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**NOVEMBER 2023**

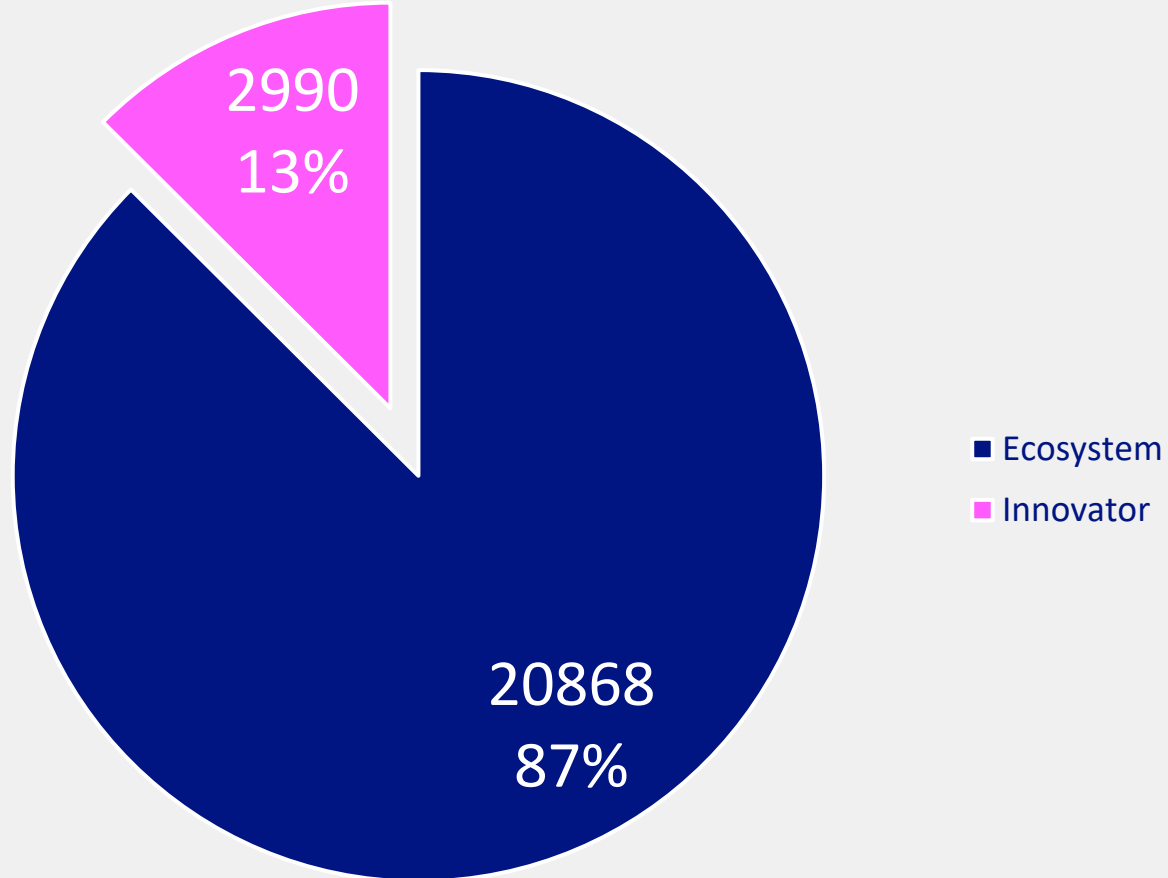


**EIBURS Research Project**  
**“The cleantech industry in the European Green Deal:  
policy challenges and the finance landscape for SMEs  
(CLEU)”**

Main responsibility: **Prof. Elisa Ughetto**

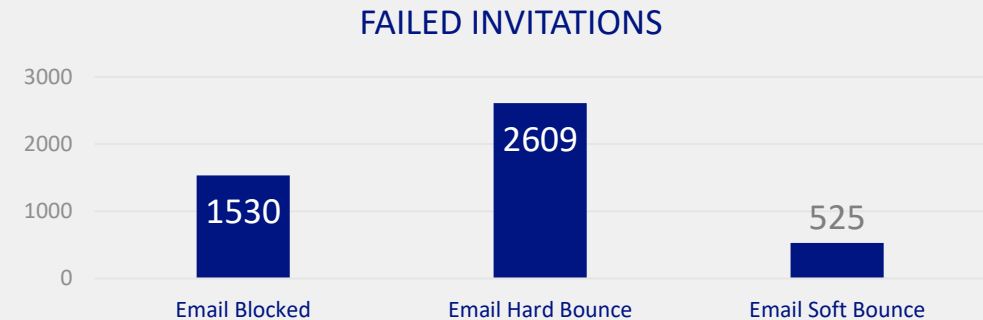
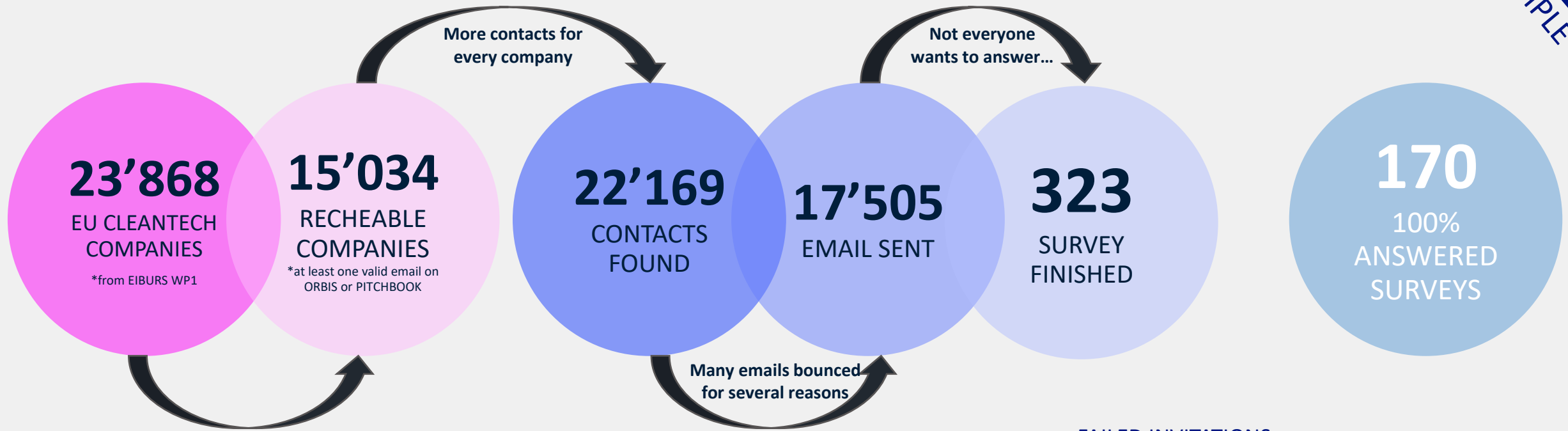


## Sample



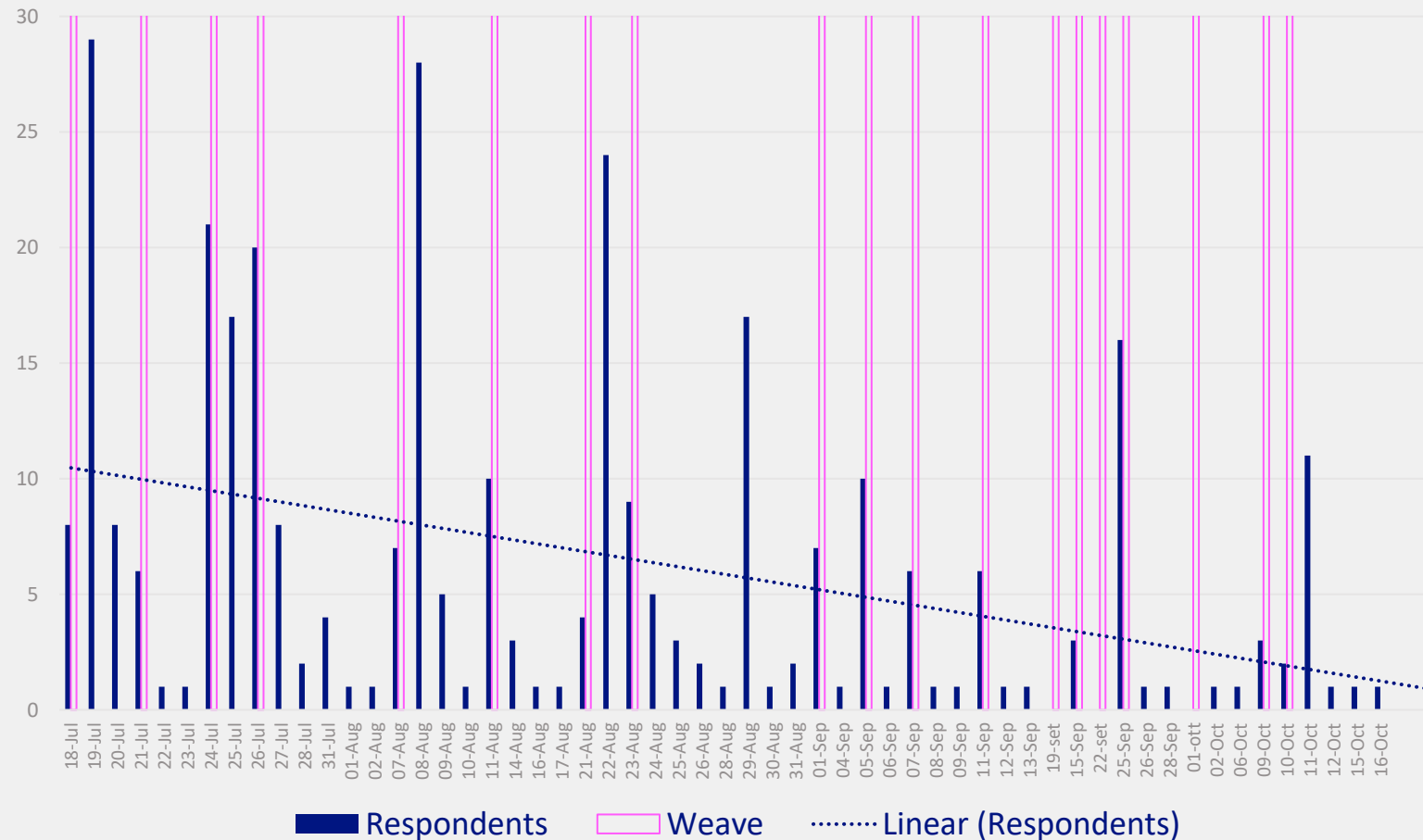
The sample included:

- 2990 **innovators**, dedicated to the development of clean technologies, and
- 20868 **companies within the cleantech ecosystem**, including experimenters, manufacturers, integrators, distributors and operators.



## DISTRIBUTION PROCESS

## DISTRIBUTION PATTERN



Distribution of the survey began on July 18, 2023, and ended on October 15, 2023.

During this extended time frame, emails were systematically sent about twice a week, mainly on Mondays and Fridays.

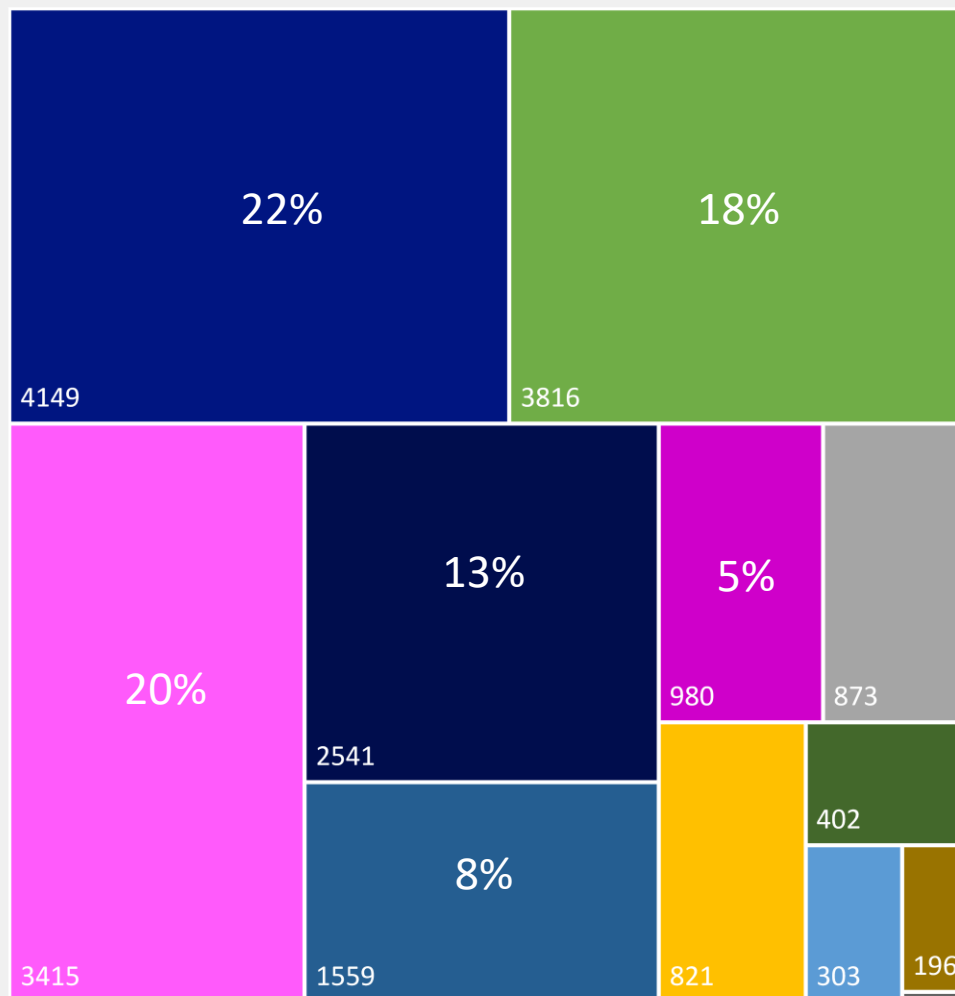
As expected, immediately after a wave (pink vertical lines) of sendings, there is a peak in the number of surveys started (blue bars), which gradually decreases over time. The blue dotted line represents the trend of surveys started per day.



SAMPLE

## CLASSIFICATION

- 1.1 Air water soil pollution abatement/ remediation
- 1.2 Waste management
- 2.1 Water conservation/availability
- 2.2 Sustainable agrifood technologies
- 2.3 Sustainable raw materials
- 3.1 Sustainable energy production
- 3.3 Energy-efficient industrial technologies
- 3.2 Sustainable fuels
- 4. Capture, storage, sequestration or disposal of GHG
- 5. Sustainable modes of transport
- 6. Energy management of buildings
- 7. Others ca



40% of the sample is involved in energy management activities, including soil and water pollution abatement/remediation (22%) and waste management (18%).

Another 40% are engaged in Industrial Energy Management, specifically sustainable energy production (20%), sustainable fuels (13%), and energy-efficient industrial technologies (5%).

