out of two lists

- List of Dutch industry organization IRO of companies active in Offshore Wind
- A provided list of companies known by Invest-NL and TKI Offshore Energy

For the mapping of companies, the categorization of the IRO has been used²

- Materials and equipment suppliers / manufacturers
- Design, engineering, research and consultancy
- Civil construction and dredging
- Inspection, M&R, pipeline, offshore installation
- Transport & logistics

Conclusions

- Looking at the list of companies that have been mapped, a low amount of the companies are active in 'civil construction and dredging'. This could be explained by the fact that the entry barriers and required investments are highest in this subsector
- More than half of the companies are active in two or more phases of the supply chain

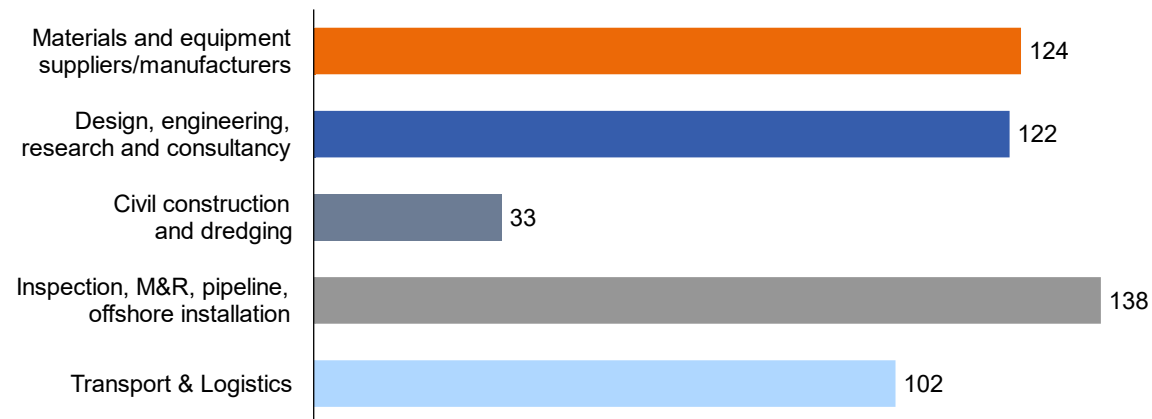
1) A few Dutch companies have been bought by a foreign investor, but are still active in the Dutch supply chain

2) 59 companies have not been put in any phase of the supply chain

3) Companies can be active in multiple subsectors

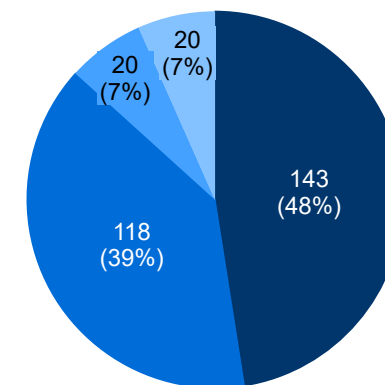
Source: Pitchbook, IRO, CapitalIQ, Invest-NL, company websites

Mapping of companies³ in the various subsectors of the supply chain



Overview of how many companies are active in multiple subsectors

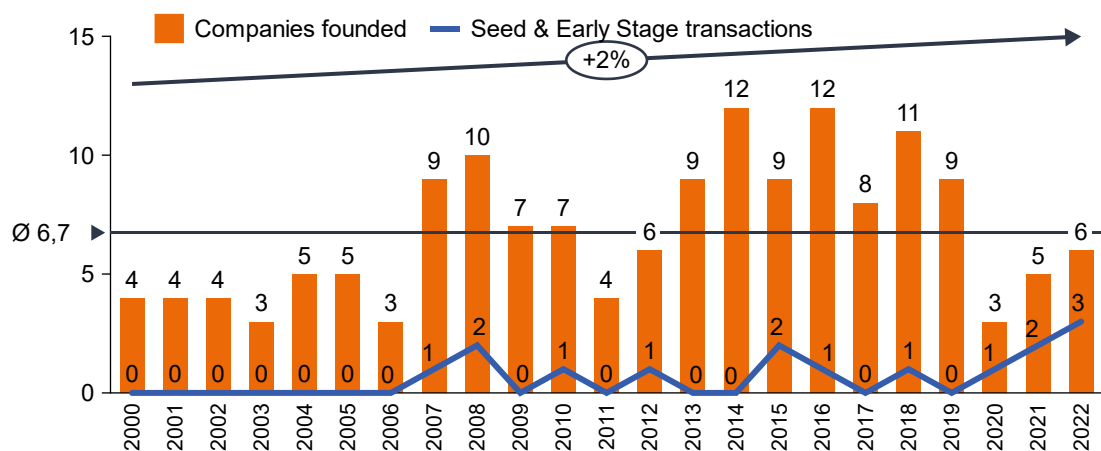
- Active in one phase
- Active in two phases
- Active in three phases
- Active in four phases



Since the first offshore wind farm in NL in 2007 a growth in Dutch startups can be observed, but the number of Seed¹ & Early Stage¹ transactions lags behind with Grants^{1,2} only compensating a fraction



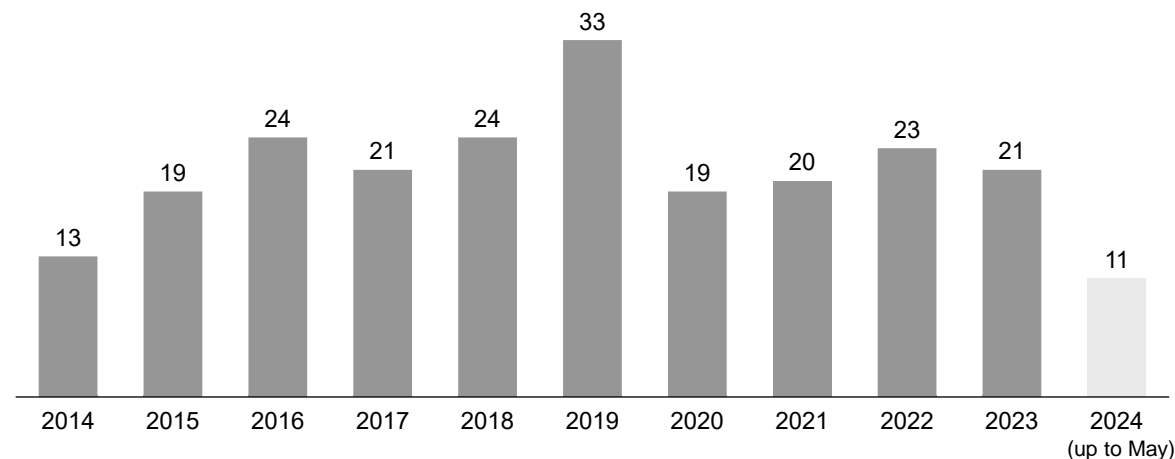
Startups founded and Seed & Early Stage transactions



- From 2000 to 2022, 155 companies have been founded in the offshore wind supply chain in the Netherlands. This is an average of around seven companies founded each year
- The total of 155 companies founded since 2000 shows that there is a significant number of innovations being brought onto the market
- A rise of companies founded can be observed from 2007 onwards. In 2007 the first offshore wind farm in the Netherlands was taken into operation (Egmond aan zee)
- Only 15 Seed and Early Stage transactions have been completed in the period from 2000 onwards. This is relatively low compared to the number of companies founded
- A modest increase in Seed and Early Stage transactions can be observed from the year 2020
- The mapping of the founded companies is 48 in Materials and equipment suppliers, 56 in Design, engineering, research and consultancy, 14 in Civil construction and dredging, 62 in Inspection, M&R, pipeline, offshore installation and 41 in Transport & logistics

1) Which type of transactions are part of a transaction phase is explained in the appendix on page 34
Source: Invest-NL, IRO, company websites

Number of Grants² awarded in the Dutch offshore wind sector



- Grants have the potential to take the place of Seed and Early Stage financing for recently founded companies, as it can provide capital for the first year(s) of product development
- Five companies had besides a Grant also Seed or Early Stage investments, which evenly happened before or after the Grant was awarded (no observed sequentiality or conditionality)
- At least 228 grants have been awarded from 2014 in the Dutch offshore wind sector, 91 are related to the HER+ subsidy. This subsidy has been suspended, which could cause a decline in grants from 2024 and onwards. 5 out of 11 grants in 2024 were from the HER+ Subsidy

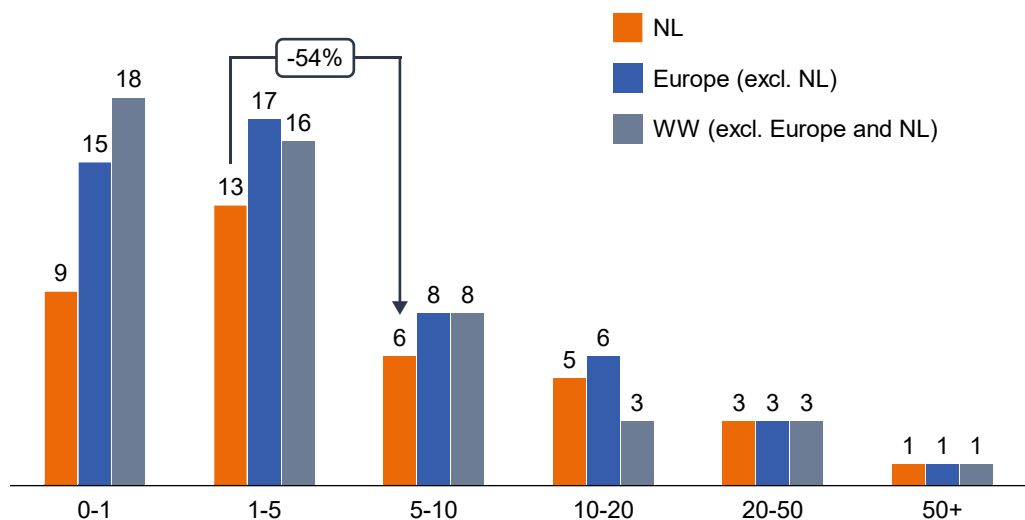
Additions from interviews and questionnaire outcome:

- Grants that are awarded, help smaller companies to find investors
- Awarded grants give investors more security, because a part of the cash burning period can be overcome by the grant. Grants are thus crucial to bring innovations to market.