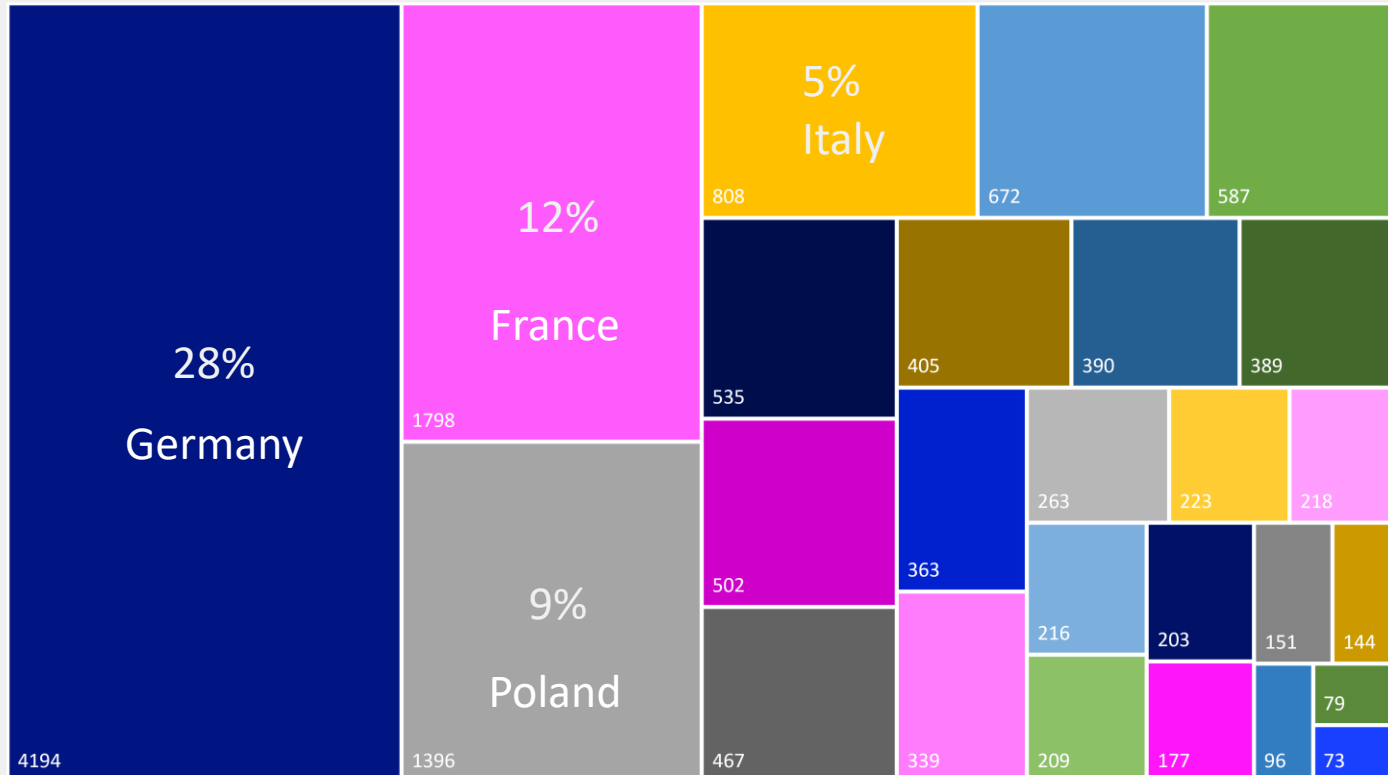
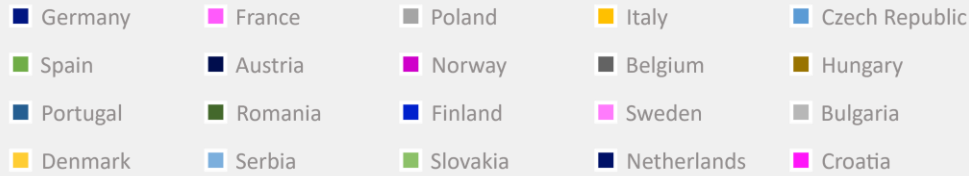
**15'034**

RECHEABLE  
COMPANIES

## FINAL SAMPLE OVERVIEW



# GEOGRAPHICAL DISTRIBUTION



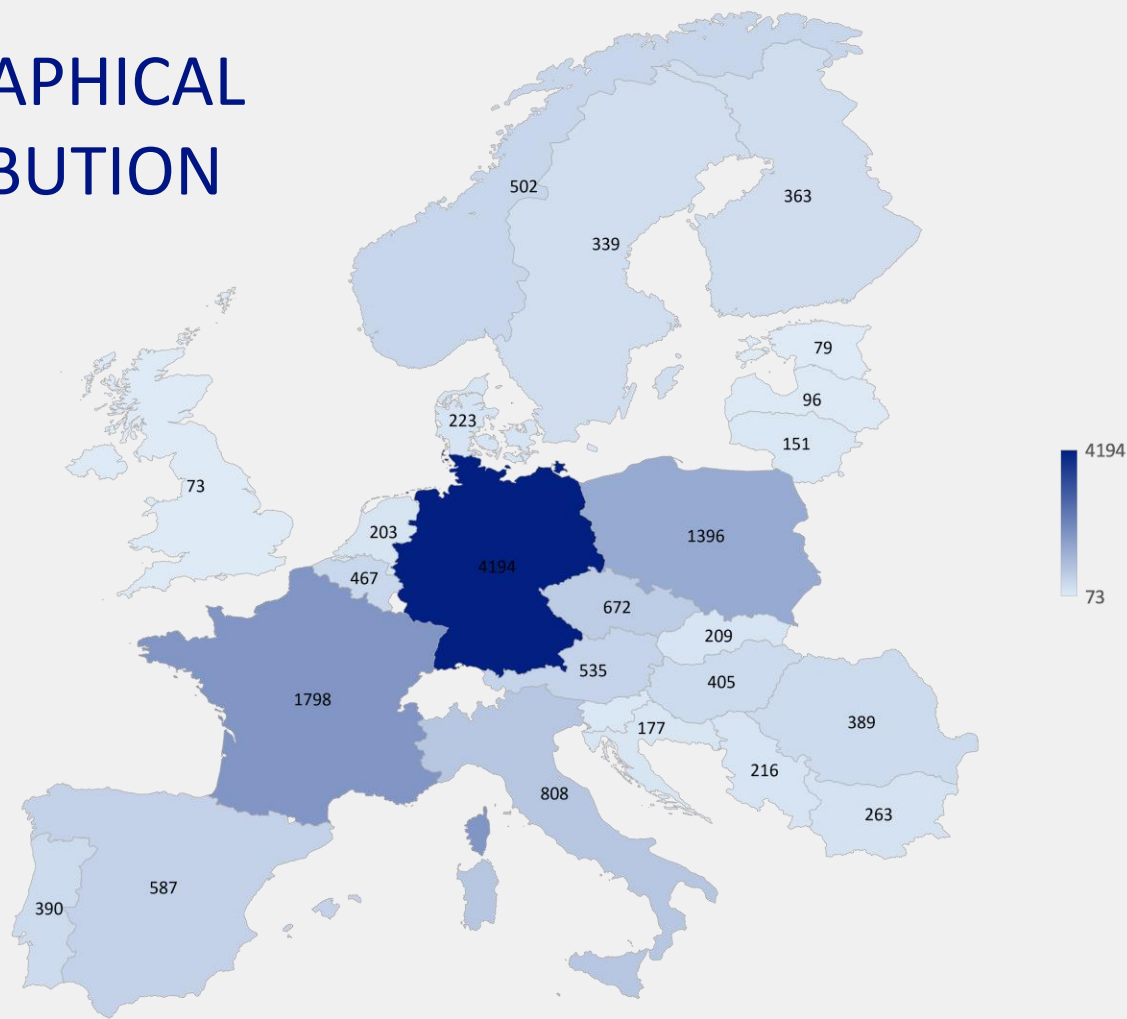
Almost one-third of European cleantech companies are based in Germany. This is followed by France (12%) and Poland (9%). Italy and the Czech Republic each contribute a further 5%.

Among the countries with fewer cleantech companies are Latvia, Estonia, and the United Kingdom, each having less than 100 cleantech companies.

**15'034**  
RECHEABLE  
COMPANIES

## FINAL SAMPLE OVERVIEW

# GEOGRAPHICAL DISTRIBUTION



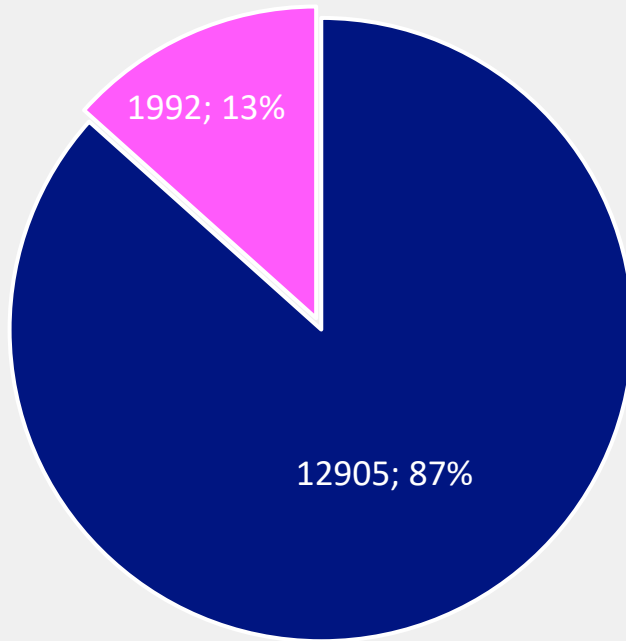
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**15'034**  
RECHEABLE  
COMPANIES

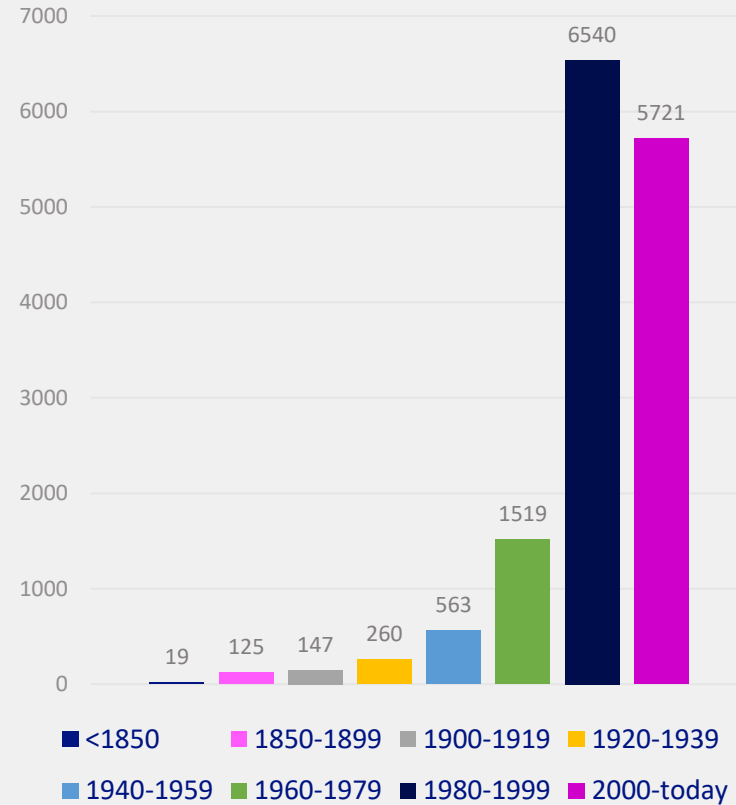
## FINAL SAMPLE OVERVIEW

## SHARE



■ Ecosystem ■ Innovators

## INCORPORATION YEARS



Most of the 15,034 companies reached are part of the ecosystem. The remaining 13% are innovators.

Almost all the companies were incorporated after 1980. In particular, 44% of the companies were incorporated between 1980 and 1999, and 38% were incorporated after 2000.

**15'034**

RECHEABLE  
COMPANIES

\*at least one valid email on  
ORBIS or PITCHBOOK

## FINAL SAMPLE OVERVIEW



CONTACTS FROM

15034

firms

ORBIS

PITCHBOOK

TOTAL

PUBLIC

EMAIL CONTACT

668

2417

3085

(13,9%)

PRIVATE

EMAIL CONTACT

15456

3628

19084

(86,1%)

TOTAL

16124

(72,7%)

6045

(27,3%)

22169

(1,47 contact/firm)

The Orbis database provides detailed balance sheet information  
PitchBook database is one of the most comprehensive investment  
databases available. Both datasets provide the emails of the  
companies they include. The datasets have been merged to generate  
a single dataset containing all available emails for each company and  
than increase the response rate

SAMPLE CONTACTS

## Survey index



Company



Innovation



Regulation



Funding



Skills



Supply chain



Perspective



Responder

Onhover click on each section redirects to the desired chapter

Onhover click on top right corner redirects to the index



SURVEY

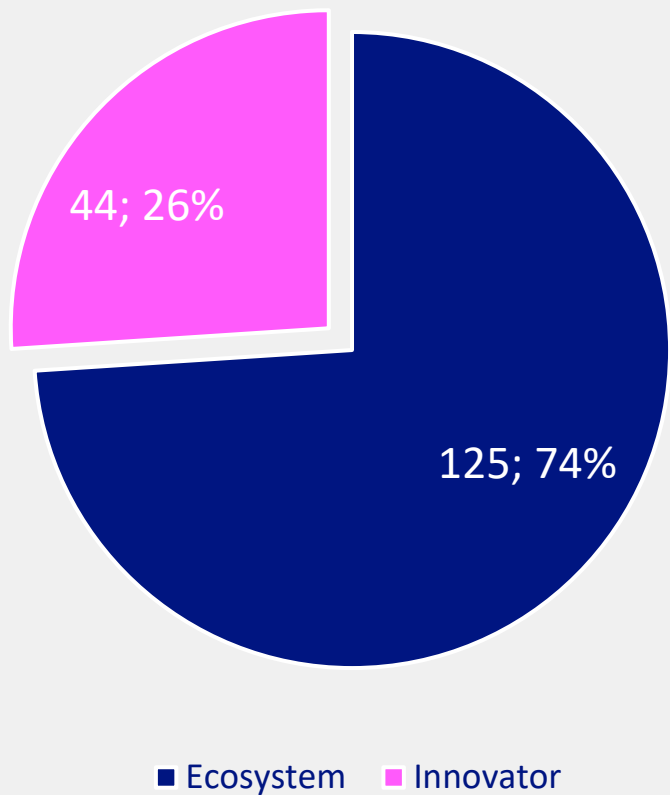
First, companies' information that is not available in existing databases, such as Orbis and Pitchbook, is collected.

The theme of the main body of the survey is the four pillars of the European Green Deal: predictable and simplified regulatory environment, faster access to funding, enhancing skills, and open trade for resilient supply chains.

The “Perspective” section aims to solicit companies' subjective views on the design and feasibility of the EGD objectives. Finally, companies can provide contact information to provide further insights at a later stage.

# SURVEY STRUCTURE

# Sample share

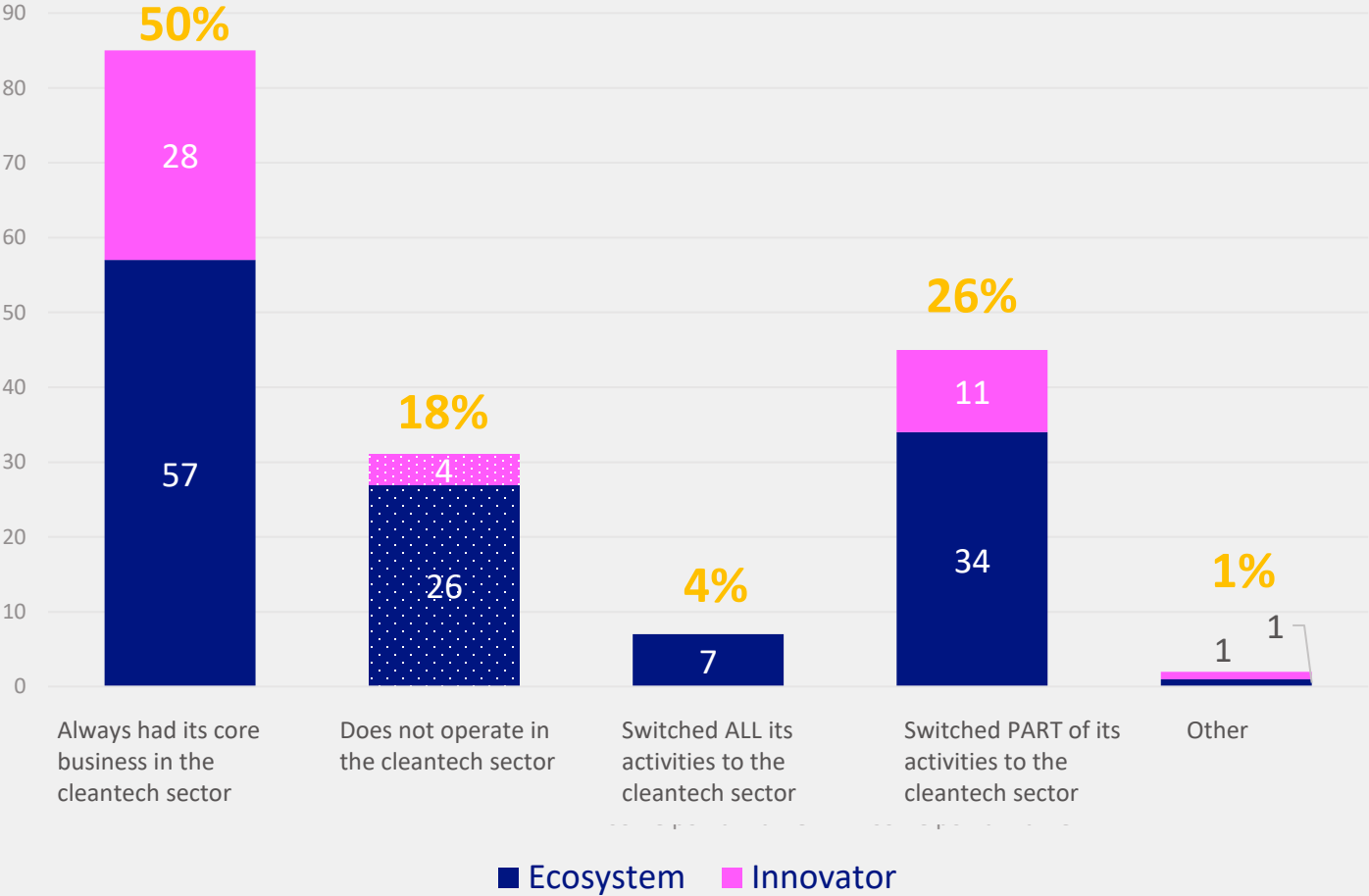


The survey was undertaken by 329 companies. Part of the answers was not 100% filled-in.

This report will only examine the results of the **169 users** who **completed the entire survey**. Of these 44 are innovators, the remaining 125 belong to the cleantech ecosystem.

1 choice

# Cleantech approach

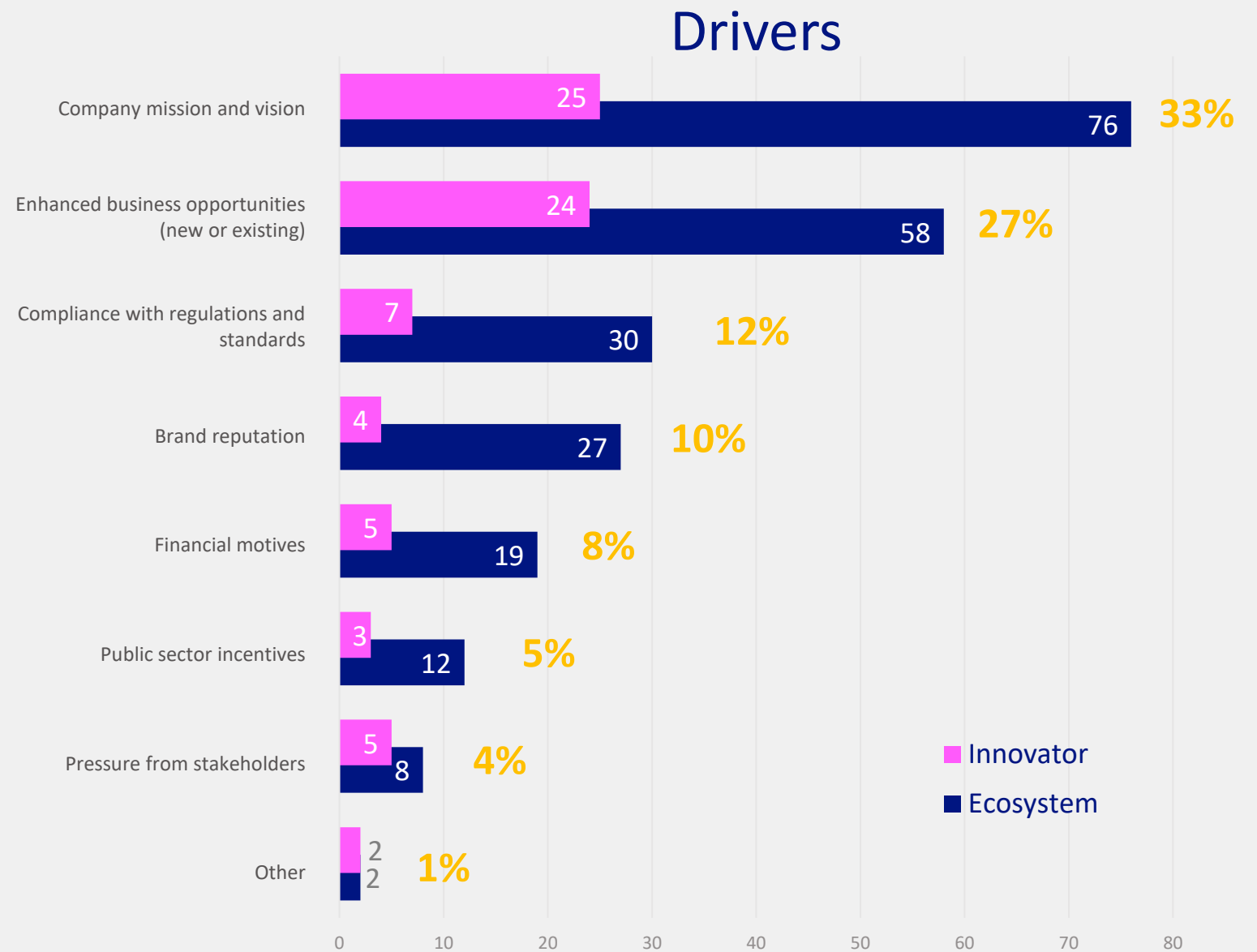


30 users revealed that they did not work in the cleantech sector and were therefore excluded from the next stages of the survey. From this moment we deal with the information from 139 companies.

Around 60% of the companies have always operated in the cleantech sector; the remaining moved ALL or PART of their activities to the cleantech sector at some point in time.

1 choice

Q1-Concerning the decision to operate in the cleantech sector, which of the following statement is mostly appropriated?



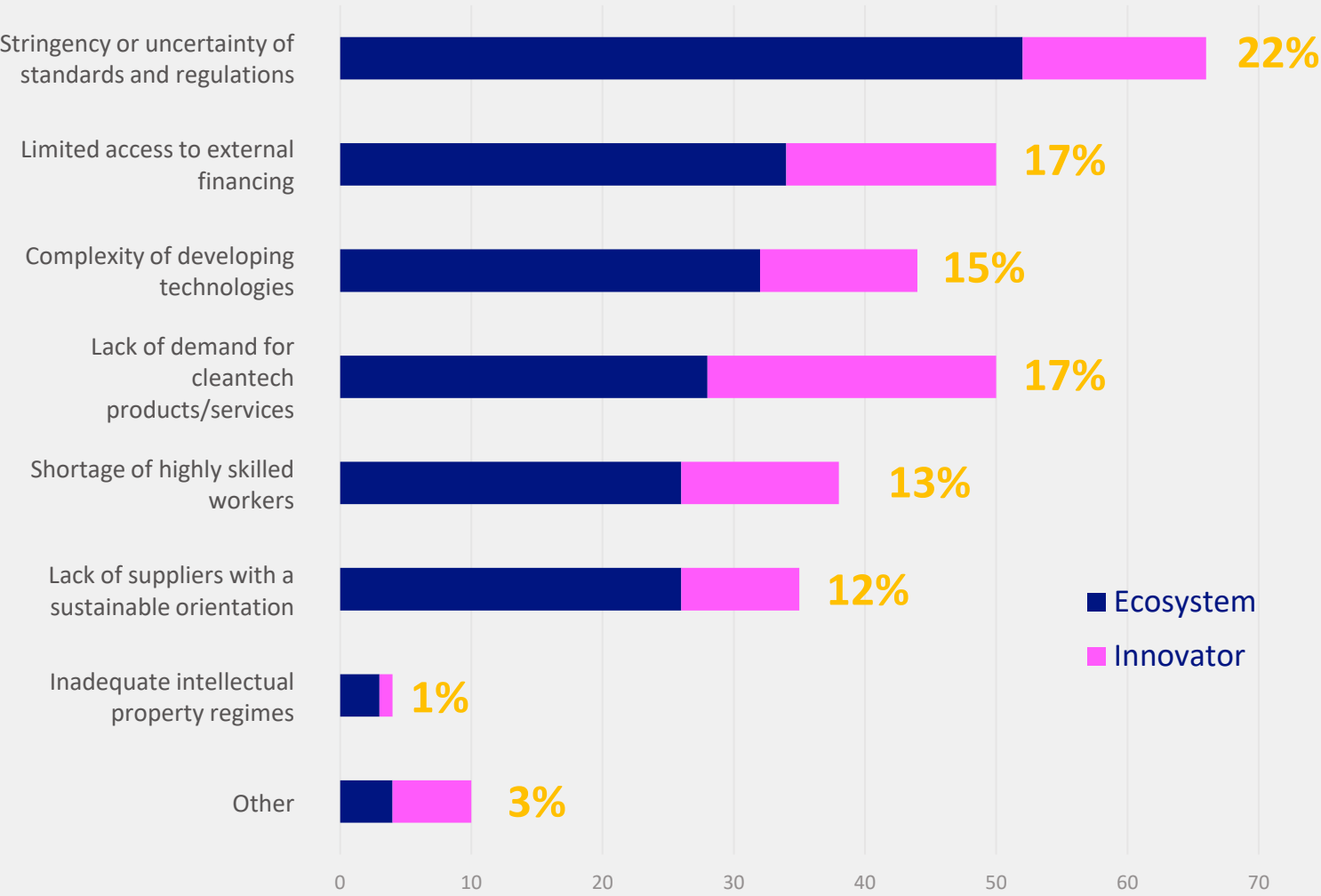
In one third of cases, the company's mission and vision drove it to operate in the cleantech sector.

Other primary drivers include the desire to capitalize on specific business opportunities or the necessity to comply with regulations and standards.

from 1 to 3 choices

Q2-What are the main drivers for your company to operate in the cleantech sector?

# Main Difficulties



The main barrier encountered is the stringency or uncertainty of standards and regulations (22%). Limited access to external funding and complexity in technology development follow (17% in total).

from 1 to 3 choices

# Uncertainty



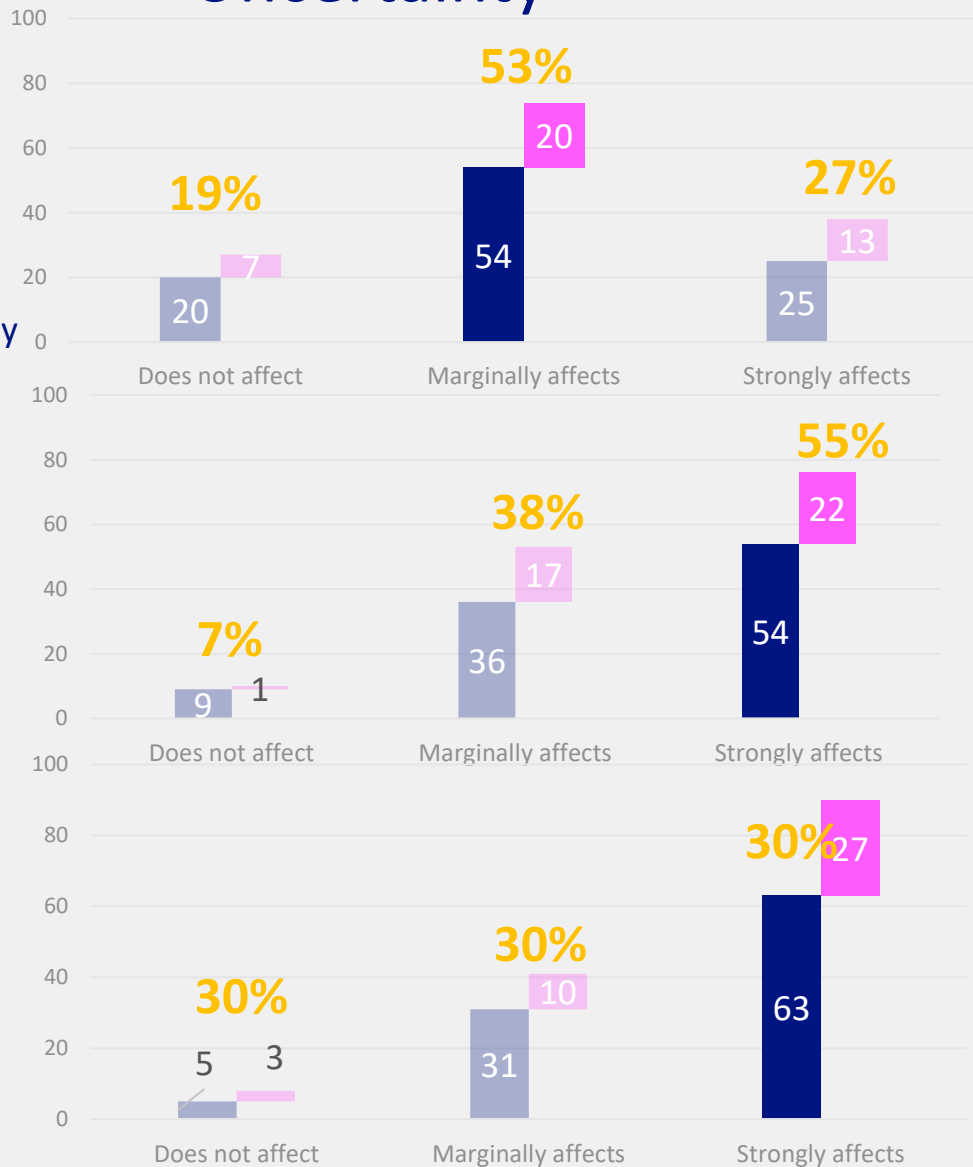
Technological Uncertainty



Market Uncertainty



Regulatory Uncertainty



Overall, regulatory uncertainty (65%) and market uncertainty (55%) have the most significant impact.

Technological uncertainty is also impactful, around 50% of the companies declared being marginally affected.

There are no marked differences of opinion between innovators and the ecosystem.

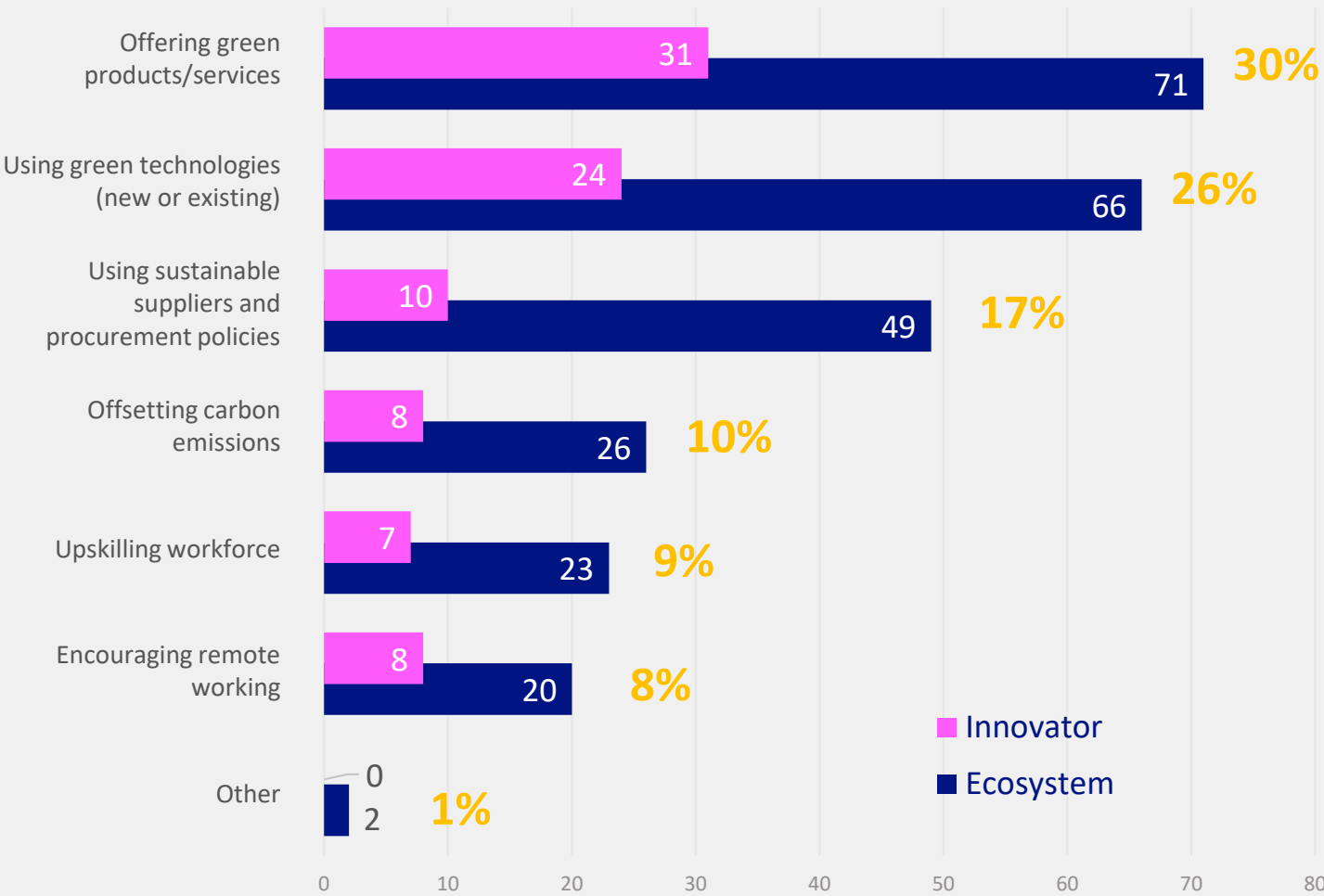
1 choice for each row

Ecosystem

Innovator

Q4-How much the following types of uncertainty are affecting your activities?

# Matching goals



About one-third of companies offers green products/services, while one-quarter use green technologies in order to meet EGD goals.

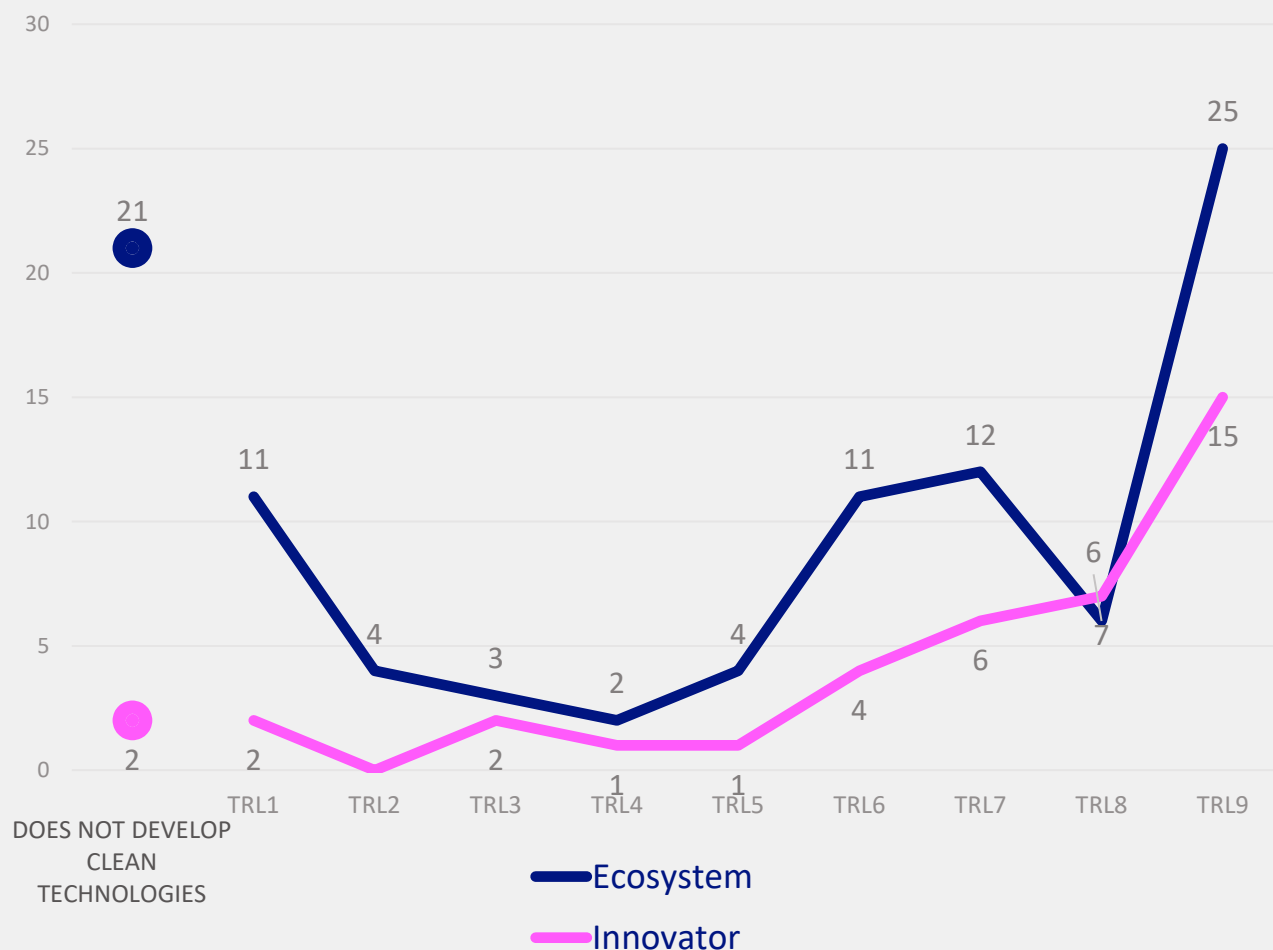
17% percent strive to have a green supply chain, and 10% offset their carbon emissions.