2) Grants found are HER, EZ Energie Innovatie, PPS Toeslag, DEI and MOOI-regeling
Source: Pitchbook, Topsector Energie

Within the offshore wind financing landscape there is a gap in financiers¹ with higher ticket sizes, especially in the 5-10 million range, which drives the lack of Early & Later Stage financing

The number of investors across different ticket sizes^{2,3}



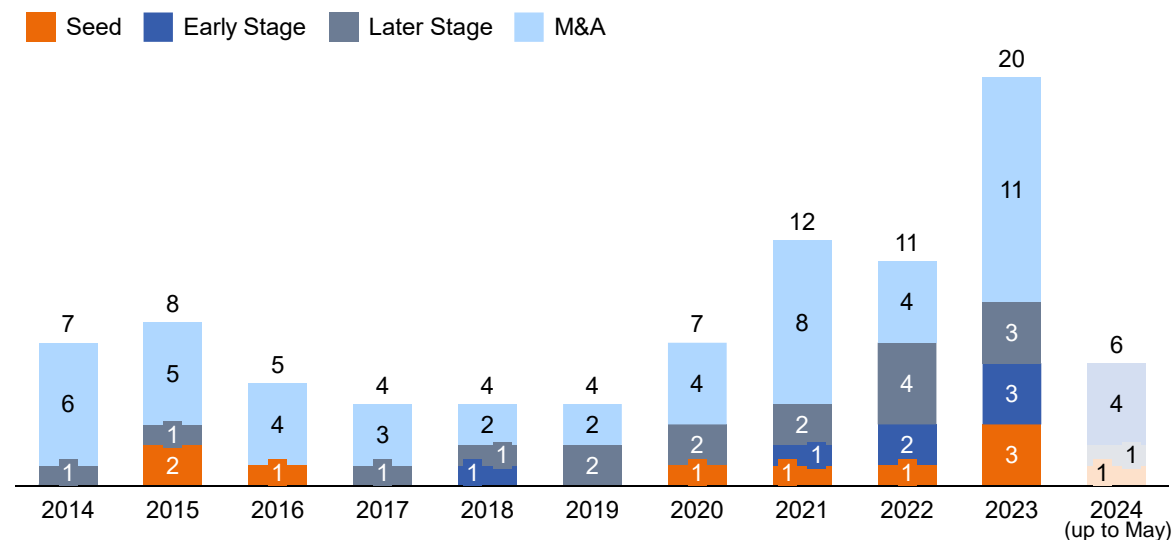
- In the Netherlands there are 29 known investors, which have completed an investment in the offshore wind supply chain since 2014
- The data shows fewer investors active in the ticket sizes from EUR 5m and up

Additions from interviews and questionnaire outcome:

- Companies support the observations that there are fewer investors capable to invest in the ≥EUR 5m ticket sizes
- Although there are relatively many investors active in the EUR 1-5m range, it can still be difficult for companies to attract funding within these ticket sizes, due to the riskiness of the business case and long cash burning trajectories

1) Financiers which have done an investment in the offshore wind industry before
 2) Investors can be active in multiple ticket sizes
 3) Ticket size data is available for 16 of 29 investors
 Source: Pitchbook, CapitalIQ, websites of investors

Transaction timeline of the offshore wind supply chain



- In the last 10 years, 94 transactions have been published, with M&A being the biggest category with 52. Seed and Early Stage transactions are underrepresented, with only 10 and 7 transactions respectively
- The Later Stage category accounts for 17 transactions, making it slightly more substantial
- From 2021 to 2023, the yearly transactions have more than doubled compared to previous years (it is not yet known if the same holds for 2024)

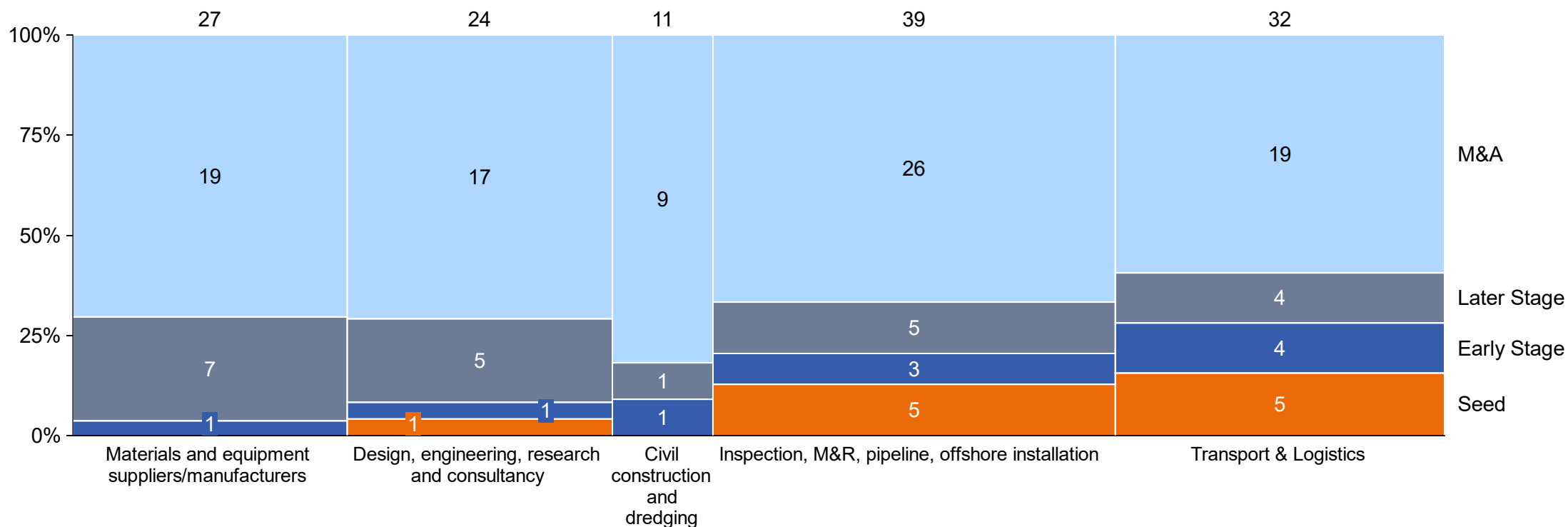
Additions from interviews and questionnaire outcome:

- For offshore wind propositions it is more difficult to secure funding, compared to other energy propositions. The successful matches of offshore propositions is around 50% lower
- There appears to be a shortage of Early & Later Stage financing in the Dutch offshore wind industry

Source: Pitchbook, CapitalIQ

There are only a few companies that have completed an 'Early Stage' or 'Later Stage' transaction after the 'Seed' phase

Number of transactions in the past 10 years in the various subsectors¹ and transaction phases²



- There have been few “Early Stage” and “Later Stage” financing transactions in the past 10 years in all subsectors
- Very little Seed and Early Stage in the CapEx heavy parts of the supply chain (material & equipment suppliers and civil construction and dredging)
- The underlying data shows only three out of 10 companies (including the companies that haven’t been divided in one of the supply chain phases) that have successfully completed an Early Stage (2) or Later Stage (1) transaction after completing a Seed transaction
- Additionally, these companies also did not complete a M&A transaction

1) Companies can be active in multiple subsectors and therefore the transaction will show up in multiple subsectors

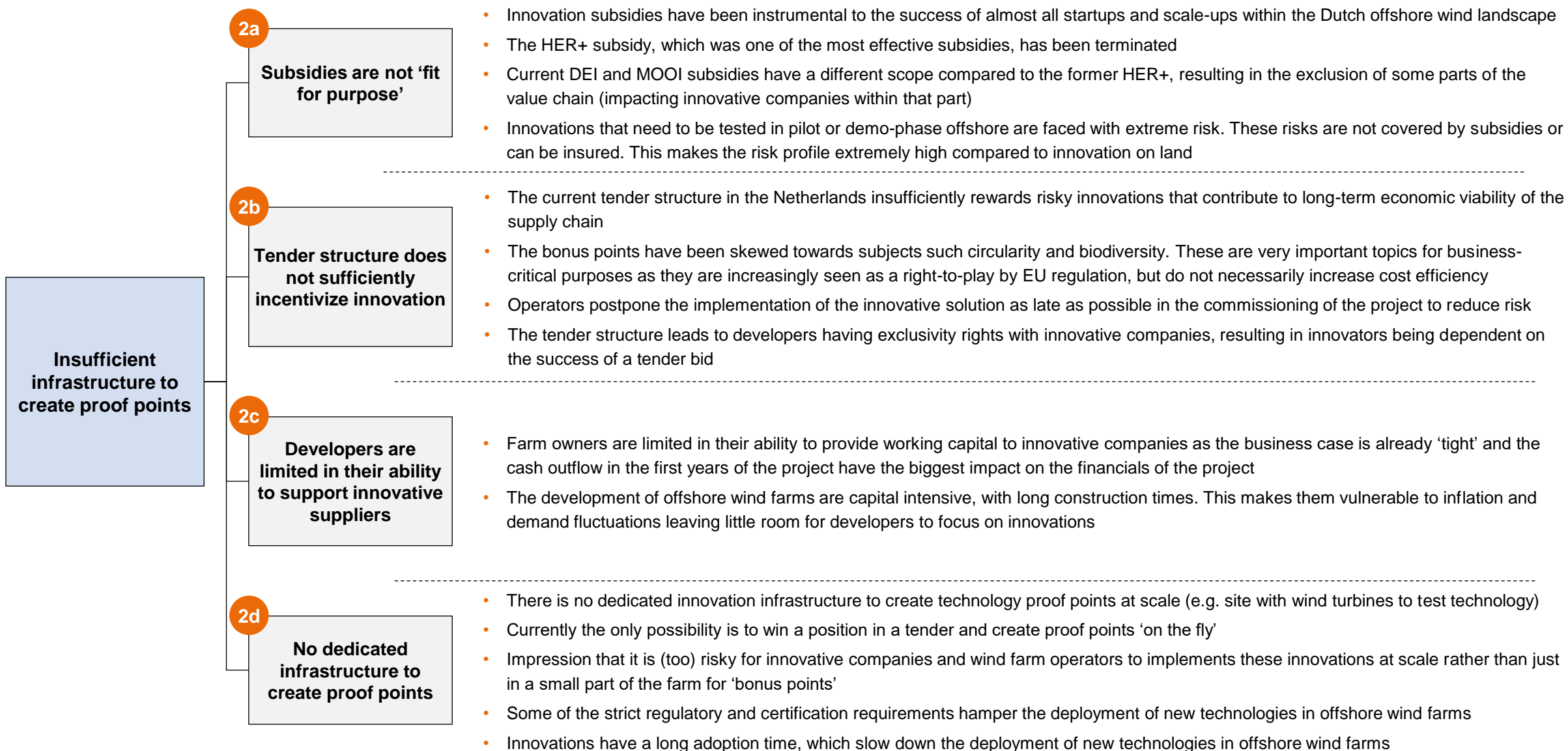
2) Explanation of the dividing of the transactions can be seen on page 34

Source: Capital-IQ, Pitchbook, IRO, Invest-NL, company websites

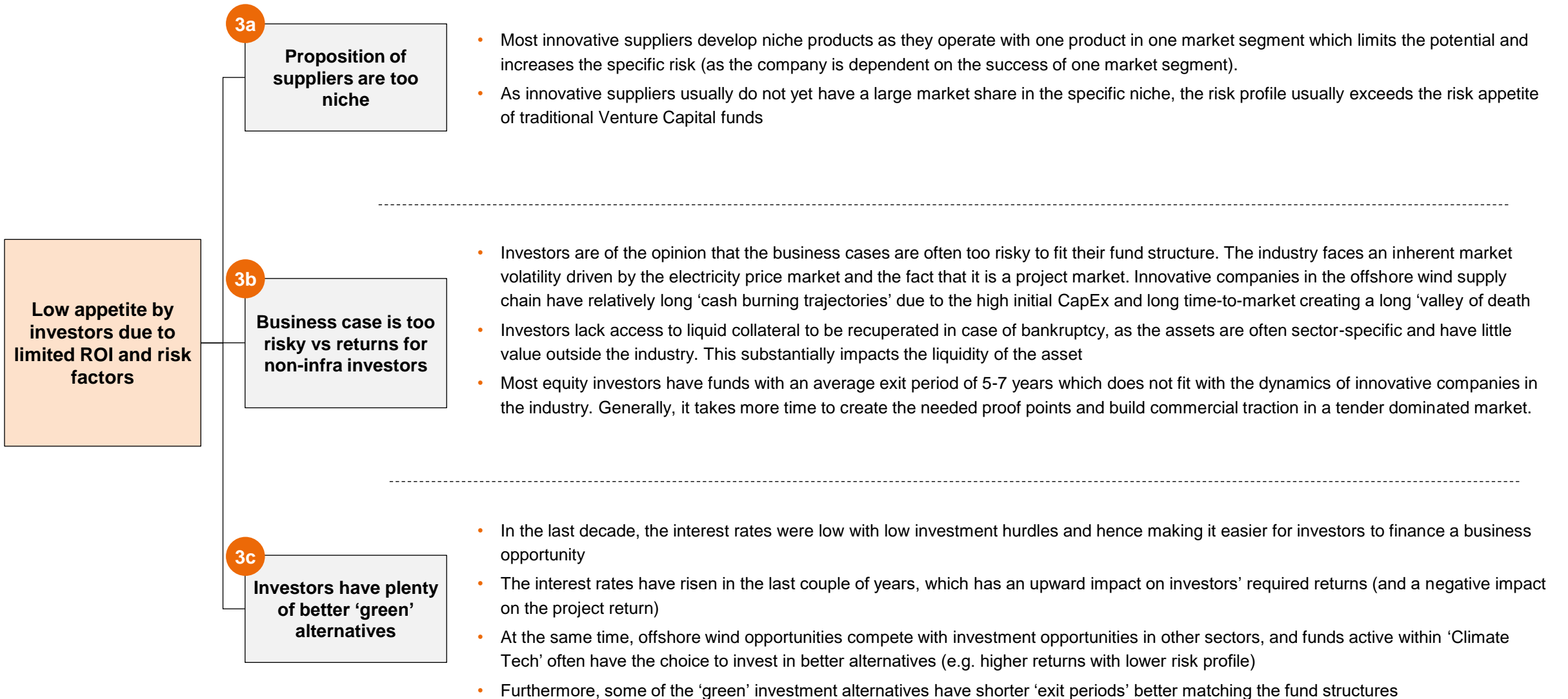
The business cases of suppliers in the Dutch offshore wind sector are under pressure driven by the specific risk-reward profile, industry structure, and challenging factor conditions