Supporting smart working or investing in employee upskilling are the least performed activities.

from 1 to 3 choices



# Technology Readiness Level



The 5% of the innovators stated that they do not develop the CORE clean technologies.

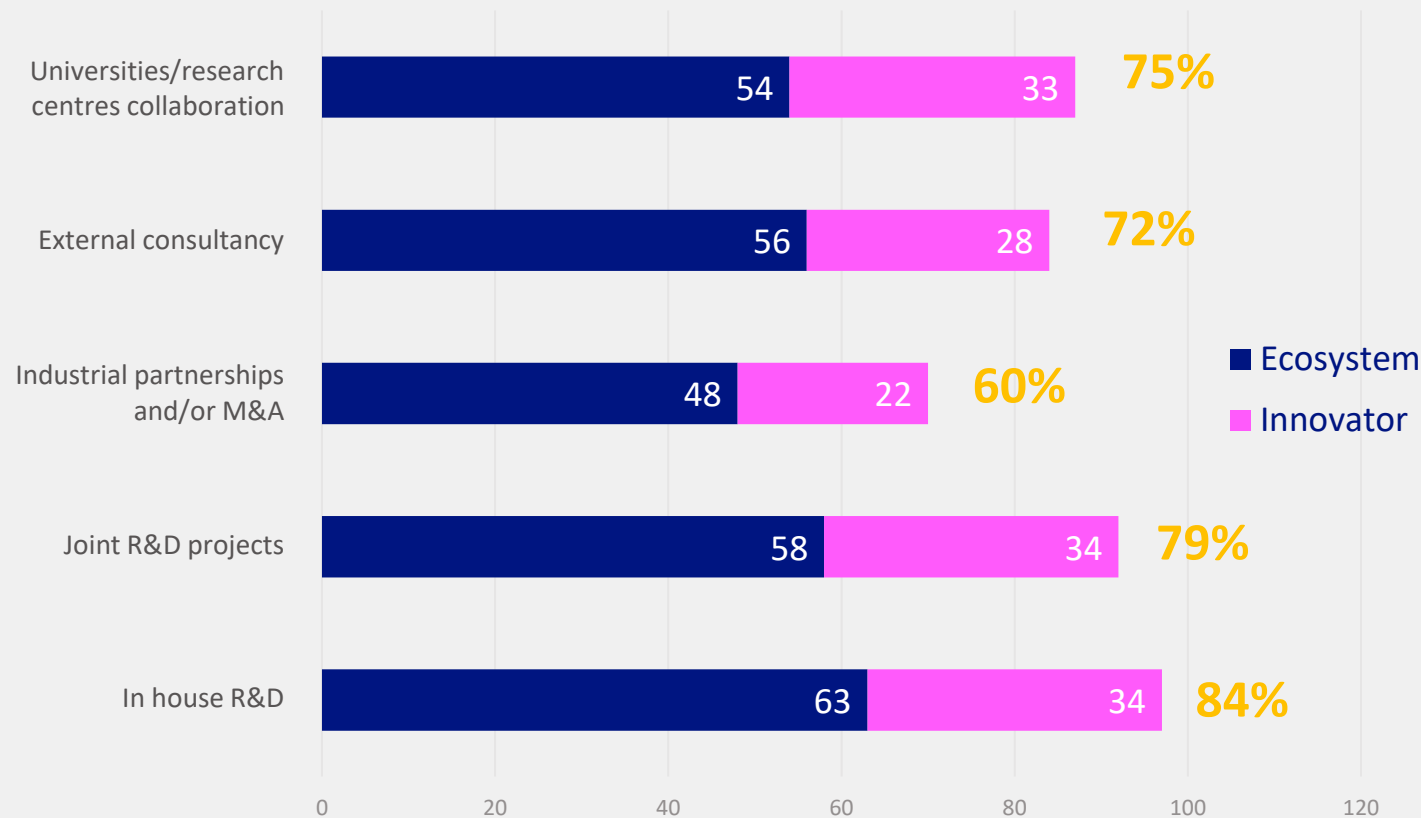
In general, the Technology Readiness Level (TRL) of the participating companies is high, often exceeding the TRL6. Specifically, INNOVATORS have higher average TRLs.

filter question

1 choice

**Q6- How would you define the readiness level of the CORE CLEAN TECHNOLOGY embedded in the company's main project (TRL) ?**

## Innovation activities



Companies prefer to conduct R&D internally (84%) or engage in joint R&D projects (79%).

Receiving support from universities and research centres (75%) and consultancy firms (72%) are also popular choices.

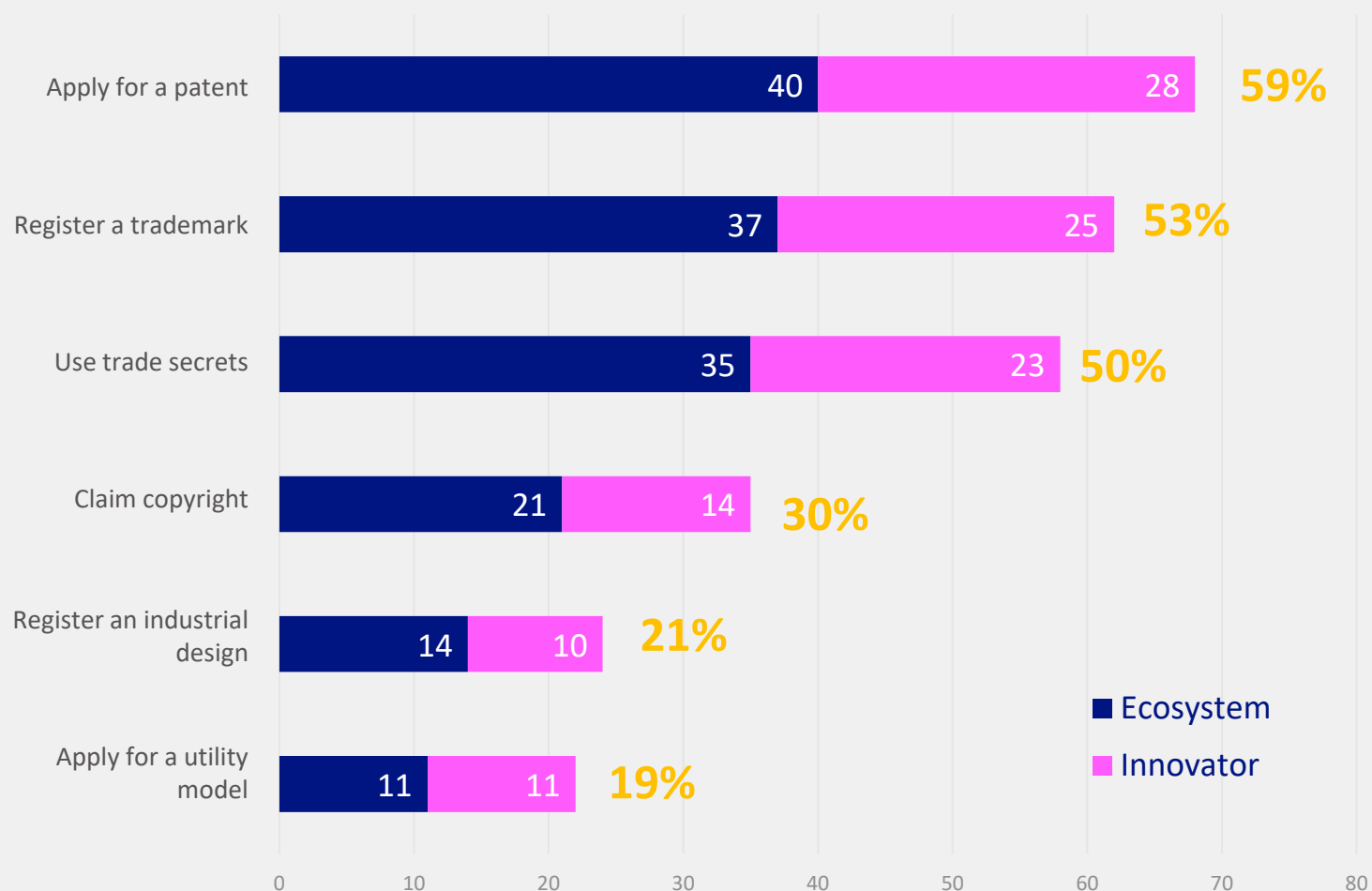
Instead, only 60% opt for Industrial partnerships and/or M&As that is the least preferred alternative.

116 respondents

1 choice for each row

**Q7- Referring to your cleantech products or services recent innovations, has your company recently engaged in the following innovation activities?**

# Intellectual property protection



As expected, INNOVATORS have a greater need to protect the results of their R&D activities and, therefore, use more intellectual property protection tools (in percentage).

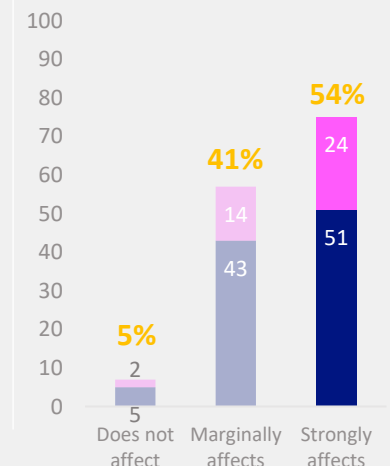
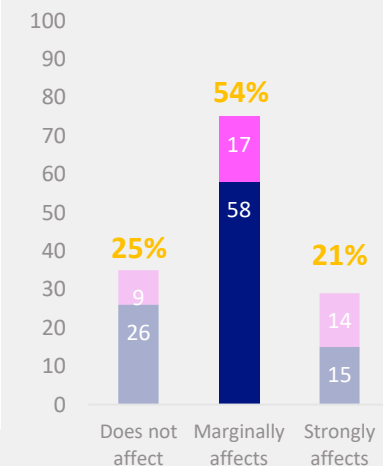
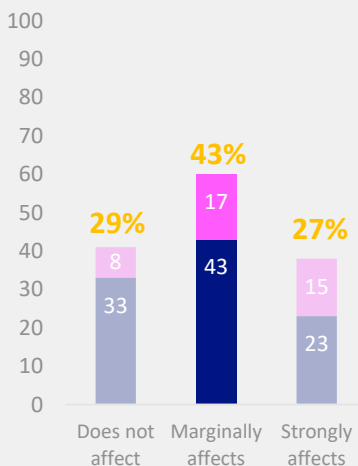
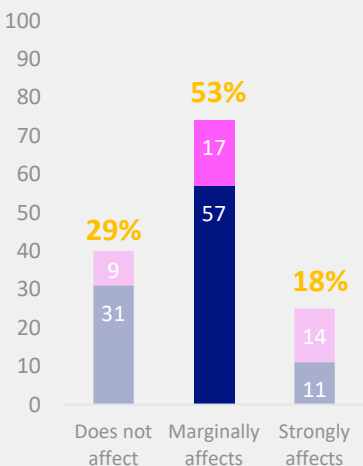
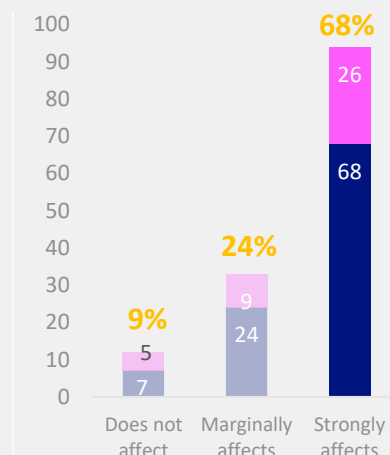
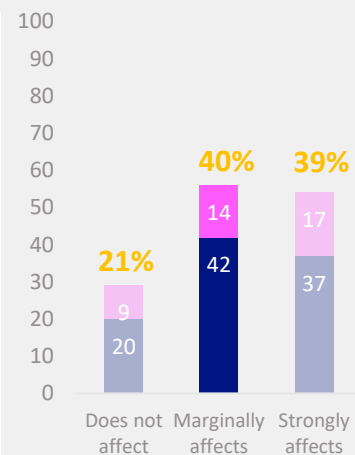
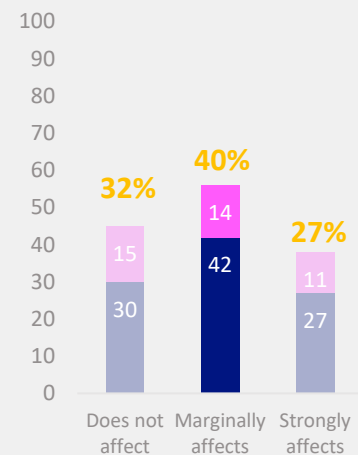
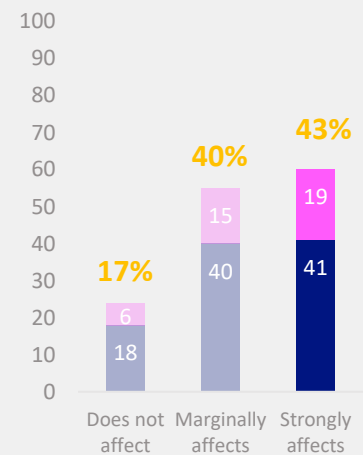
Both groups tend to prefer the adoption of patents, trade secrets, and trademarks.

116 respondents

1 choice for each row

Q8- What has your company done to protect its cleantech intellectual property?

# Policies effects



According to both innovators and ecosystem companies, the most influential policies pertain to the introduction of new technologies (95%), environment (91%), and product safety (83%).

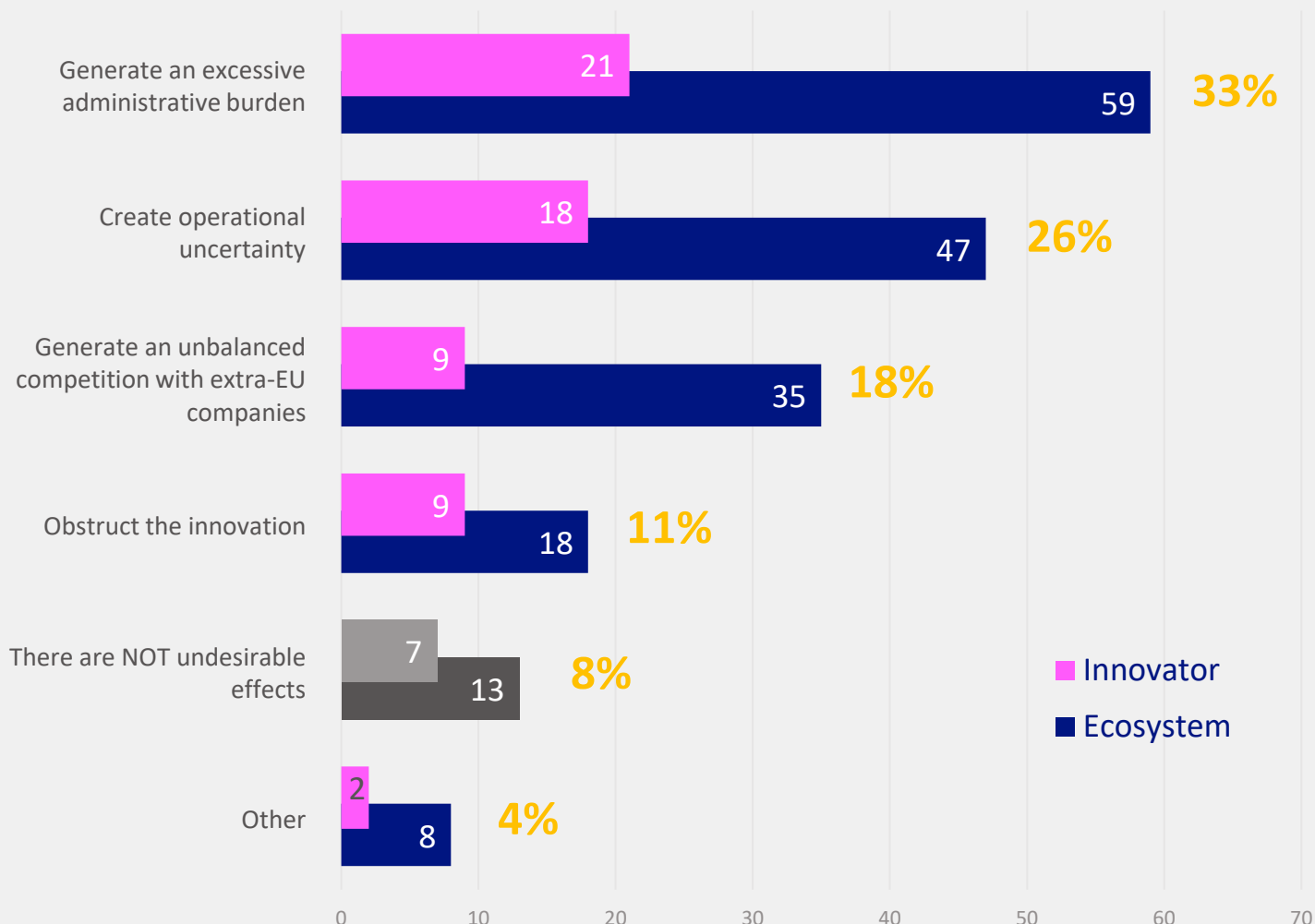
Innovators typically show a greater interest in policies related to intellectual property and taxation compared to ecosystem companies.

**1 choice for each row**

■ Ecosystem ■ Innovator

**Q9- How much are regulations/policies on the below area affecting your cleantech activities?**

## Undesirable effects



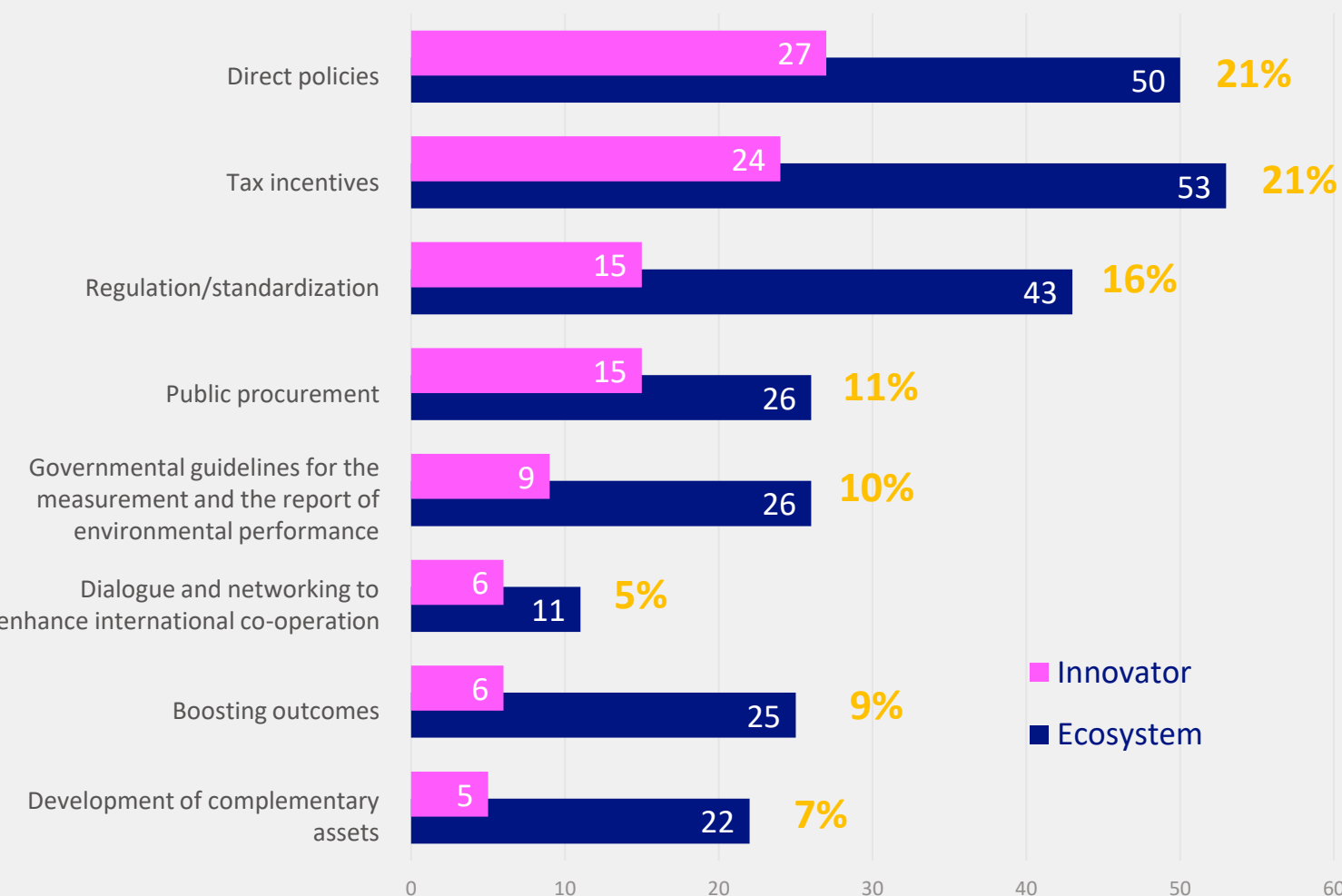
Most companies are somehow negatively affected by policies and regulations (92%), typically due to excessive administrative burden (33%) and operational uncertainty (26%).

More rarely, they report challenges related to unbalanced competition with non-EU companies (18%) and obstruction of innovation (9%).

from 1 to 3 choices

**Q10- What are the undesirable effects of recent regulations/policies on your cleantech activities?**

# Technology development strategies



Both Innovators and ecosystem companies emphasize tax incentives (21%), direct policies (21%), and new regulations and standardization (16%) as most effective.

The other solutions did not capture the interest of companies very much. Boosting outcomes, dialogue & networking and developing complementary assets would be of little use, especially from the point of view of innovators.

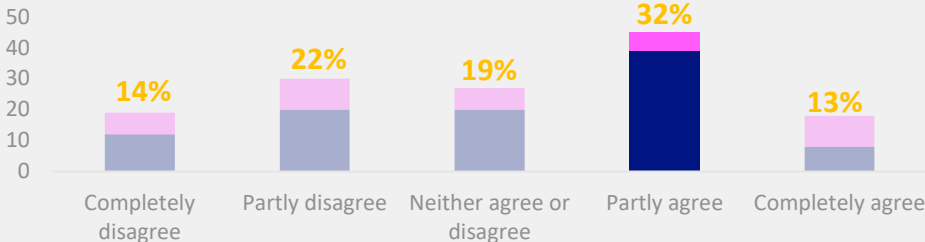
from 1 to 3 choices

**Q11- Which of these regulations/policies can mostly support technological development in the cleantech sector?**

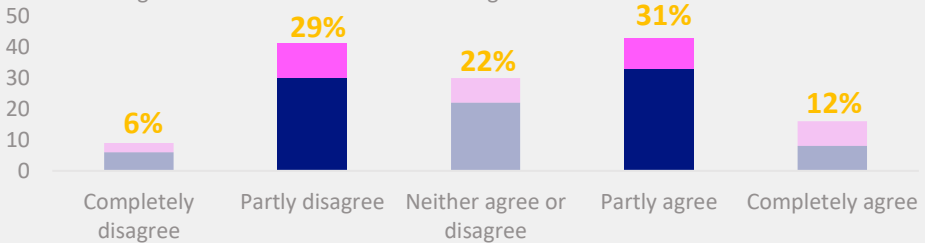


# Regulations perception

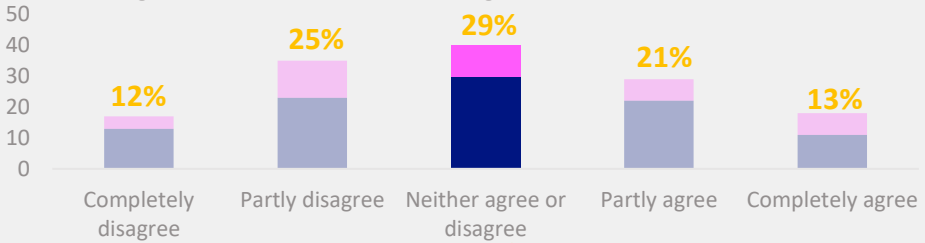
The objectives are set in a transparent and clear way



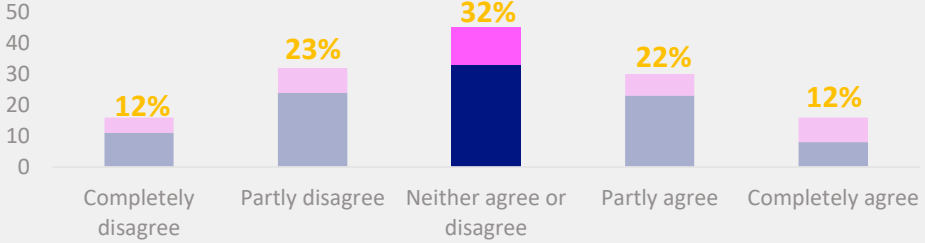
The scope is clearly designed (territory, duration and addressees)



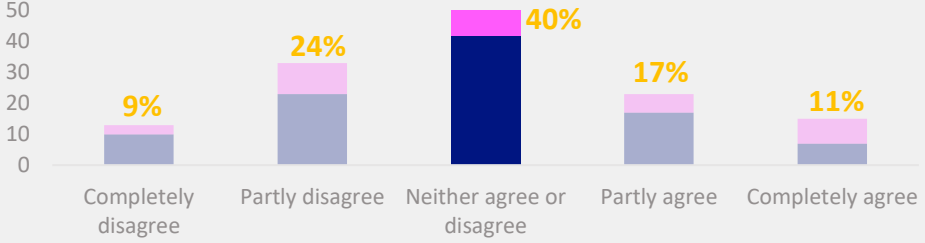
The prioritization of goals and measures is well defined



They are practically enforceable



The monitoring activities are clearly disclosed



Overall, companies find the objectives and measures of the Green Deal transparent and clear.

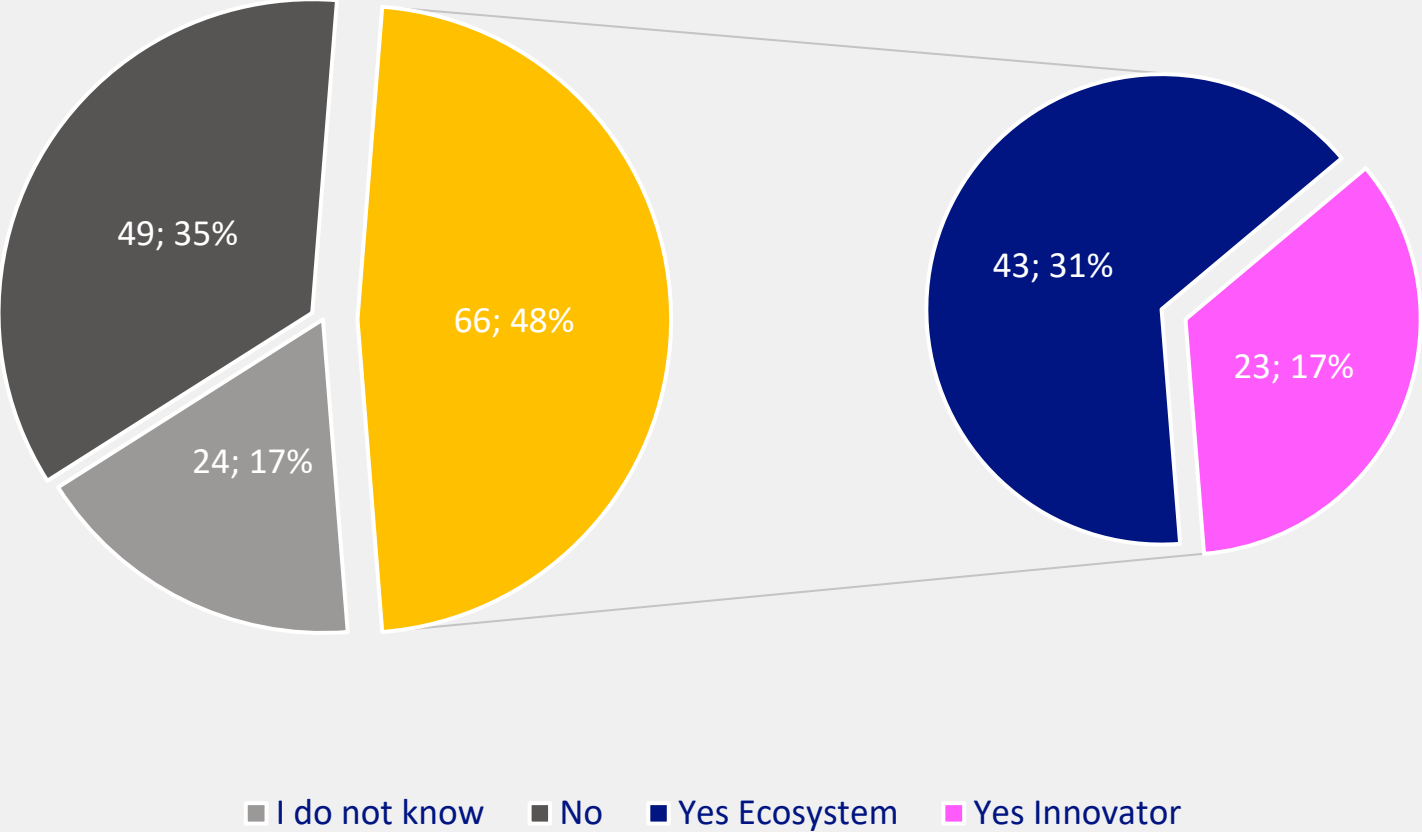
Unfortunately, with regard to the other questions, it can be seen that most companies preferred not to take a stance, favouring option “Neither agree or disagree” and avoiding the extremes of the Likert scale.

1 choice for each row

Ecosystem Innovator

Q12- Referring to the main regulations/policies relevant to your core cleantech activities, how much do you agree on the following statements?

# EXTERNAL fund raising



About half of the companies intend to acquire external funds.

In particular, 43 are ecosystem companies, and 23 are innovators

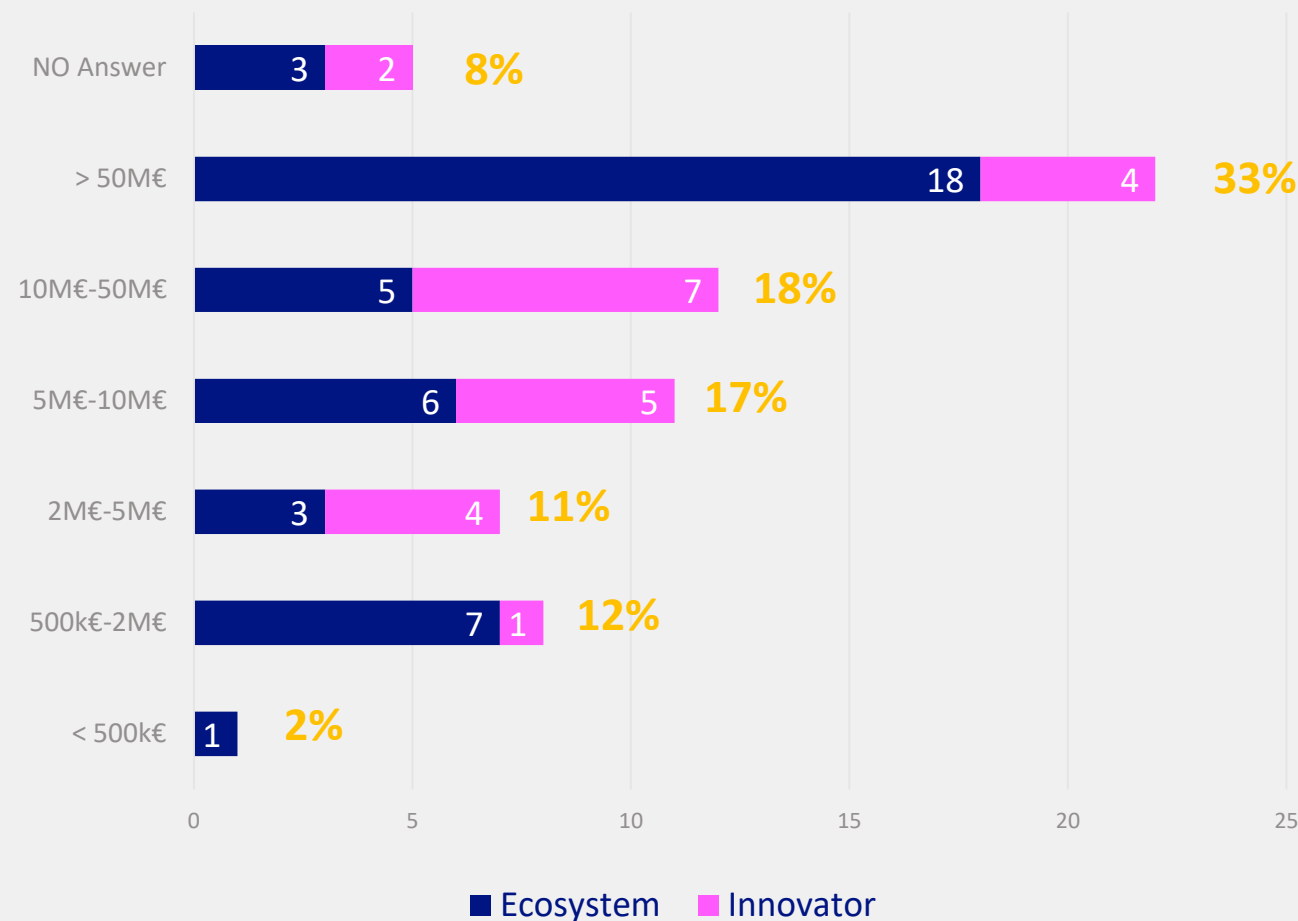
filter question

1 choice

Q13a- Does your company have any plans to raise funds from EXTERNAL investors for its ongoing activities?