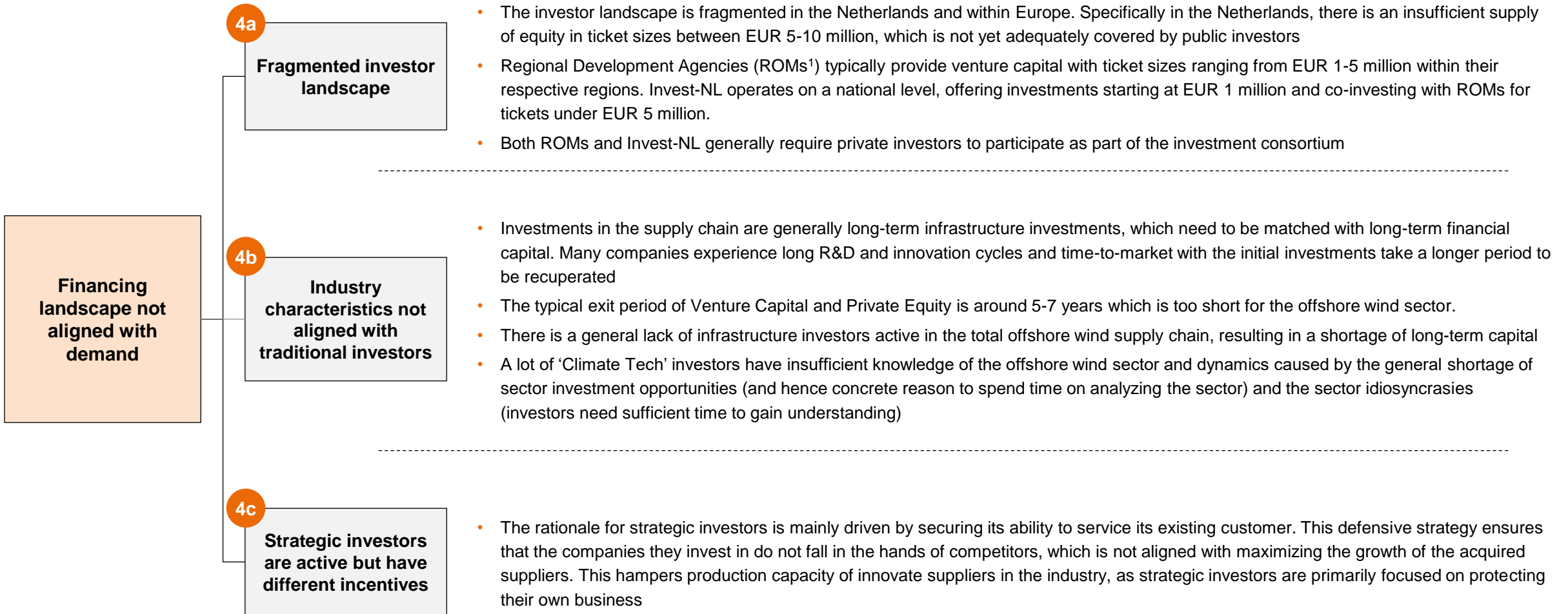
The Dutch offshore wind infrastructure is insufficiently developed to allow innovative suppliers to create proof points needed to scale-up and convince investors



Financial investors generally have a low appetite for the Dutch offshore wind sector as many suppliers have a niche proposition, low expected ROI vs alternatives and high risks without liquid collateral



Financing landscape not aligned with demand as it lacks supply of large ticket sizes and funds targeted at long-term investments

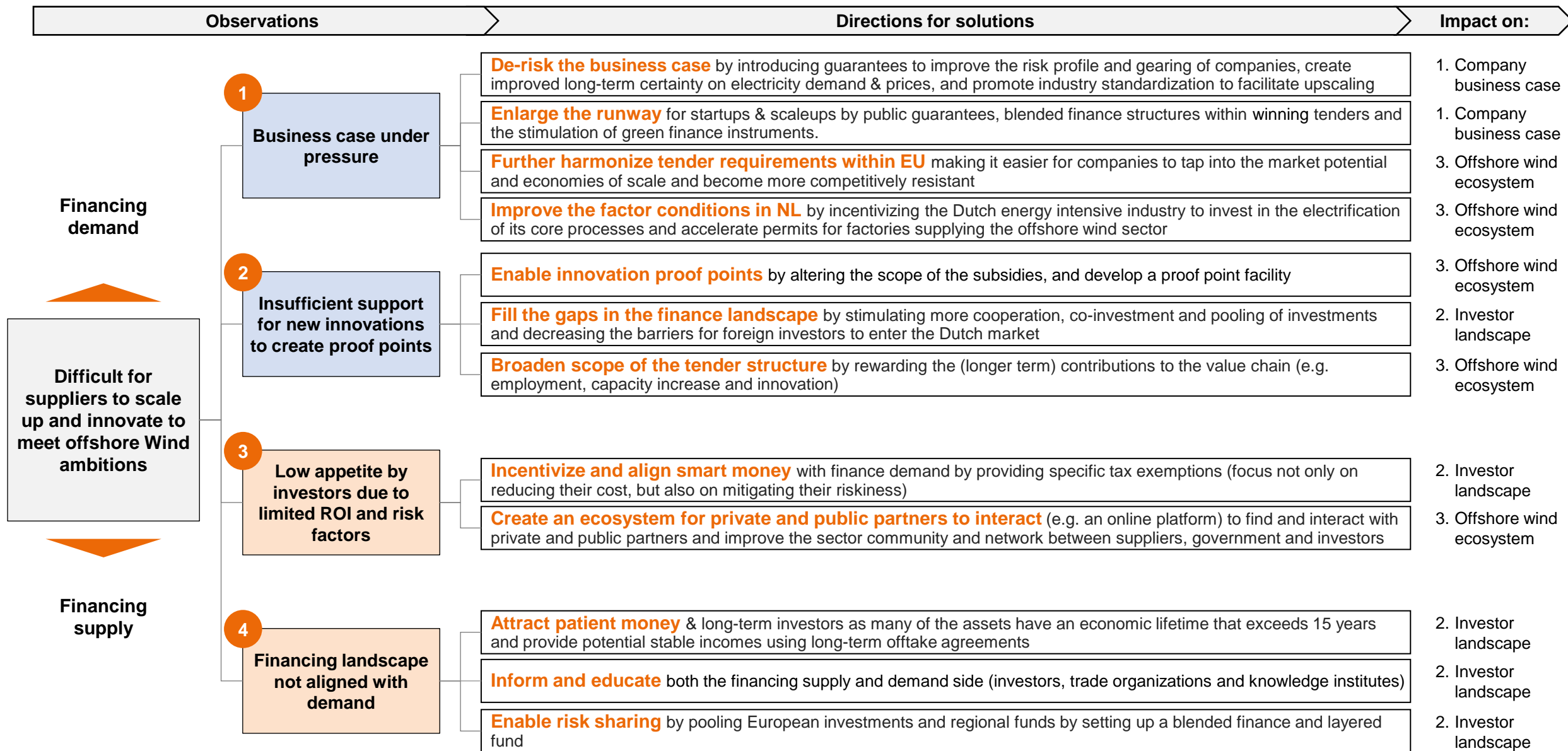


1) These are Dutch public and local (organized per Province) Venture Capital investors executive body of a specific Dutch Province and the Ministry of Economic Affairs

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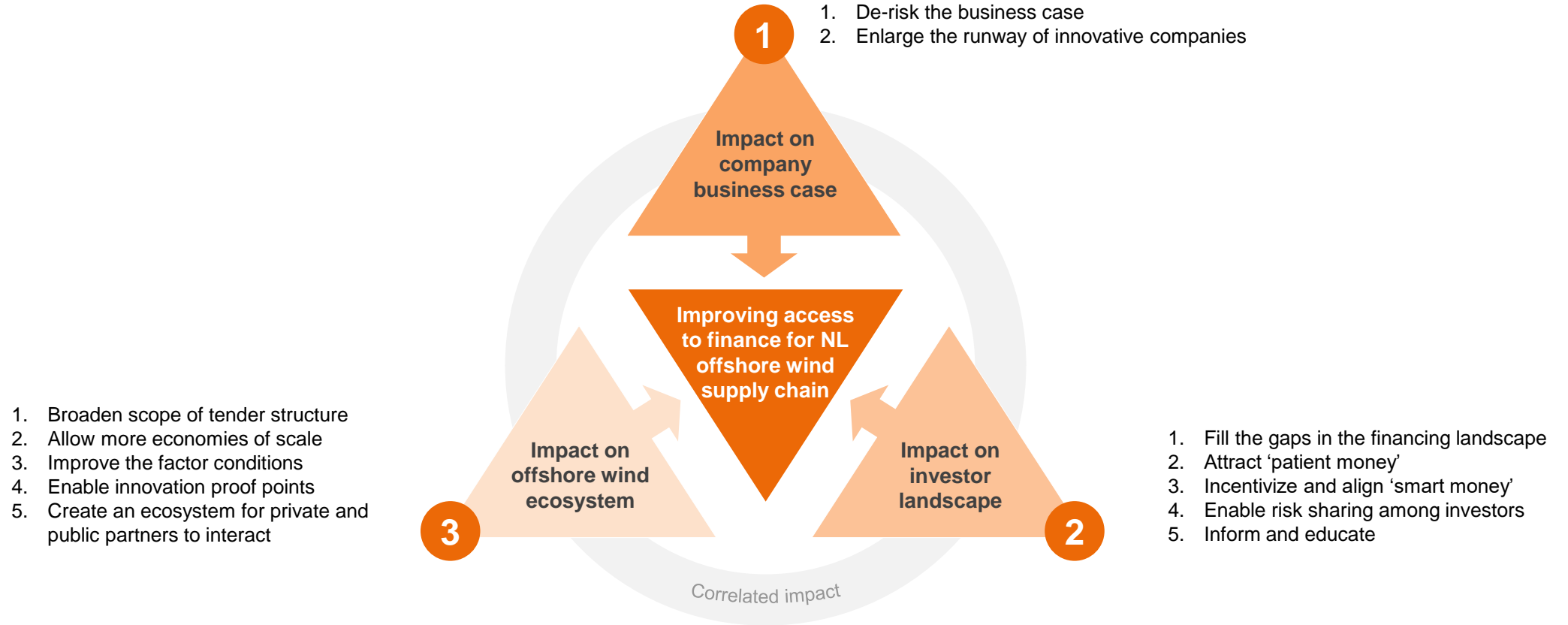


From the desk research, interviews and the questionnaire various directions for solutions can be derived, that are linked to the observation clusters



The directions for solutions are structured based on three levers; company business case, investor landscape and offshore wind ecosystem

Recommendation levers for enhancing access to finance in the Dutch offshore wind supply chain



The directions for recommendations linked to the company business cases see primarily on how to de-risk the business cases and enlarge the runway for startups and scale-ups

Company business cases

Investor landscape

Offshore wind ecosystem

		Relevant for:		
		Startups / Scale-ups	SMEs & Corporates	Wind farm operators
1. De-risk the business cases				
A.	Stimulate the large Dutch systemic banks to become an intermediary for the EIB's WindPowerPackage, and OEM companies and wind park developpers to make use of the counter-guarantee of EUR 5bn (following Deutsche Bank and Intesa Sanpaolo). A multiplier can be expected of around 8 times for every euro that is guaranteed to every euro invested	✓	✓	
B.	Stimulate the use of PPA's by use of a PPA (corporate offtake) guarantee fund (first loss facility), which can ensure the expected revenue of wind farm operators. The wind farm operators can therefore better award stable margins to their suppliers. Creating a 'pool' of parties can help to create a portfolio of PPAs with an average lower risk ¹	✓	✓	✓
C.	Promote industry standardization in the field of contracting and physical sizing without derailing innovation within these standards, which improves the long-term predictability, making the sector more efficient and easier to justify CapEx investments (e.g. for scaling up factories or a vessel fleet)	✓	✓	✓
2. Enlarge the runway of startups and scale-ups				
A.	A dedicated Public Guarantee Fund (a local version of the EIB's WindPowerPackage) can further decrease the risk for debt providers and thereby increase potential gearing for offshore wind firms			✓
B.	Offer financial instruments (e.g., subordinated loans) to wind park developers using (semi-) public funding (or blended finance) to include and promote innovative startups as part of the tender submission/process and make them more bankable	✓		✓
C.	Stimulate the use of the AFIF subsidy of the European Commission that can be used to speed up the transition to alternative fuels and increase the investments into new vessels	✓	✓	
D.	The securitization of green bonds (e.g. with other sustainable energy sectors to enable risk diversification) can decrease the overall risk profile of green bonds and provide companies access to lower interest rates	✓	✓	✓
E.	Directly impact the runway for FOAK Venture Capital funds by offering debt capital (e.g. seed capital facility by the RVO or a growth capital facility). This creates the opportunity for them to keep their standard return requirements while increasing the investment horizon, as the risks associated with the early phase of the investment are largely mitigated	✓	✓	

1) See 'Meerwaarde van een garantiefonds voor Corporate Power Purchase Agreements (Rebel & Invest-NL, 2023) for a detailed description and analysis

The directions for recommendations linked to the investor landscape see on filling the gaps in the financing landscape by cooperation and attracting patient money...

		Relevant for:		
		Startups / Scale-ups	SMEs & Corporates	Wind farm operators
1. Fill the gaps in the financing landscape				
A.	Stimulate cooperation between Invest-NL and Venture Capital to close the gap of the EUR 5-10 million ticket sizes and to reduce the cash burning risk of smaller ticket sizes (<5m) within seed funding	✓	✓	
B.	Stimulate the introduction of a specialized offshore Venture Capital fund , and corporate venturing to co-invest, which can ensure long-term capital availability and investor lock-in (e.g. by making use of the Grow consortium to facilitate these co-investing possibilities)	✓		
C.	Make it more attractive for foreign investors to enter the Dutch market by offering (standardized) due diligence assistance, pre-produced market analyses and promoting active matchmaking between EU investors	✓	✓	✓
D.	Enable SFDR article 8 funds to become article 9 funds by supporting these in finding the proper offshore wind investments and additionally support them in reporting on their impact by providing standardized tooling	✓	✓	
E.	Create a level playing field with other European countries that are providing additional incentives on trade finance facilities on vessels if offtake contract conditions remain unclear		✓	✓
2. Attract patient money				
A.	Enable 'long-term money' suppliers (e.g. infrastructure investment funds and pension funds) to enter the financing market as many of the assets have an economic lifetime that exceeds 15 years and provide potential stable incomes using offtake agreements. For example, by ringfencing the assets with long economic lifetime and stable income such as large operating vessels and monopiles		✓	✓
B.	Stimulate pension fund investors to calculate with lower required returns on equity for their beneficiaries and help to make concrete the added societal value with investing in offshore wind with clear KPI's (scope 1-3 of CSRD-reporting). A trade-off can be observed between energy independence, sustainability and returns. Infrastructure investors can be helped to find co-investors that have the same goals.		✓	✓
C.	Stimulate infrastructure investment funds and pension funds (globally) to create a consortium that develops a pool of offshore wind farms in North-West Europe, based on the principle of risk diversification and economies of scale (e.g. knowledge, contract, due diligence, buying power)		✓	✓

...furthermore, stimulating smart money, enabling risk sharing and educating investors are seen as critical directions for solutions

3. Incentivize and align smart money

- A. Promote **customer-supplier financing** (e.g. prepayments of supplies or a working capital facility) by enabling supplier consortiums and contractual support
- B. Facilitate angel investments by creating **investment groups or platforms** focused on the Dutch offshore wind sector (e.g. for knowledge sharing or co-investing opportunities, just like “het Financieringsloket” of the Topsector Energie)
- C. **Stimulate angel investors** to enter the market by providing specific tax exemptions (focus not only on reducing their cost, but also on mitigating their riskiness). This can be achieved by offering upfront tax credits or loss relief on a more favorable basis than the baseline tax system
- D. Stimulate **innovation by corporates** by providing tax benefits to demo project that are developed inhouse by corporates
- E. Stimulate the use of strategic **leasing companies**, which can better value collateral compared to traditional banks

4. Enable risk sharing

- A. Set up a **blended finance (and layered fund)** to enable the industry to increase its capacity (e.g. expand its Support Operating Vessels and to transition the fleet to alternative fuels, see page 46 of the appendix for an example)
- B. Enhance **knowledge sharing and co-investments among ROMs** when it comes to offshore wind investments and make it easier to pool funds from different Provinces to Offshore Wind suppliers (also between ROMs and Invest-NL)
- C. Establish a **European offshore wind energy fund** with pooled contributions from public and private investors and financial institutions to invest in companies within the supply chain (startups to corporates)

5. Inform and educate

- A. Stimulate **investor readiness programs** for startups and scale-ups to increase the conversion rates and compressing the timelines (e.g. peer-2-peer founder meetings)
- B. Encourage trade organizations and knowledge institutes (such as TNO, Nedzero and TKI) to **‘educate’ investors** on the industry and value chain specific risks and opportunities and general sector- and innovation trends. Collaboration opportunities with other investors and funds

Relevant for:

Startups / Scale-ups	SMEs & Corporates	Wind farm operators
✓	✓	
✓		
✓		
	✓	
✓	✓	
		✓
✓	✓	
✓	✓	
✓		
✓	✓	

1) See Draghi, 2024

The directions for recommendations linked to the offshore wind ecosystem see on how to broaden the scope of the tender structure, creating European alignment and improving the factor conditions...

Company business cases

Investor landscape

Offshore wind ecosystem

1. Broaden the scope of the tender structure

- A. **Reward the broad economic contributions to the value chain** of companies in the tender system (e.g. employment, efficiency innovation)
- B. Include (at least) the CO₂-footprint of the supply chain as an integral part of the tender assessment system, to create a **fair pricing mechanism for global competition**

2. Allow more economies of scale

- A. **Harmonize tender requirements** within Europe, making it easier for companies to tap into economies of scale and become more competitively resistant (e.g. introduce a time horizon on when certain innovations will be part of the tender criteria, creating more certainty for market parties)
- B. Set EU sustainability standards and align requirements and criteria within tenders (e.g. by **laying them down in the law**)
- C. European coordination to **prevent bubbles in demand** in the supply chain, followed by deflation of demand
- D. The **current regulation framework** (by local and the European competition authorities) should be brought in line with the importance of the realization of sustainability goals and strategic autonomy of the Netherlands and Europe (ensure European energy independence).

3. Improve the factor conditions

- A. Stimulate long-term demand for electricity by incentivizing the Dutch **energy intensive industry to invest in electrification** and match the offshore wind electricity supply with the market demand in which large industrial players could play a role
- B. **Accelerate the permit process** for factories supplying the offshore wind sector that face nitrogen regulation issues
- C. Incentivize **technical personnel** to move to the Netherlands (e.g. tax exemption)
- D. **Prevent bottlenecks and disruptions in the supply chain**, such as raw material shortages, are delaying offshore wind farm projects. Government monitoring and participation if required
- E. Further analyze the potential for the **contracts-for-difference** (CFD) in the Netherlands

	Relevant for:		
	Startups / Scale-ups	SMEs & Corporates	Wind farm operators
A. Reward the broad economic contributions to the value chain of companies in the tender system (e.g. employment, efficiency innovation)	✓	✓	✓
B. Include (at least) the CO ₂ -footprint of the supply chain as an integral part of the tender assessment system, to create a fair pricing mechanism for global competition	✓	✓	✓
A. Harmonize tender requirements within Europe, making it easier for companies to tap into economies of scale and become more competitively resistant (e.g. introduce a time horizon on when certain innovations will be part of the tender criteria, creating more certainty for market parties)	✓	✓	✓
B. Set EU sustainability standards and align requirements and criteria within tenders (e.g. by laying them down in the law)	✓	✓	✓
C. European coordination to prevent bubbles in demand in the supply chain, followed by deflation of demand	✓	✓	✓
D. The current regulation framework (by local and the European competition authorities) should be brought in line with the importance of the realization of sustainability goals and strategic autonomy of the Netherlands and Europe (ensure European energy independence).	✓	✓	✓
A. Stimulate long-term demand for electricity by incentivizing the Dutch energy intensive industry to invest in electrification and match the offshore wind electricity supply with the market demand in which large industrial players could play a role	✓	✓	✓
B. Accelerate the permit process for factories supplying the offshore wind sector that face nitrogen regulation issues	✓	✓	✓
C. Incentivize technical personnel to move to the Netherlands (e.g. tax exemption)	✓	✓	✓
D. Prevent bottlenecks and disruptions in the supply chain, such as raw material shortages, are delaying offshore wind farm projects. Government monitoring and participation if required	✓	✓	✓
E. Further analyze the potential for the contracts-for-difference (CFD) in the Netherlands	✓	✓	✓

...furthermore, enabling innovators to create proof points and creating an ecosystem for private and public partners to interact are seen as critical directions for solutions

4. Enable innovation proof points

- A. Altering **the scope of the DEI and MOOI subsidies**, in line with the former HER+ subsidy, could better enable companies to create the much-needed proof points
- B. Develop a **'proof point facility'** containing various turbines, grid connection and offshore location where innovative companies can demonstrate technology at scale (analogous to greenhouse horticulture and Food Valley)
- C. Create a **time horizon** on when certain innovations will be part of the tender criteria being it in capacity, ecology or system integration. This will create certainty for investors and startups/scale-ups

5. Create an ecosystem for private and public partners to interact

- A. Create **an ecosystem with an (online) platform** to find and interact with private and public partners and improve the sector community and network between suppliers, government and investors
- B. Promote and improve participation and cooperation of startups and scale-ups within research consortia like GROW

	Relevant for:		
	Startups / Scale-ups	SMEs & Corporates	Wind farm operators
A.	✓		
B.	✓	✓	
C.	✓	✓	✓
A.	✓	✓	
B.	✓		

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Setups of the databases and the methodology

Companies within the Dutch offshore wind supply chain

The setup of the data consists of two lists

- List of Dutch industry organization IRO of companies active in Offshore Wind
- A provided list of companies known by Invest-NL and TKI Offshore Energy

For the mapping of companies, the categorization of the IRO has been used

- Materials and equipment suppliers / manufacturers
- Design, engineering, research and consultancy
- Civil construction and dredging
- Inspection, M&R, pipeline, offshore installation
- Transport & logistics

Investors within the Dutch offshore wind supply chain

The setup of the data consists of two lists

- List of investors active in Offshore Wind on Pitchbook
- A provided list of companies known by Invest-NL

These investors are split in several categories of ticket sizes and investment phase