# Expected rounds in 5 years



Most companies require over EUR 50 million to meet their financial needs.

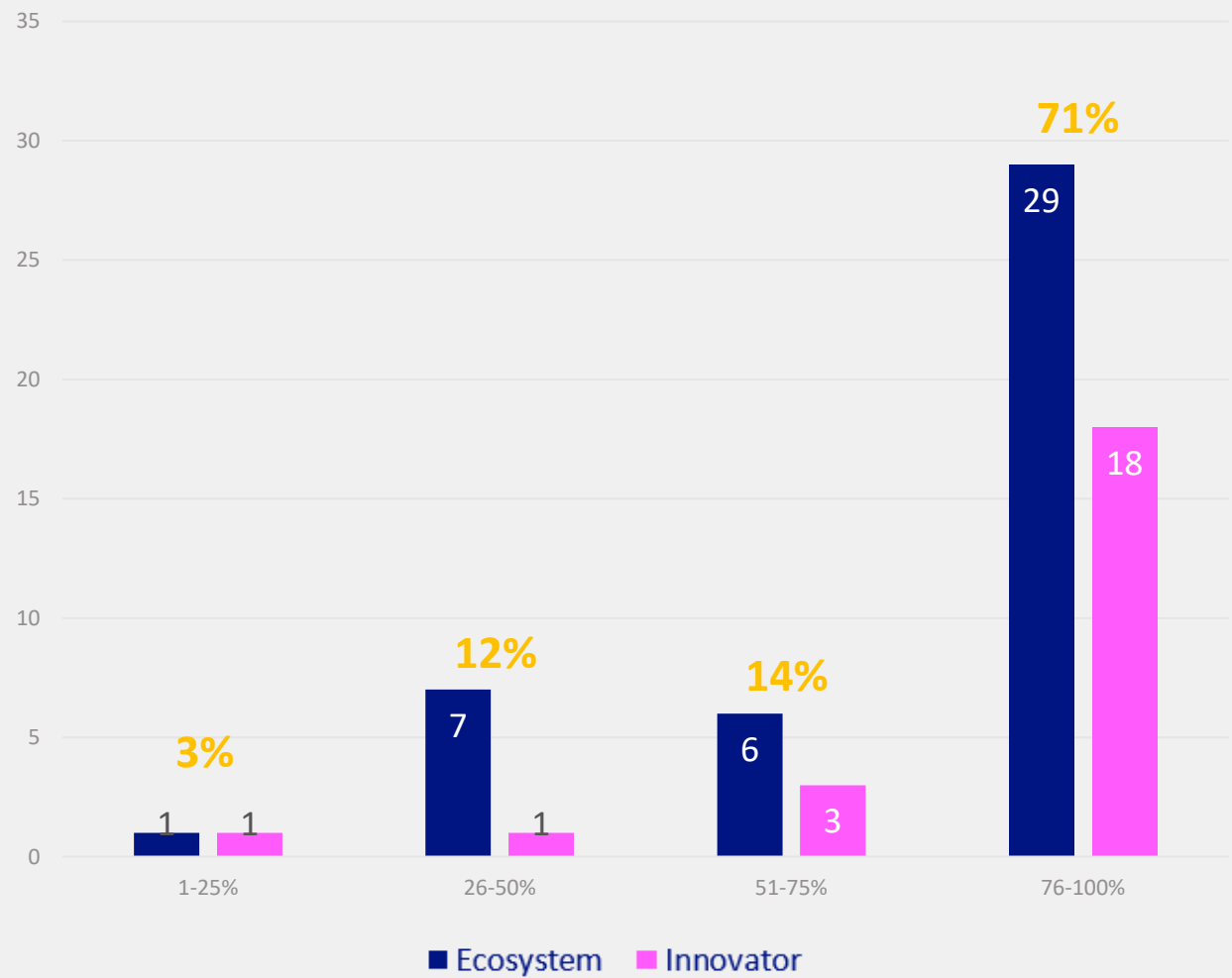
Despite being SMEs, companies typically require funding in the range of millions of euros.

66 respondents

1 choice

Q13b- How much do you want to raise for your activities in the next five years?

# Share devoted to cleantech



Most innovators (78%) and companies in the ecosystem (67%) intend to dedicate a large part of their raised funds to cleantech activities.

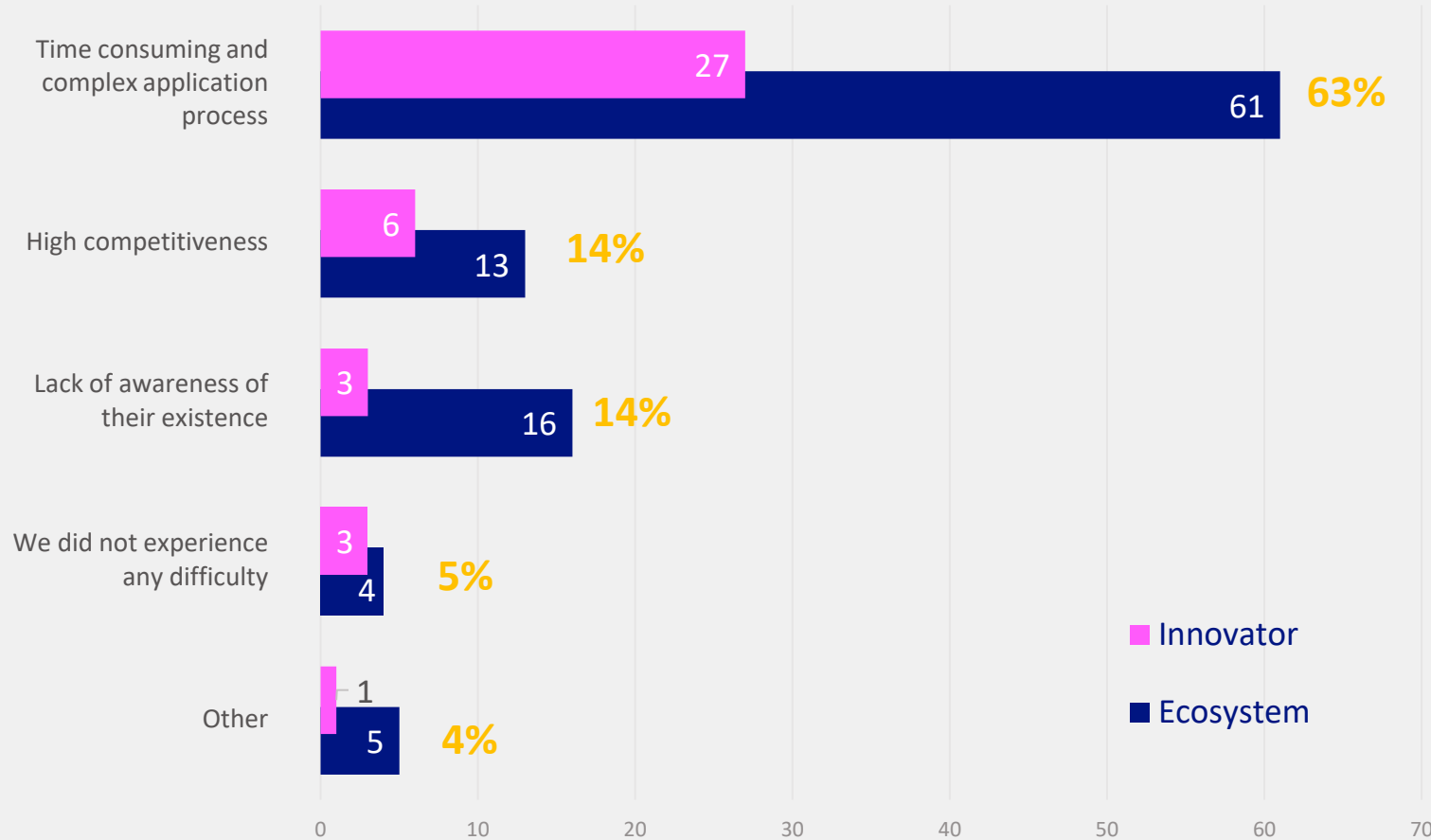
Conversely, only 3% of companies intend to devote less than 25% of their funds.

66 respondents

1 choice

Q13c- How much of the funding you intend to raise will be dedicated to support cleantech activities?

# Public funding main challenge



Only 5% of the companies have never encountered difficulties in accessing public funds, while the majority of companies (63%) find the application process time-consuming and complex.

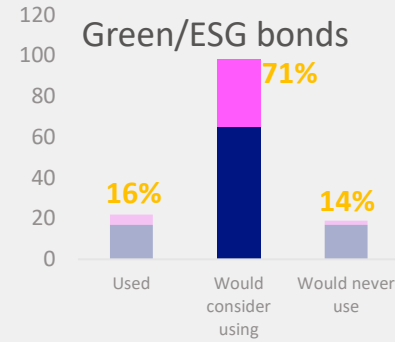
14% believe that there is high competition when accessing public funds.

Furthermore, 16% of companies in the ecosystem, and only 8% of innovators, report a lack of awareness of the existence of public funds.

1 choice

Q14- What is the main challenge in participating in public funding programmes?

# Financing instruments preferences



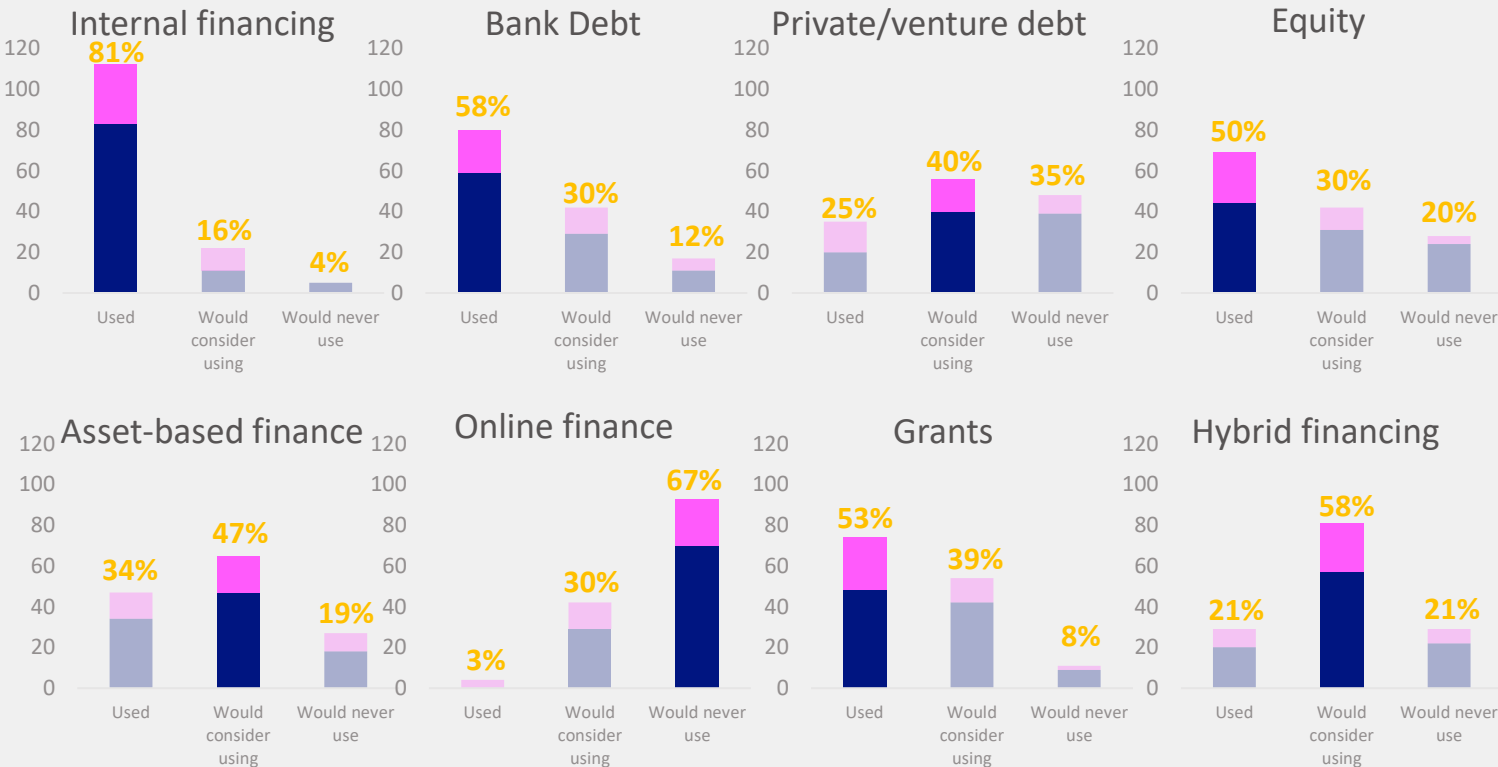
Among the most commonly used types of financing are certainly internal financing, bank debt, and grants.

In the future, companies are likely to opt also for green/ESG bonds, hybrid financing, asset-based financing and private/venture debt.

Online financing is an option that companies would avoid.

1 choice for each row

■ Ecosystem ■ Innovator



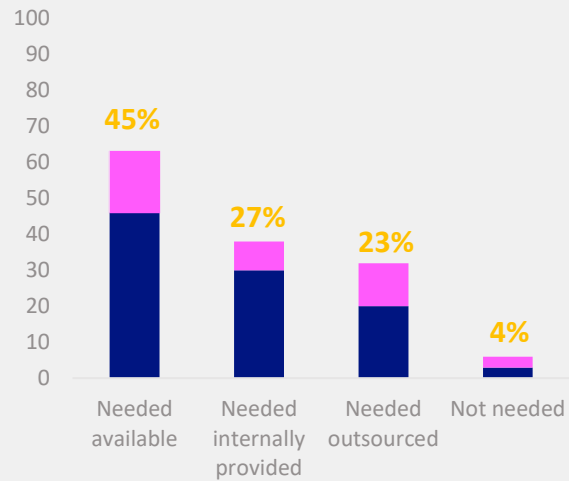
Q15- Has your company used or would consider using the following financing instruments?