- 0 to 1 million
- 1 to 5 million
- 5 to 10 million
- 10 to 20 million
- 20 to 50 million
- 50+ million
- Angel
- Seed
- Early Stage
- Later Stage
- M&A

Transactions within the Dutch offshore wind supply chain

The setup of the data consists of two databases

- The transaction database of Pitchbook and Capital-IQ

The transactions have been divided into five categories for type of transaction and deal class

- *Seed*
- *Early Stage*
- *Later Stage*
- *M&A*
- *Grant*
- *Corporate*
- *Venture Capital*
- *Private Equity*
- *Individual*
- *Other*

The difference is made by dividing the following transactions into categories

Seed: Seed Round, Accelerator/Incubator (when the startup got funding) and Equity Crowdfunding

Early Stage: Early Stage Venture Capital

Later Stage: Later Stage Venture Capital and Private Equity Growth/Expansion

M&A: Merger/Acquisition, Buyout/LBO, Secondary Transaction – Private and Corporate

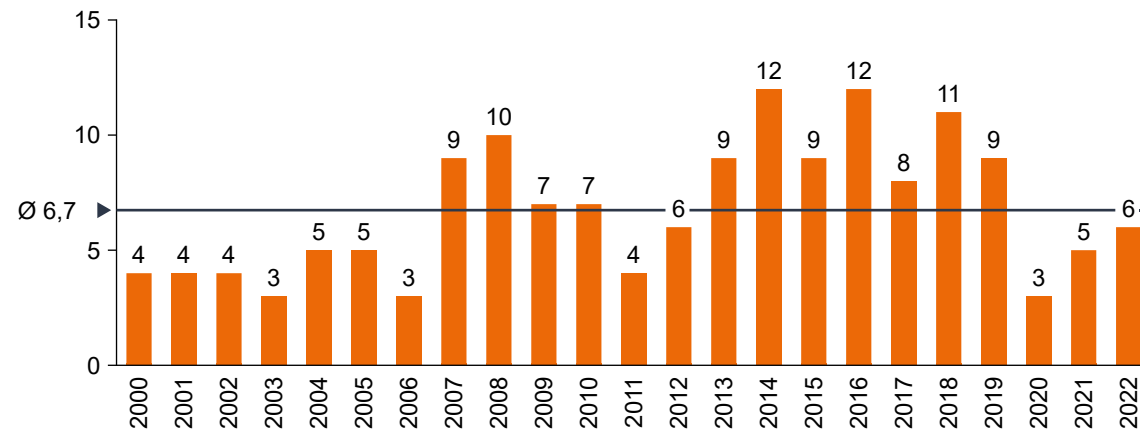
Around 50% of companies¹ in the Dutch offshore wind supply chain have been founded from the year 2000 and onwards



Data setup and methodology

- The data has been aggregated based on two sources
 - List of Dutch industry organization IRO of companies active in Offshore Wind
 - A provided list of companies known by Invest-NL and TKI Offshore Energy
- Invest-NL has conducted an analysis on founding date of all companies that have been identified

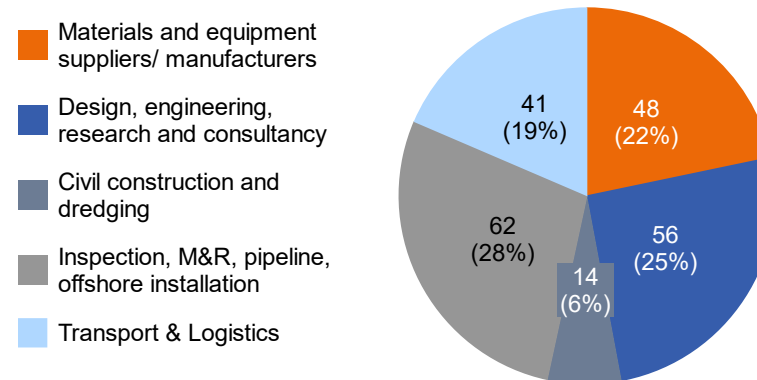
Companies founded from 2000 onwards in the Dutch offshore wind sector



Conclusions

- From 2000 to 2020, 155 companies have been founded in the offshore wind supply chain in the Netherlands. This is an average of around 7 companies founded each year
- An increase in companies founded can be observed from 2007 onwards. In 2007 the first offshore wind farm in the Netherlands was taken into operation ('Egmond aan zee')
- Companies founded prior to 2000 probably have been active in other offshore sectors, prior to servicing the offshore wind sector

Companies founded since 2000, distributed to the supply chain phases²



1) A few Dutch companies have been bought by a foreign investor, but are still active in the Dutch supply chain

2) Companies can be active in multiple subsectors

Source: Invest-NL, Pitchbook, IRO, CapitalIQ, company websites

In the Netherlands all investor types are represented; relatively many M&A investors are active in the sector, compared to Europe



Data setup and methodology

- The list of investors consists of investors, which have done an investment in offshore wind before
- For the geographic mapping of the investors, the categorization of the country's headquarters has been used
- Furthermore, the categorization of the investment phase of Pitchbook has been used¹
- There are 42 known Dutch investors of which 29 could be categorized in the phases Seed, Early Stage, Later Stage, M&A and/or Angel

Conclusions & discussion points

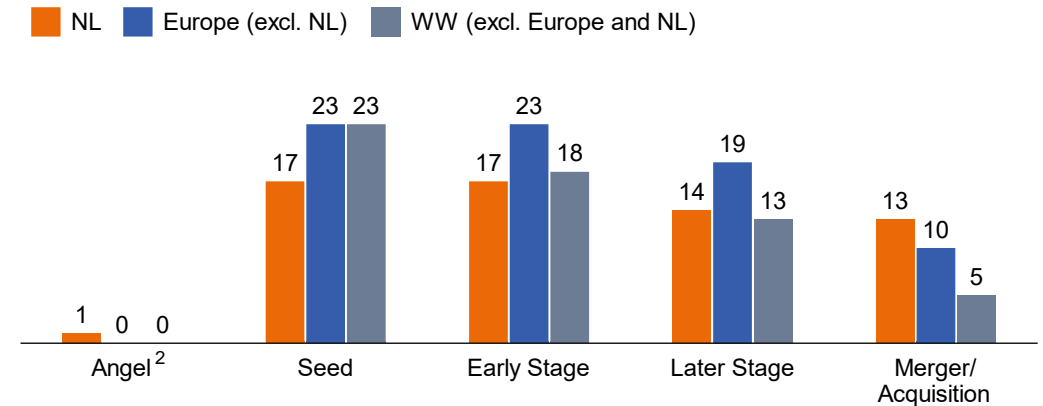
- Overall, all phases of financing seem to be represented amongst investors (excluding angel investors¹)
- The Netherlands has relatively few investors in the Seed, Early Stage and Later Stage phases, compared to Europe and worldwide
- There are few debt funding investors active in the sector, indicating limited presence of banks, but the Netherlands has a relatively big presence in this category
- The number of angel investors is low, but it is likely not all have been included in the overview¹

1) Which type of transactions are part of a transaction phase is explained on page 34

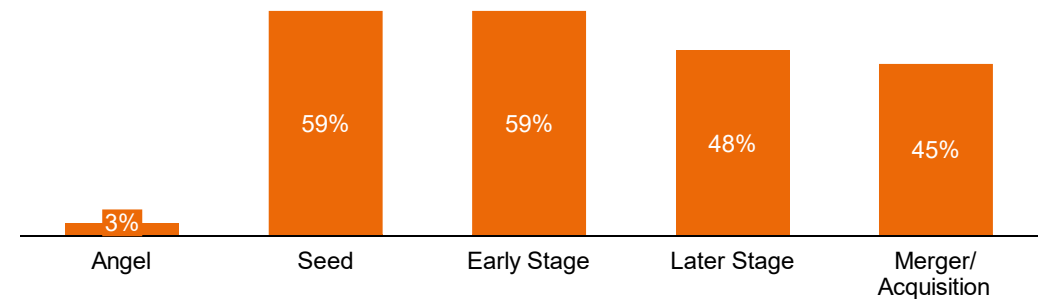
2) Angel investors won't always show up as an investor in Pitchbook

Source: Invest-NL, Pitchbook, company websites

The number of investors for each transactions phase



Percentage of Dutch investors active in each investment phase



All ticket sizes are represented amongst investors, but the majority is active in the tickets size until EUR 5m, from EUR 5+ million onwards it's a steep decline

Data setup and methodology

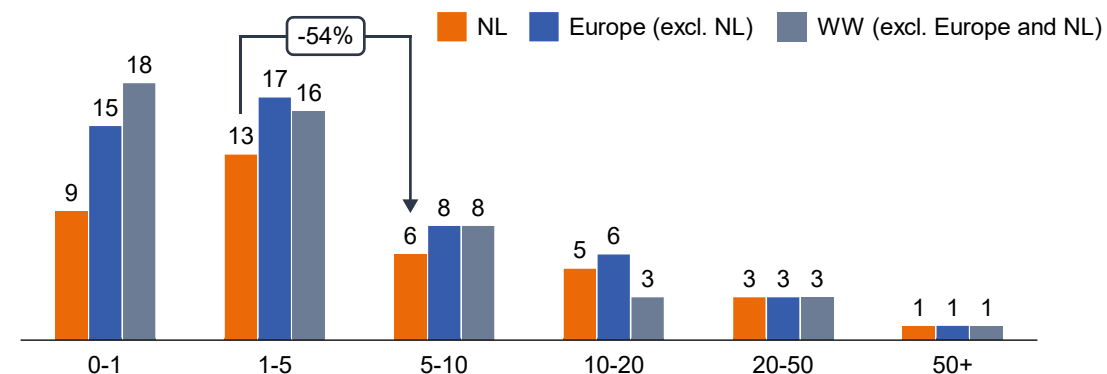
- The list of investors consists of investors, which have done an investment in offshore wind before
- For the geographic mapping of the investors, the categorization of the country's headquarters has been used
- Furthermore, a manual categorization has been made of the ticket size brackets, based on the data of Invest-NL and Pitchbook
 - EUR 0 to 1
 - EUR 1 to 5 million
 - EUR 5 to 10 million
 - EUR 10 to 20 million
 - EUR 20 to 50 million
 - EUR 50+ million

Conclusions & discussion topics

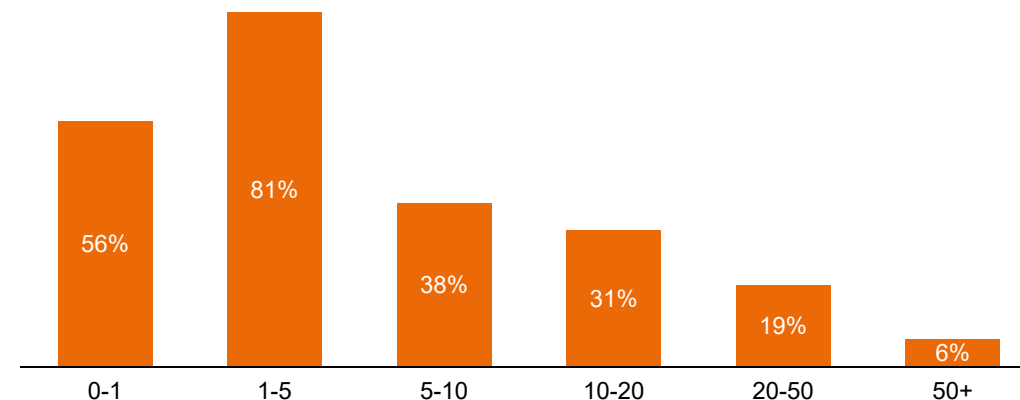
- Most investors are active in the ticket sizes of EUR 0-1m and EUR 1-5m
- Offshore wind is a CapEx heavy industry and therefore one would expect a higher number of investors offering the larger ticket sizes, especially EUR 5-10m
- In the Netherlands there are relatively many investors active in the 1-5m ticket size, however interviews have indicated that it can still be difficult to secure funding with these investors due to the risky nature of investment and long cash burning trajectories

Source: Invest-NL, Pitchbook, company websites

The number of investors active in each ticket size category (EUR million)



Percentage of Dutch investors active in each ticket size category



On the back of new sector entrants and growing activity, the number of transactions has grown significantly in the past ten years, mainly driven by M&A activity



Data setup and methodology

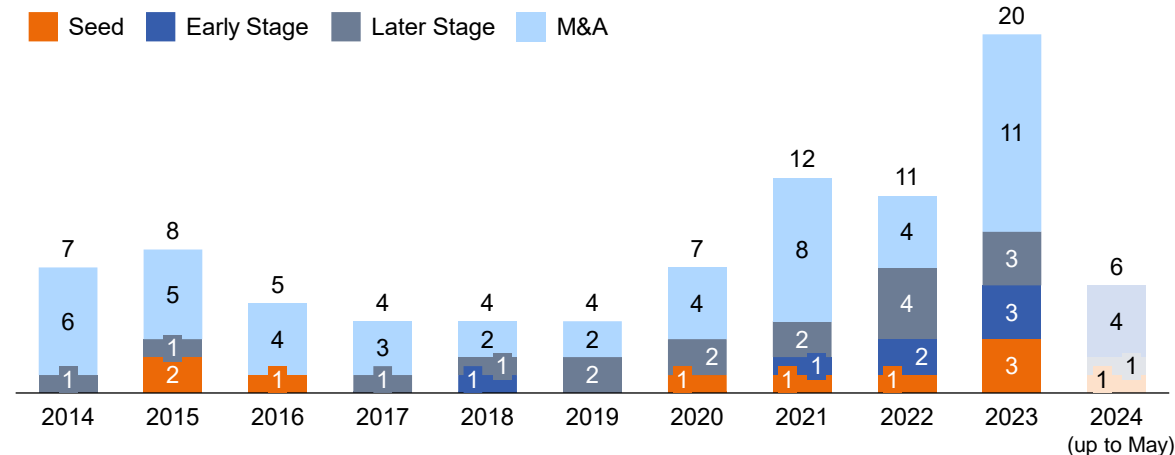
- The data has been aggregated based on two sources
 - The transaction database of Pitchbook
 - The transaction database of Capital-IQ
- The transactions in this aggregated list have been divided into six investment phases
 - Grant¹
 - Seed
 - Early Stage
 - Later Stage
 - M&A

Conclusions

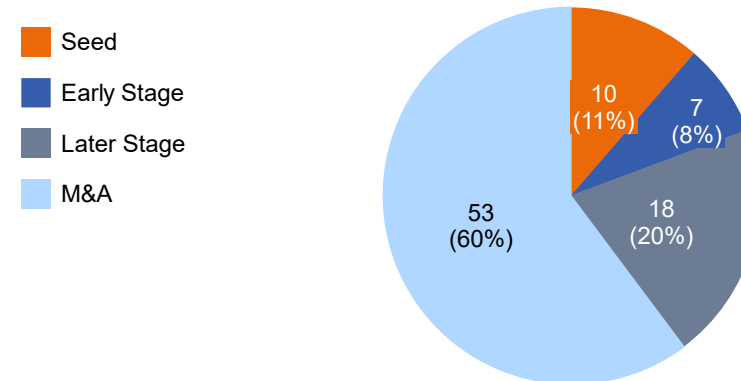
- Since 2021, the yearly transactions have risen significantly compared to previous years
- It is to be seen if the level of transactions in 2024 will follow the growing trend of the previous three years
- The most transactions that have been completed are M&A related (55%)
- Only a few transactions are categorized as Seed (11%) or Early Stage (7%)

1) Grants have been analyzed separately on page 40
 2) Source: Capital-IQ, Pitchbook

The different types of transactions in the past 10 years



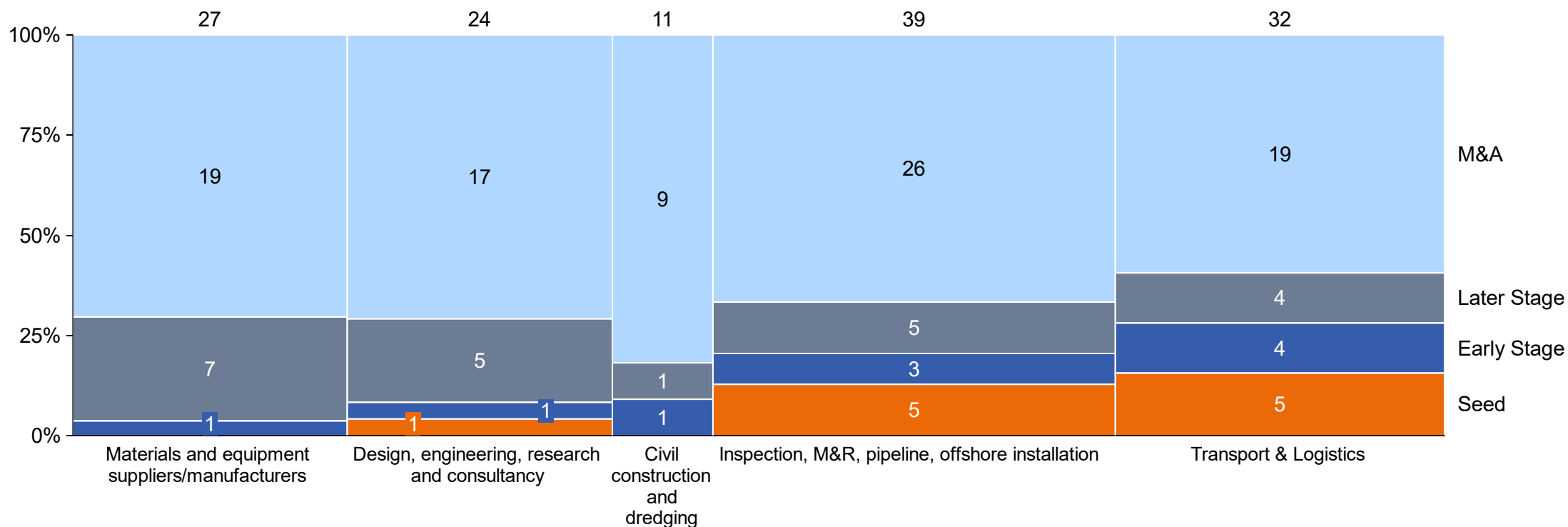
Transactions of the last 10 years distributed to the investment phases



Only a few companies that complete Early Stage or Later Stage transaction after the Seed phase, indicating the trouble companies have to steadily grow their business



Number of transactions in the past 10 years in the various subsectors¹ and transaction phases²



- There have been few “Early Stage” and “Later Stage” financing transactions in the past 10 years in all subsectors
- Very little Seed and Early Stage in the CapEx heavy parts of the supply chain (material & equipment suppliers and civil construction and dredging)
- The underlying data shown only three out of 10 companies (including the companies that haven’t been divided in one of the supply chain phases) that have successfully completed an Early Stage (2) or Later Stage (1) transaction after completing a Seed transaction
- Additionally, these companies also did not complete a M&A transaction

1) Companies can be active in multiple subsectors and therefore the transaction will show up in multiple subsectors

2) Explanation of the dividing of the transactions can be seen on page 34

Source: Capital-IQ, Pitchbook, IRO, Invest-NL, company websites

In the build up to 2022 the total number of grants has grown significantly, but since 2023 the number of grants have declined due to the suspended HER+ subsidy

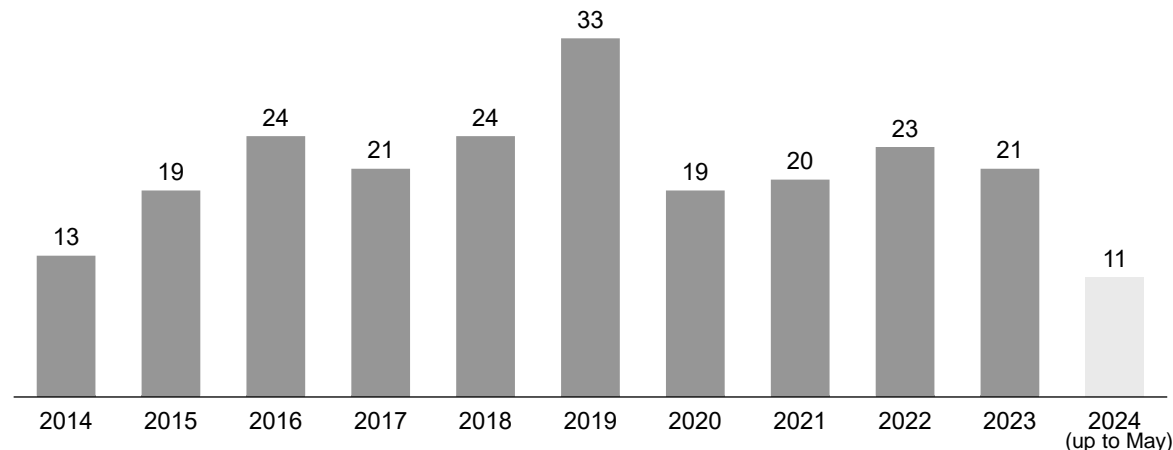
Data setup and methodology

- The data has been aggregated based on three sources
 - The transaction database of Pitchbook
 - The transaction database of Capital-IQ
 - The grant database of TKI Offshore Energy

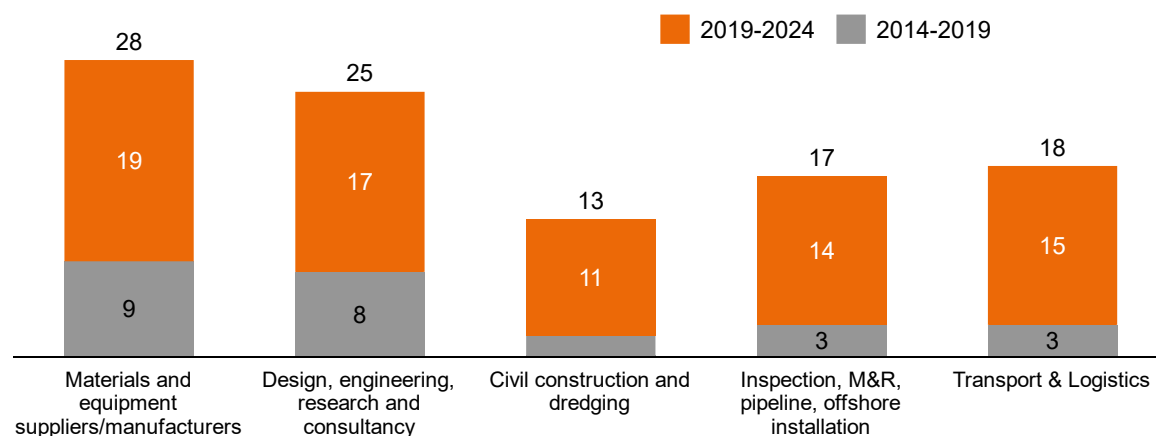
Conclusions

- A large increase in grants awarded is observed from 2019 onwards, on the back of the HER+ subsidy
- The stop of the HER+ subsidy could be one of the reasons the decline in 2024 has been so steep
- Most grants prior to 2019 have been awarded to companies in the subsector Design, engineering, research and consultancy. Since 2019 the grants awarded are divided over the various subsectors

Total grants awarded in the past 10 years



Total grants awarded in the past 10 years distributed to the supply chain subsectors



Source: Capital-IQ, Pitchbook, IRO, Topsector Energie

Transactions by Corporates, Venture Capital and Private Equity are evenly spread in total; in the last few years Corporates and Venture Capital has done the most transactions