# Needed skillset (1/2)

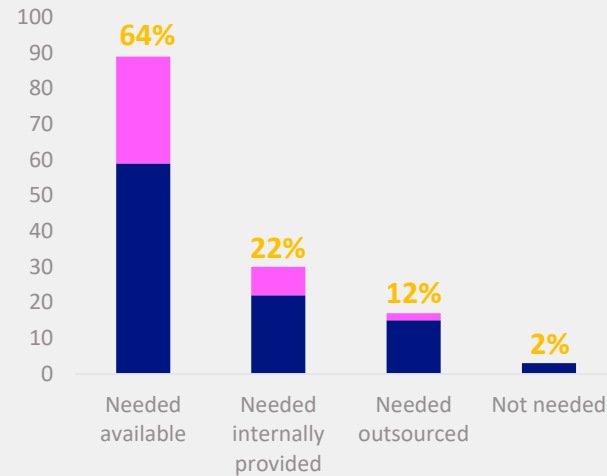
■ Ecosystem ■ Innovator

SKILL

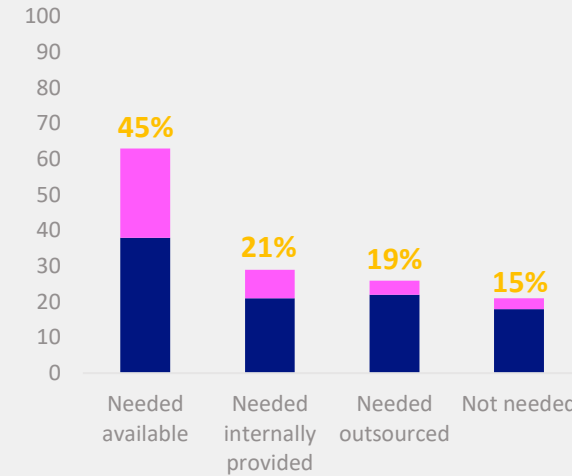
Data science and business intelligence



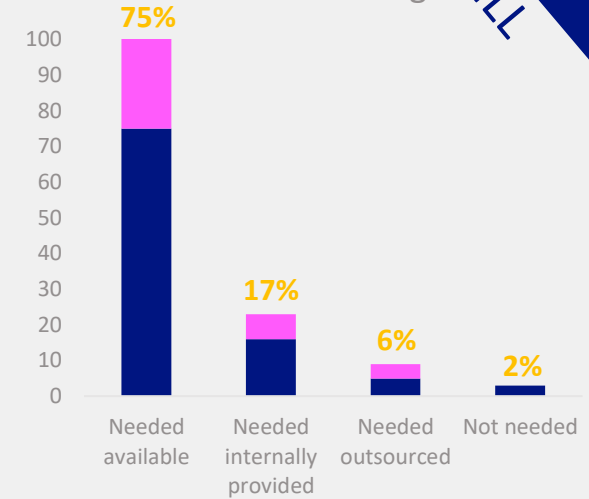
Technology and engineering



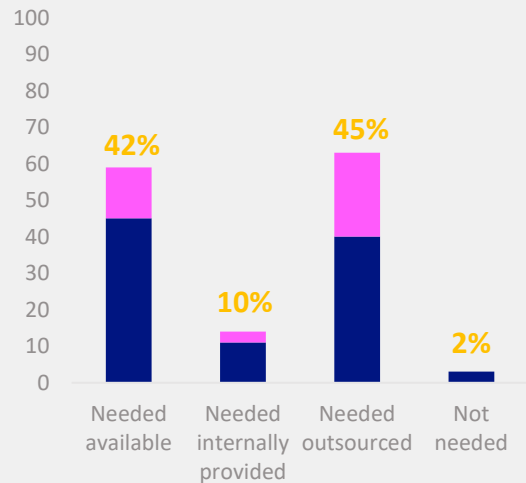
Design



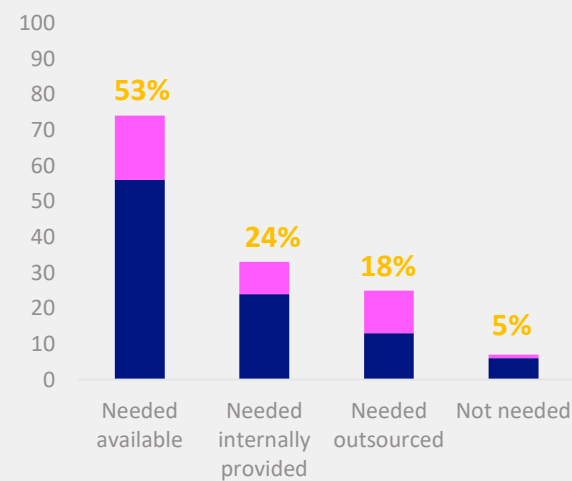
Finance and accounting



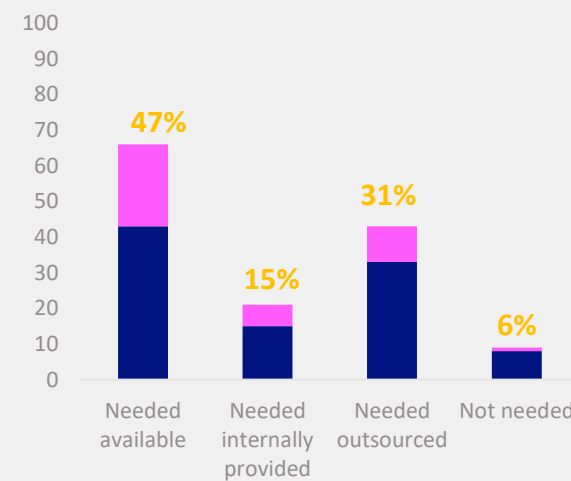
Legal



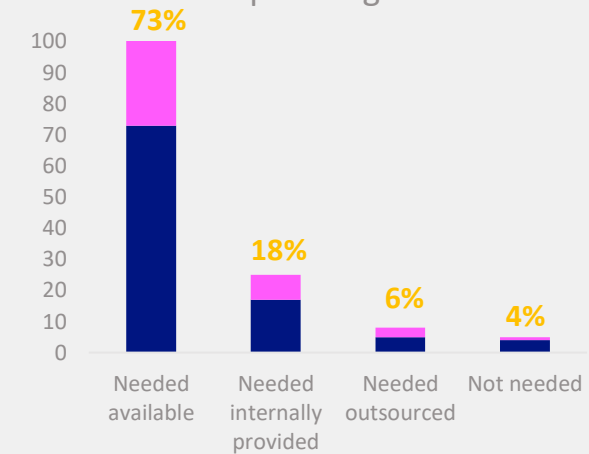
Marketing and PR



Research and science

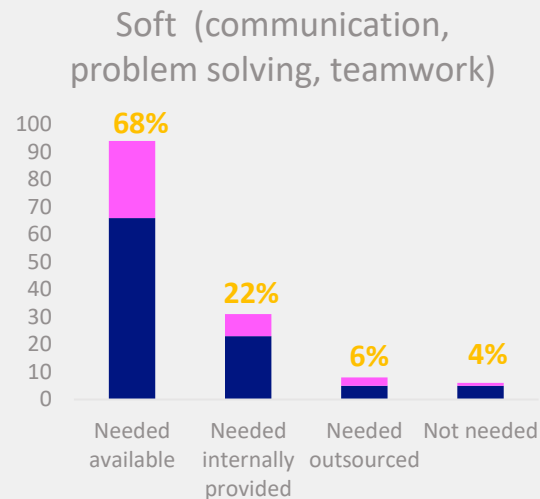
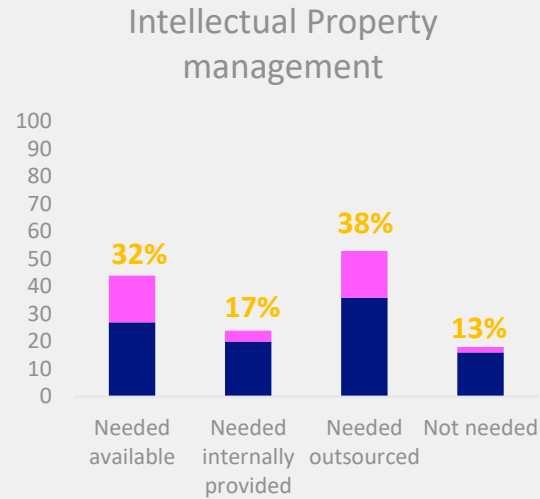
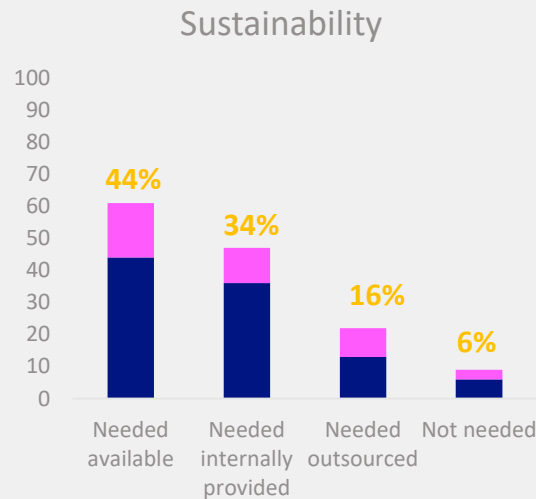


Business and strategic planning



**Q16- State if the listed skills are needed in your company and if you are going to outsource them**

## Needed skillset (2/2)



Most companies do not experience serious shortages. On average, 53% of the required are already available, 21% can be provided internally, and an additional 20% can be obtained through outsourcing.

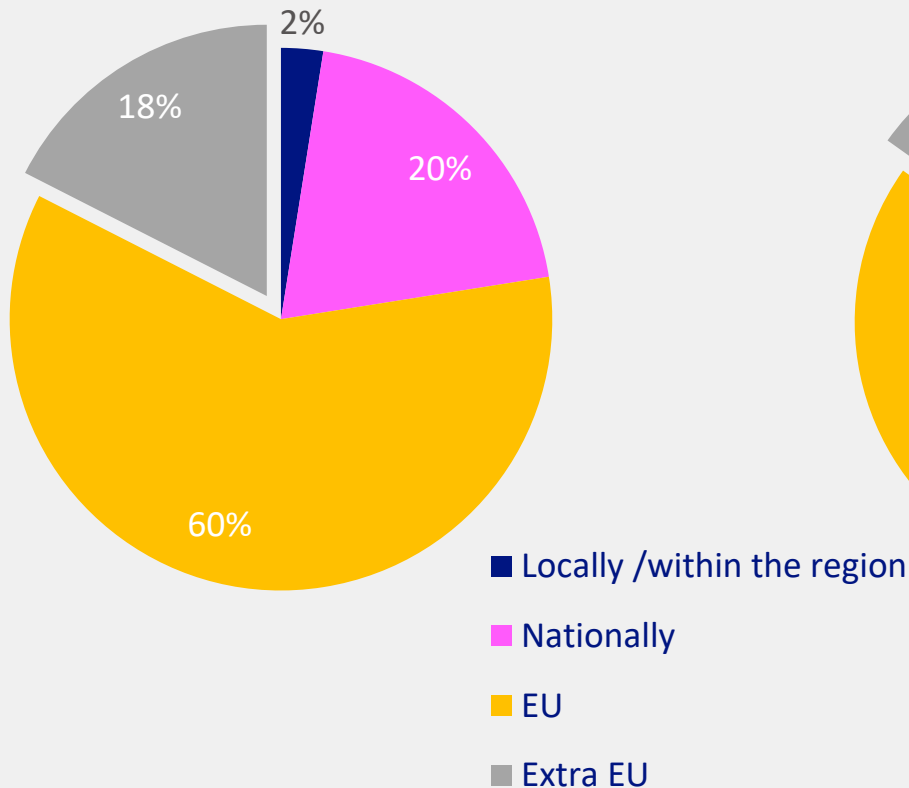
This leaves an average of only 6% uncovered, with higher percentages for design (15%) and intellectual property (13%).

1 choice for each row

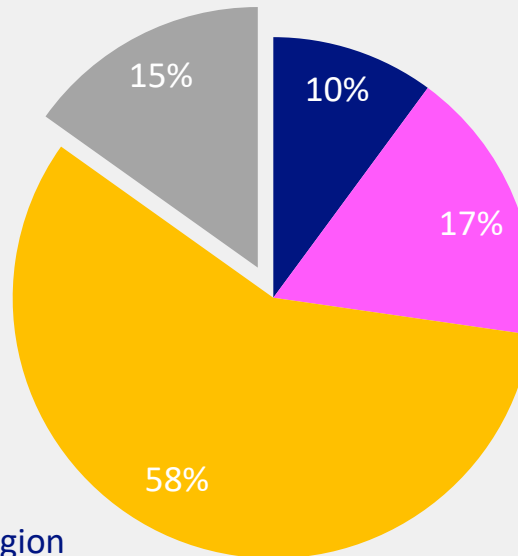
Q16- State if the listed skills are needed in your company and if you are going to outsource them

# Suppliers localization

## INNOVATORS



## ECOSYSTEM



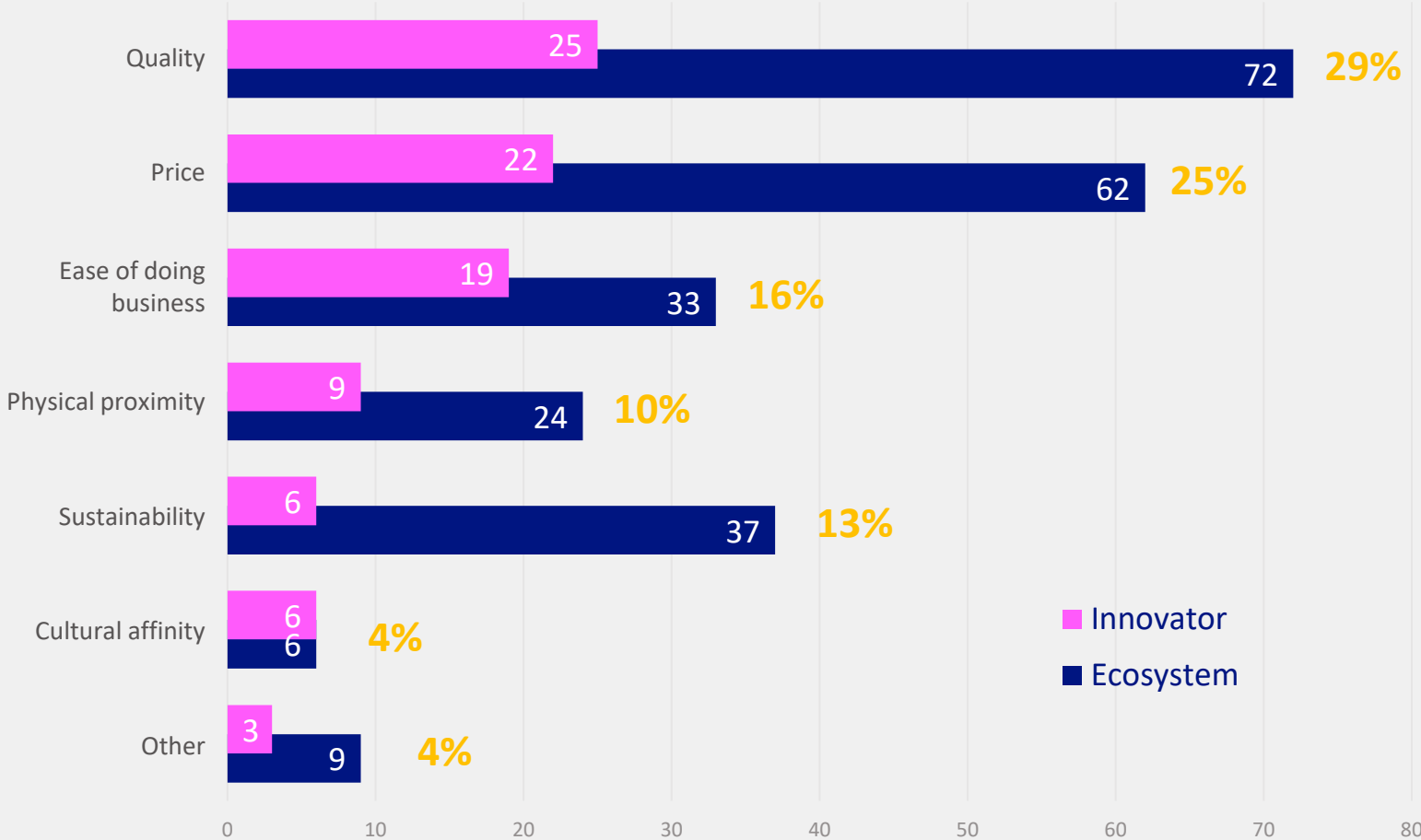
Few companies manage to have a local supply chain, even only 2% of innovators and 10% of ecosystem companies succeed.

Fortunately, most companies (85%) manage to have a supply chain limited to European borders.

**1 choice**

**Q17- Where are your suppliers mainly localized?**

## Suppliers pool selection



Quality (29%) and price (25%) drive companies' purchasing choices.

The ease of doing business (16%) is also considered.

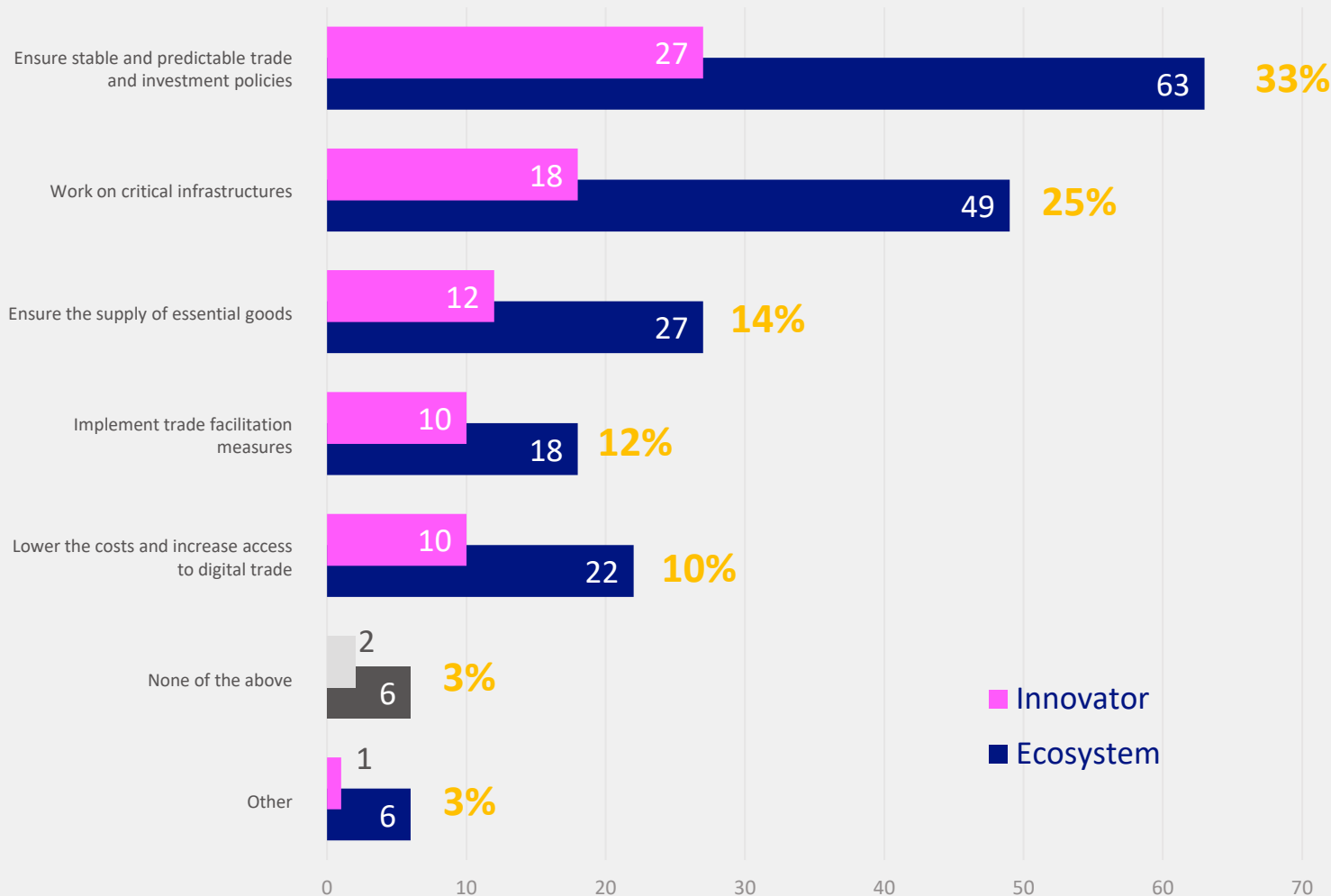
Proximity (10%) and cultural affinity (4%), on the other hand, seem to be more negligible factors.

from 1 to 3 choices

Q18- Which are the main reasons for the selection of the current pool of suppliers?