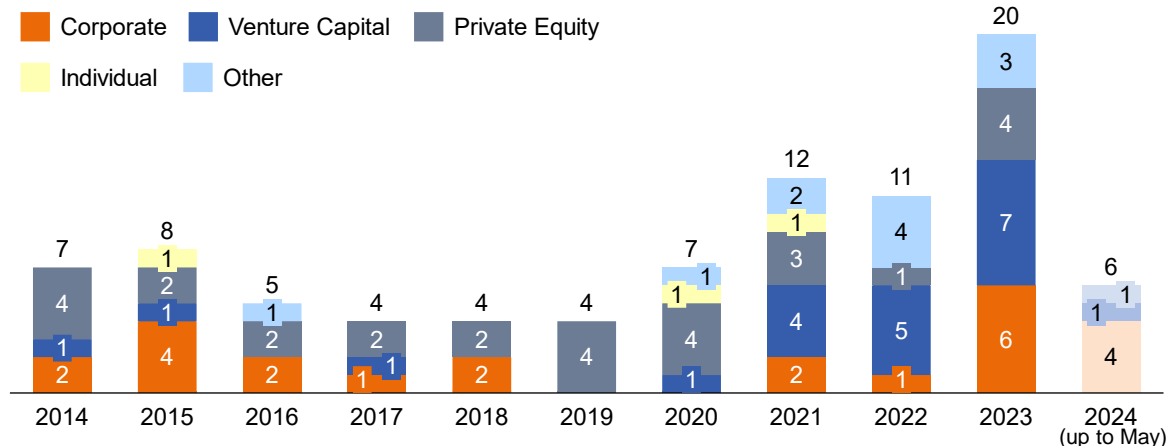
Data setup and methodology

- The data has been aggregated based on two sources
 - The transaction database of Pitchbook
 - The transaction database of Capital-IQ
- The transactions have been divided into six deal classes
 - Corporate
 - Venture Capital
 - Private Equity
 - Individual
 - Grant²
 - Other³

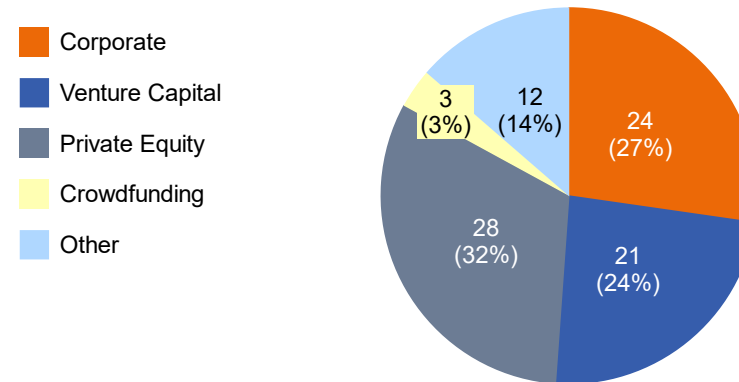
Conclusions

- The share of Venture Capital deals has increased significantly since 2021, but seems to lag behind in 2024
- Over the last 10 years the total number of transactions are quite evenly divided between corporate, Venture Capital and Private Equity

All transactions¹ in the last 10 years per deal class



The total number of transactions in the last 10 years distributed to each deal class



1) Deal class data is not available for all transaction, resulting in a lower total number of transaction compared to page 38

2) Grants have been analyzed separately on page 40

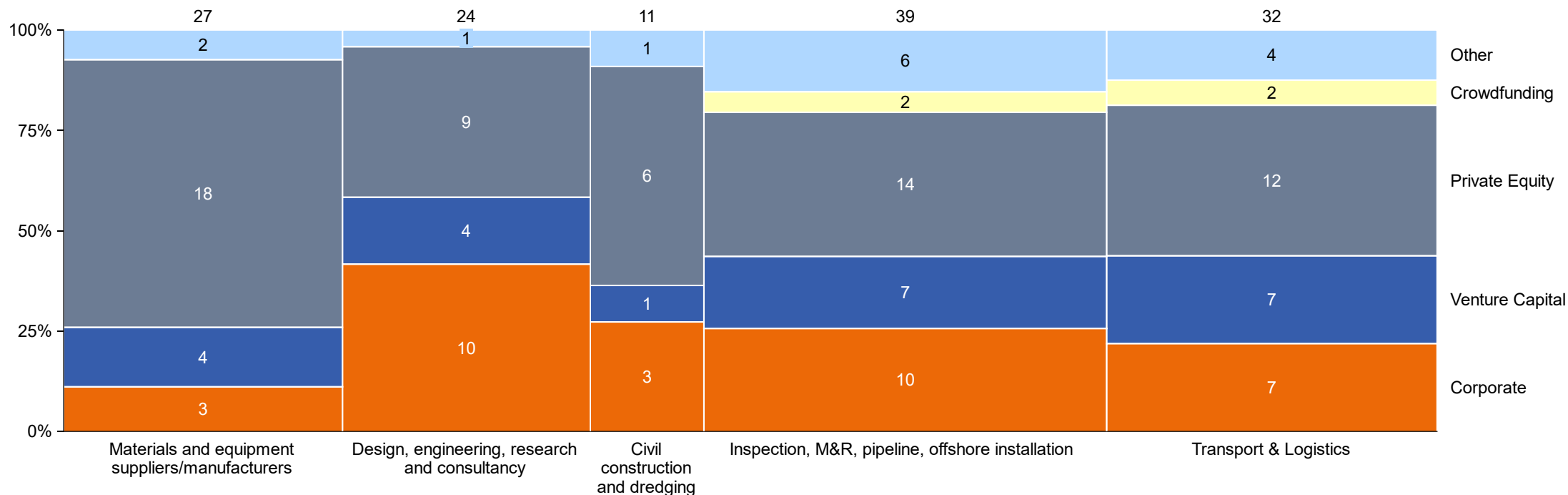
3) The meaning of category 'Other' is not specified in the database of Pitchbook

Source: Capital-IQ, Pitchbook

Private Equity often acquires companies active in multiple subsectors of the supply chain, which could indicate a lower risk by diversification



Transactions over the past 10 years in the various supply chain phases and deal classes¹



- All deal classes are present in all subsectors of the supply chain (apart from crowdfunding)
- Private Equity has a relatively strong presence in the subsector ‘Materials and equipment suppliers/manufacturers’ (62%)
- There was a relatively equal distributions between Corporate, Venture Capital and Private Equity in total number of deals (see page 41). However, the presence of Private Equity is much larger in this graph, looking at the various subsectors. This indicates that Private Equity often acquires companies that are active in multiple subsectors. This could be explained by a lower risk profile of these companies by diversification
- On the other hand, Venture Capital is very underrepresented in this graph. This indicates they often invest in companies that are very specialized

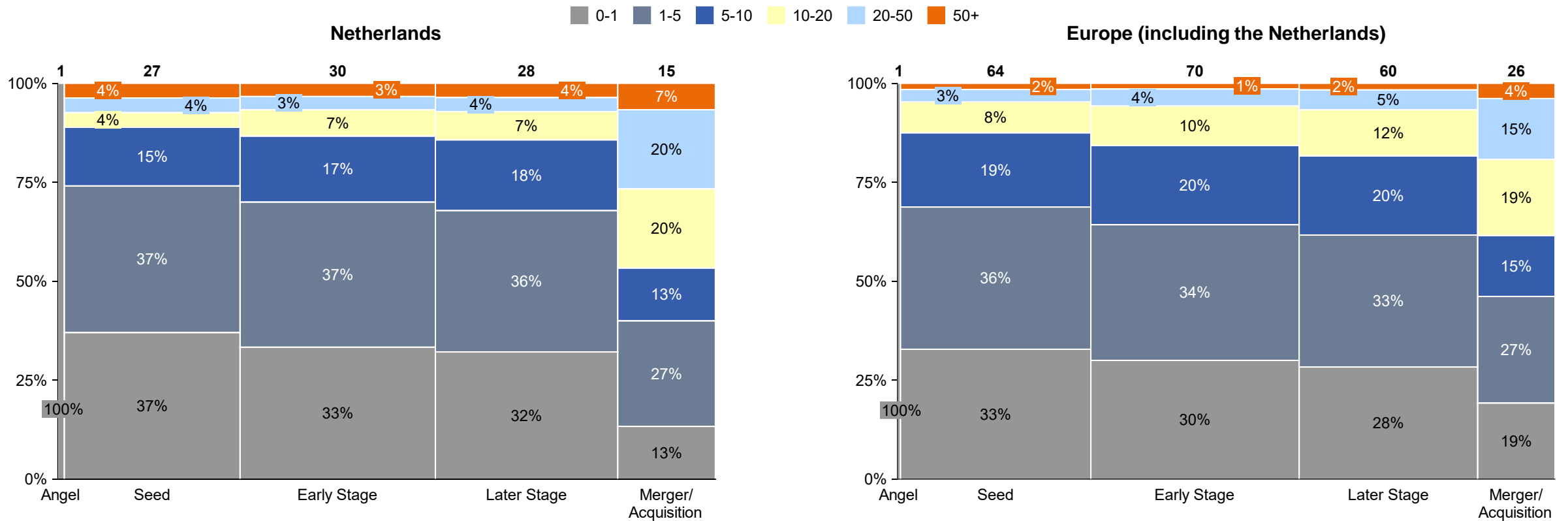
1) Transactions can be appointed to multiple supply chain subsectors, as companies are often active in more than one subsector

Source: Capital-IQ, Pitchbook, IRO, company websites

Offshore Wind companies often have large CapEx needs translating to large investment ticket sizes in early or Later Stage, but they have little investors to choose from



The ticket size representation in each investment phase in the Netherlands and Europe (excluding the Netherlands) in the last 10 years

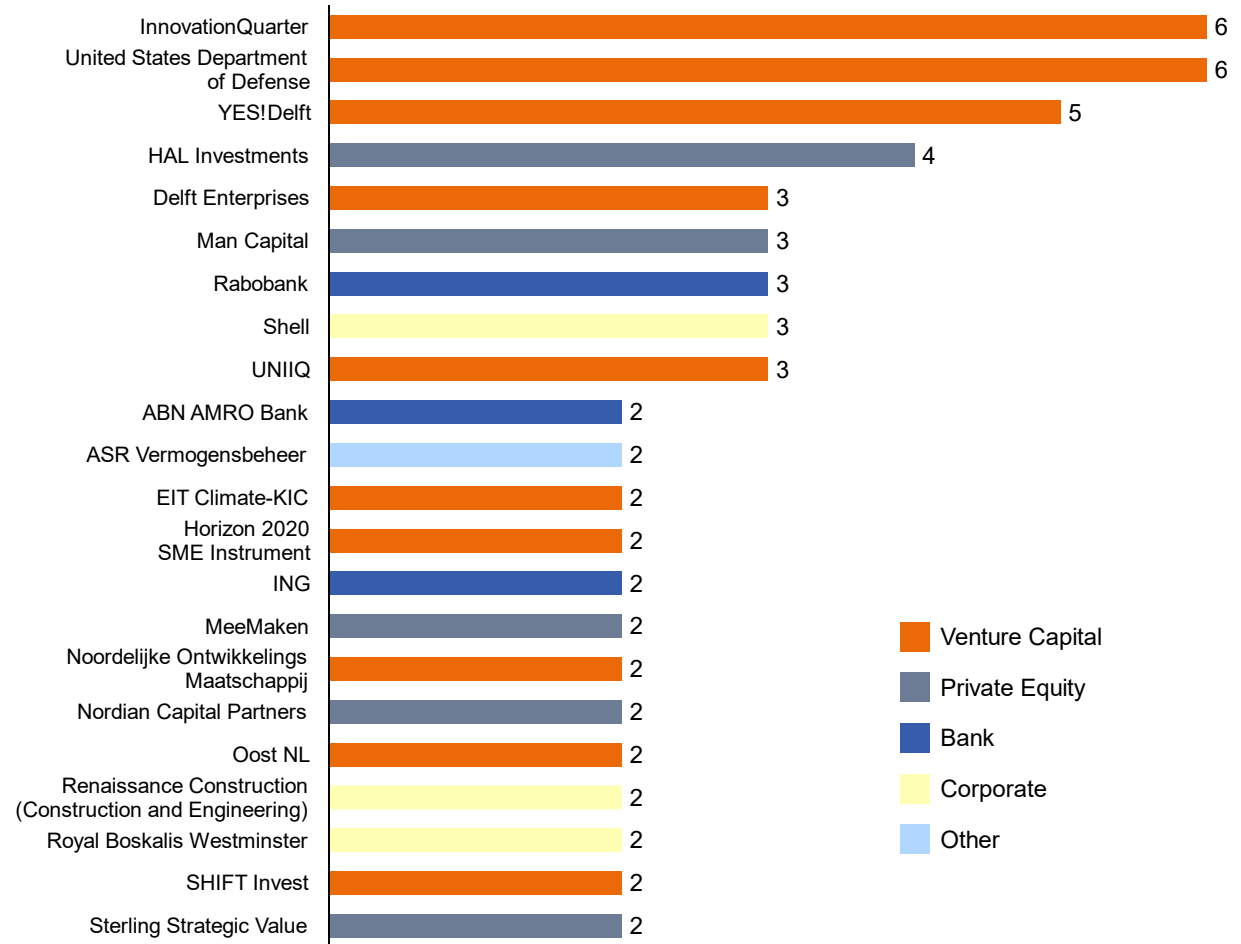


- As far as known in the data, Europe does not have an investor in the offshore wind supply chain with a EUR 50+ million ticket size
- The EUR 5-10m ticket size is evenly represented in all financing rounds (Seed to Later Stage) both for NL and Europe, where one could suggest it should increase moving to later phases as larger investments are needed
- The ticket sizes larger than EUR 10m increase only marginally in the Early Stage and Later Stage financing rounds, where one could suggest they should increase moving to later phases
- The offshore wind sector is CapEx heavy, which can be a reason for the presence of larger ticket sizes in the Seed and Early Stage financing rounds
- The ticket sizes in M&A transactions are significantly higher than in Seed, Early Stage and Later Stage financing

Local public Venture Capital is most active in the offshore wind sector with banks having a relatively small role; Private Equity activity is dominated by HAL Investments



The most active investors in the Dutch offshore wind supply chain since 2014



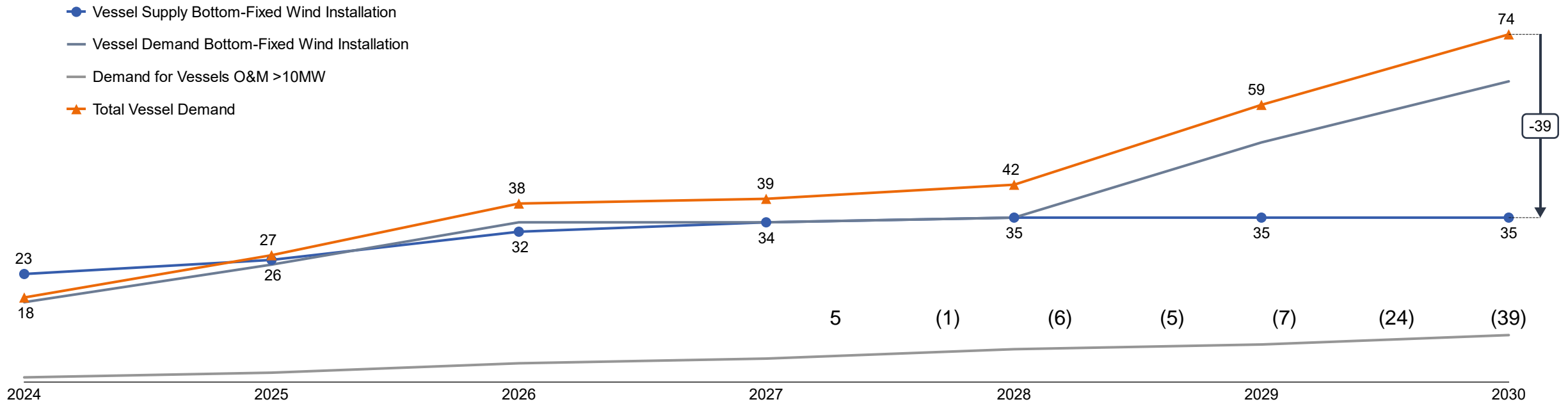
- The parties that have conducted the most transactions are mostly active in Venture Capital and Private Equity
- There is no single party that is entirely focused on the offshore wind industry in the Netherlands
- InnovationQuarter (ROM 'Zuid-Holland') is the investor with most transactions in the past 10 years
- The six transactions carried out by the U.S. Department of Defense are six subsidies granted to TNO
- From various interviews we have learned that Corporates are very active with strategic investments and there is a possibility that not all Corporate transactions have been included in the Pitchbook and Capital-IQ databases

Source: Capital-IQ, Pitchbook

The existing construction capacity is not sufficient to ensure that the Dutch offshore wind ambition can be realized: a supportive financing landscape is crucial to scale-up and avoid bottlenecks



Vessel Demand versus Vessel Supply (excluding China & Vietnam)



Demand drivers:

- Many wind farms reaching their planned construction start dates, with 2029 and 2030 projected to be particularly active periods
- Current O&M players lack suitable vessels for operations on wind turbines exceeding 10 MW, requiring either newbuilds or the involvement of existing WTIVs to fulfil the demand

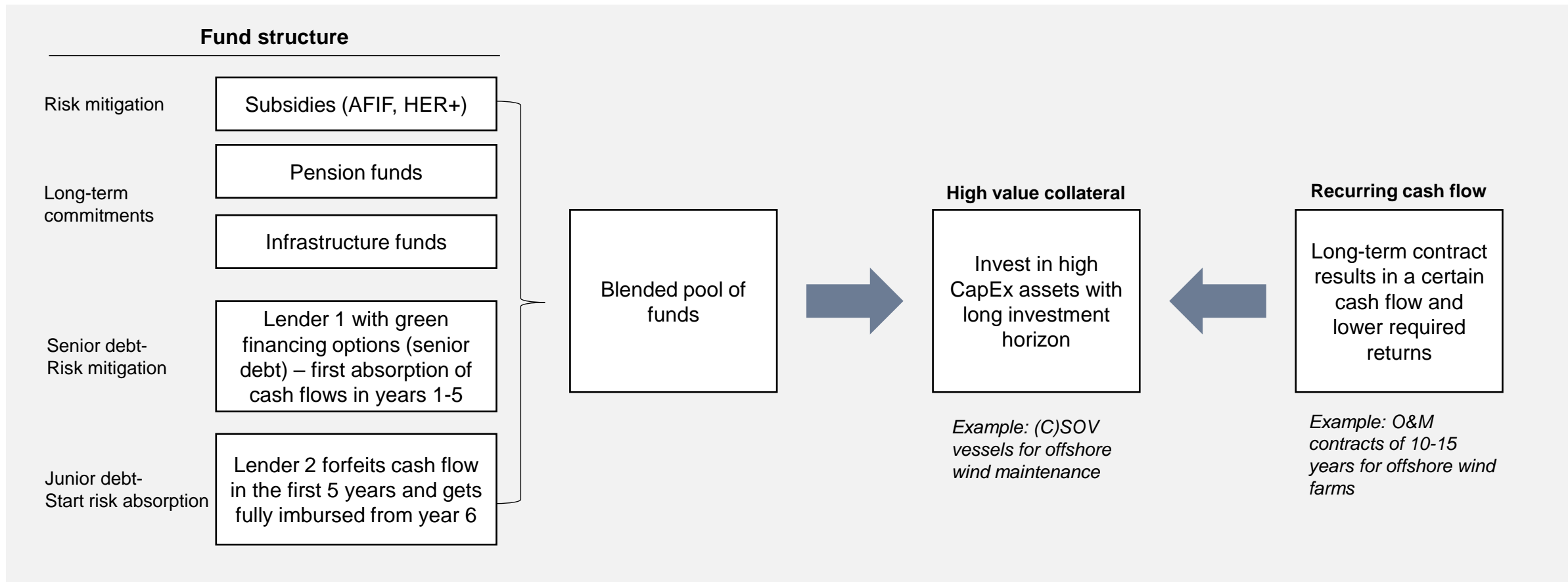
1) Havfram presentation based on 4C Offshore and Wood Mackenzie data

Set up a blended finance (and layered fund) to enable the industry to expand its Support Operating Vessels (CSOVs and SOVs) fleet and to become sustainable



Blended and layered financing solution for long-term sustainable assets

A blended and layered fund to finance sustainable assets can help to finance CapEx heavy assets in the offshore wind sector by pooling funds. The risk associated with these investments can be mitigated by long-term contracts and therefore lower perceived risk



Within the potential solutions, there are a few that are 'low hanging fruit'; These recommendations should be easy to implement and therefore have a fast and good impact on the sector

Top recommendations that are low hanging fruit

Encourage trade organizations and knowledge institutes (such as TNO, Nedzero and TKI) to **'educate' investors** on the industry and value chain specific risks and opportunities and general sector- and innovation trends. Collaboration opportunities with other investors and funds

Stimulate **cooperation between Invest-NL and Venture Capital** to close the gap of the EUR 5-10 million ticket sizes and to reduce the cash burning risk of smaller ticket sizes (<5m) within seed funding

Offer **financial instruments** (e.g., subordinated loans) to wind park developers using (semi-) public funding (or blended finance) to include and promote innovative startups as part of the tender submission/process

The **securitization of green bonds** (e.g. with other sustainable energy sectors to enable risk diversification) can decrease the overall risk profile of green bonds and provide companies access to lower interest rates

Stimulate the introduction of a specialized offshore **Venture Capital fund**, and corporate venturing to co-invest, which can ensure long-term capital availability and investor lock-in (e.g. by making use of the Grow consortium to facilitate these co-investing possibilities)

Enable SFDR article 8 funds to become article 9 funds by supporting these in finding the proper offshore wind investments and additionally support them in reporting on their impact by providing standardized tooling

Enhancing and sustaining collaboration by **enabling public investors (ROMs and Invest-NL) to share expertise and co-invest** in offshore wind projects, and simplifying the process of pooling funds

Recommendations vary depending on the type and phase of the organization and are open to discussion



Startups and scale-ups

Offer **financial instruments** (e.g., subordinated loans) to wind park developers using (semi-) public funding (or blended finance) to include and promote innovative startups as part of the tender submission/process

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Stimulate the introduction of a specialized offshore **Venture Capital fund**, and corporate venturing to co-invest, which can ensure long-term capital availability and investor lock-in (e.g. by making use of the Grow consortium to facilitate these co-investing possibilities)

Develop a '**proof point facility**' containing various turbines, grid connection and offshore location where innovative companies can demonstrate technology at scale (analogous to greenhouse horticulture and Food Valley)

SME's and corporates

Set up a **blended finance (and layered fund)** to enable the industry to increase its capacity (e.g. expand its Support Operating Vessels and to transition the fleet to alternative fuels, see page 46 of the appendix for an example)

Stimulate the use of PPA's by use of a **PPA (corporate offtake) guarantee fund** (first loss facility), which can ensure the expected revenue of wind farm operators. The wind farm operators can therefore better award stable margins to their suppliers. Creating a 'pool' of parties can help to create a portfolio of PPAs with an average lower risk¹

Offer **financial instruments** (e.g., subordinated loans) to wind park developers using (semi-) public funding (or blended finance) to include and promote innovative startups as part of the tender submission/process

Stimulate **cooperation between Invest-NL and Venture Capital** to close the gap of the EUR 5-10 million ticket sizes and to reduce the cash burning risk of smaller ticket sizes (<5m) within seed funding

Enable 'long-term money' suppliers (e.g. **infrastructure investment funds and pension funds**) to enter the financing market as many of the assets have an economic lifetime that exceeds 15 years and provide potential stable incomes using offtake agreements. For example, by ringfencing the assets with long economic lifetime and stable income such as large workboats and monopiles