# Supply chain national resilience strategy



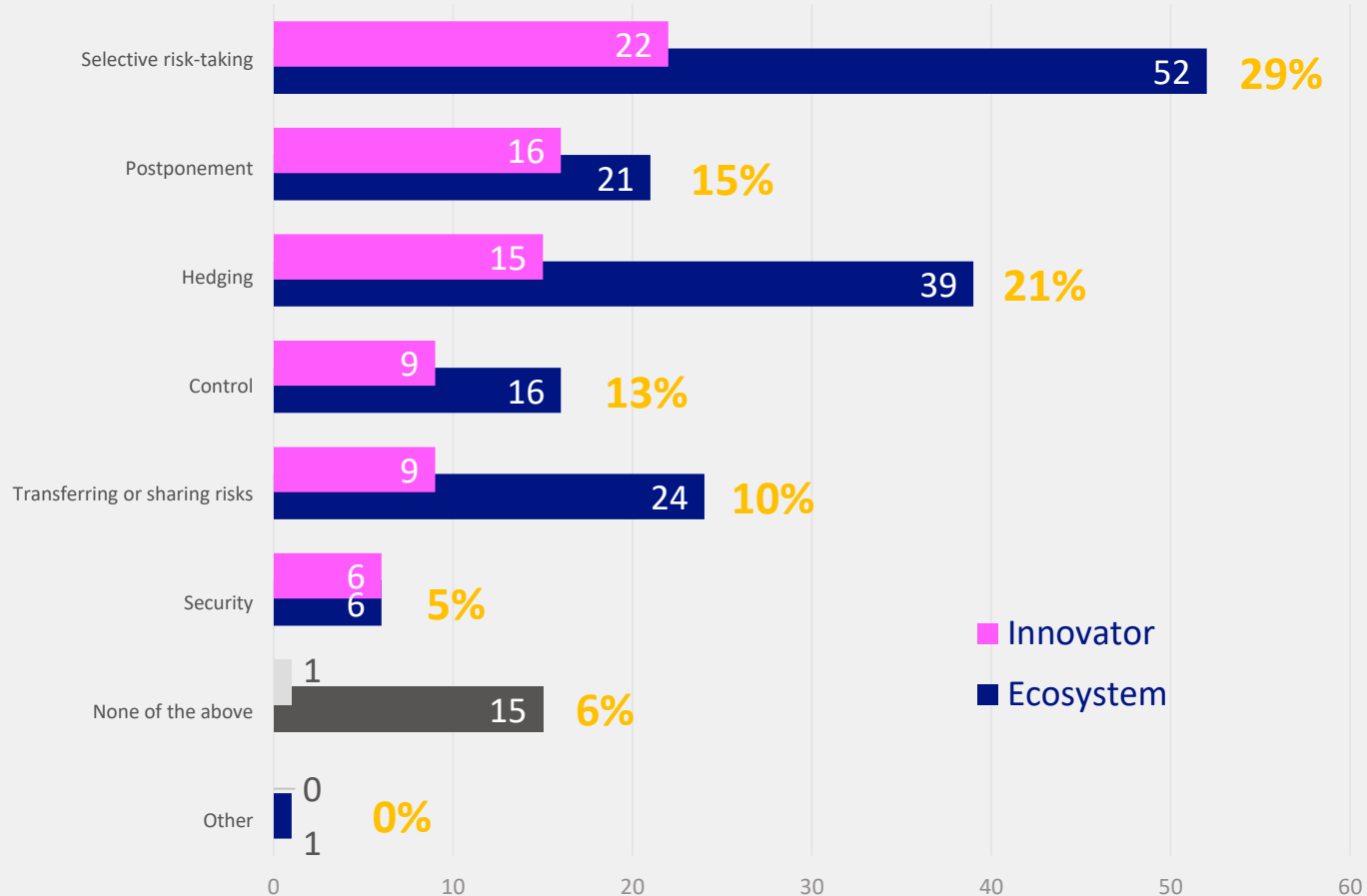
According to most respondents, better trade and investment policies (33%) and critical infrastructure interventions (25%) can help enhance supply chain resilience.

Additionally, trade facilitation (14%), ensured supply (12%) and lower costs (10%) of essential goods may also make a smaller contribution.

from 1 to 3 choices

**Q19- Which of the following policy goals should the government pursue to improve the resilience of supply chains in your country?**

## Firm resilience strategy



The most implemented actions are Selective risk-taking (29%) and Hedging (21%).

Following these, in preferred order, are Postponement (15%), Control (13%), and Transferring or sharing risks (10%).

Security (5%) is the least frequently adopted

from 1 to 3 choices

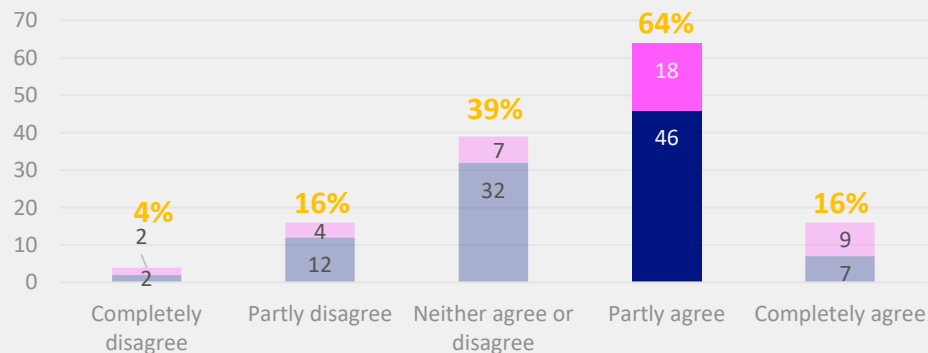
**Q20- Which of the following actions is YOUR COMPANY considering to make its supply chain more resilient?**

# Respondent perspective about EGD (1/2)

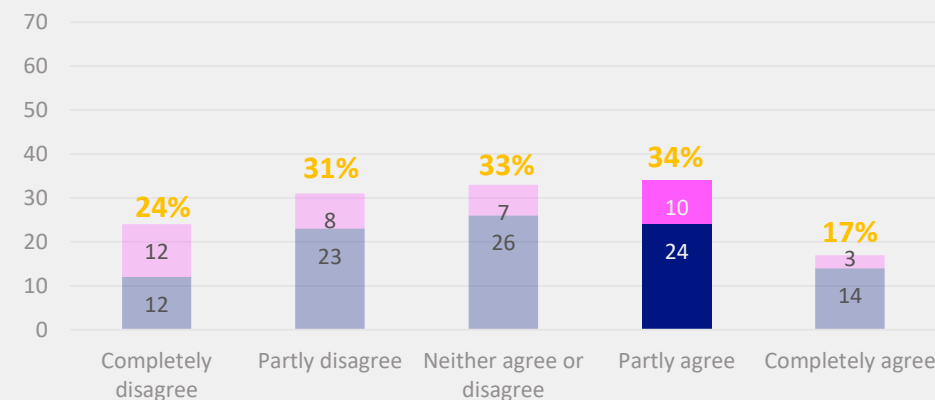
■ Ecosystem ■ Innovator



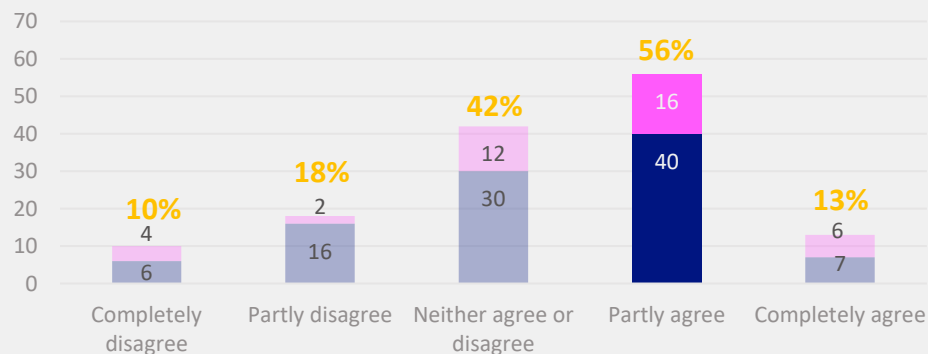
The EGD is difficultly enforceable



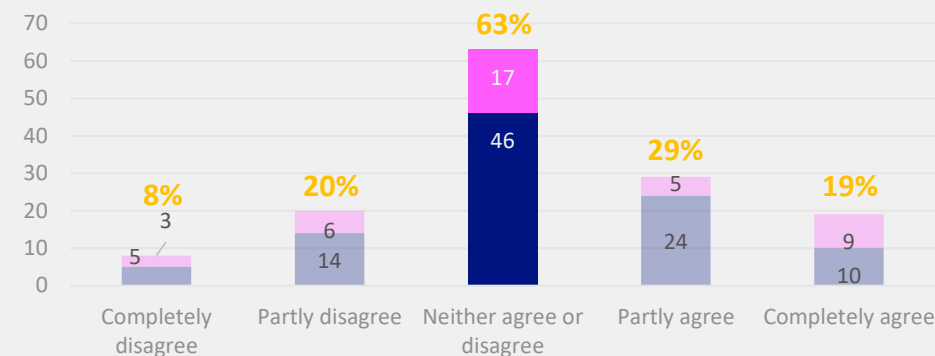
The EGD's goals are too ambitious



The EGD will create a more predictable and clearer regulatory environment



The EGD is NOT promoting common incentives across the EU

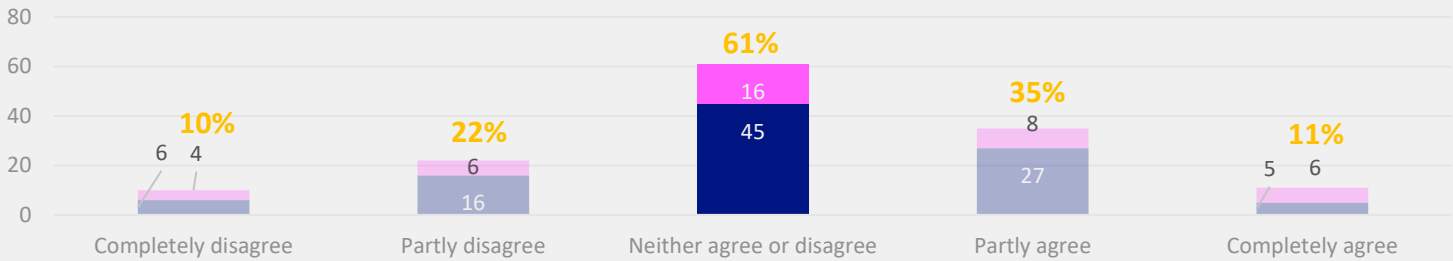


**Q21- How much would you agree with the following statements about the EU Green Deal (EGD)?**

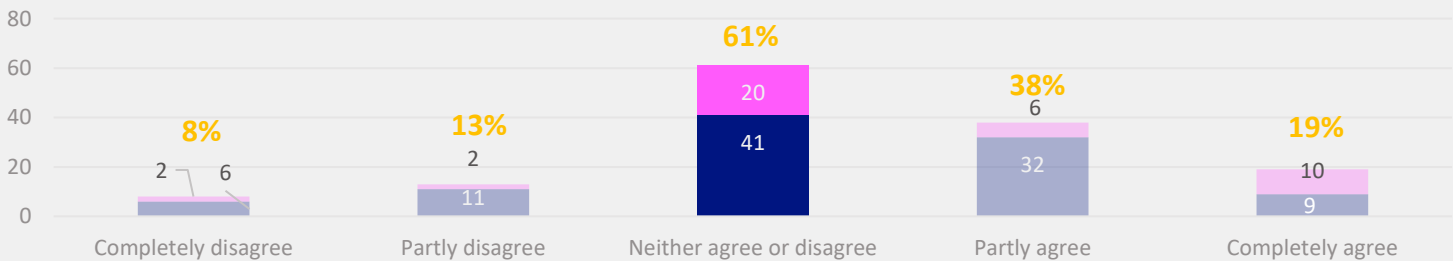
# Respondent perspective about EGD (2/2)



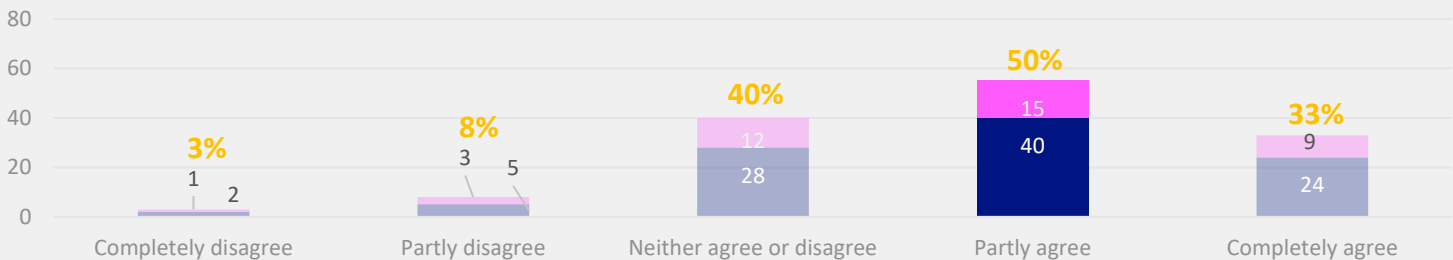
The implementation of the EGD is not financially supported by the EU



The EGD creates disparities among EU regions and countries



The EGD requires a difficult coordination among the EU member states



Most companies preferred not to take a stance, neither agreeing nor disagreeing.

The respondents are confident that the European Green Deal (EGD) will create a predictable and clear regulatory environment.

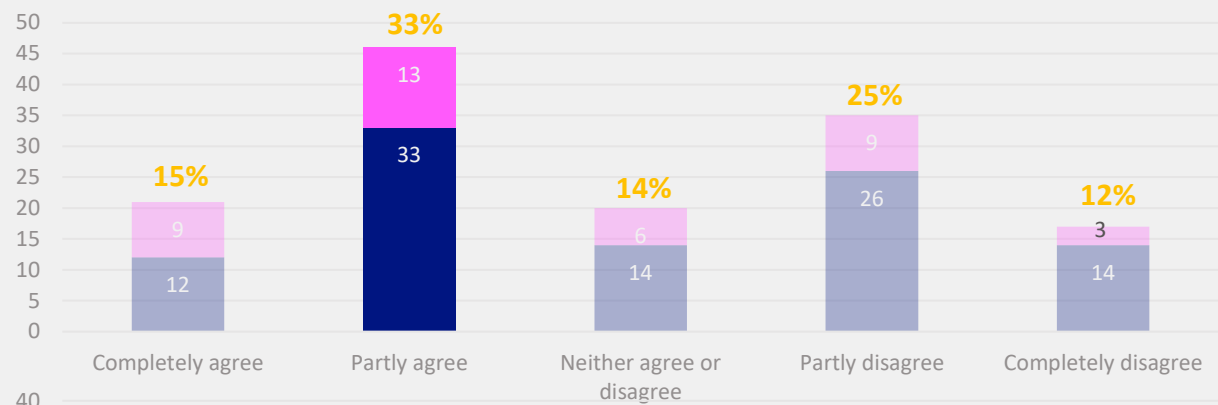
However, they believe that the goals might be too ambitious and that enforcing the EGD could be challenging. Additionally, better coordination among EU member states seems to be necessary.

1 choice for each row

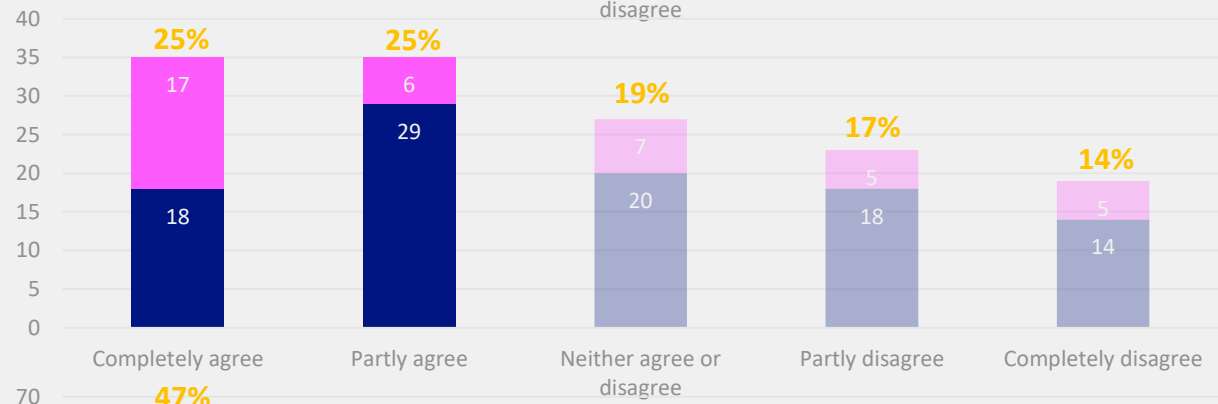
Ecosystem Innovator

Q21- How much would you agree with the following statements about the EU Green Deal (EGD)?

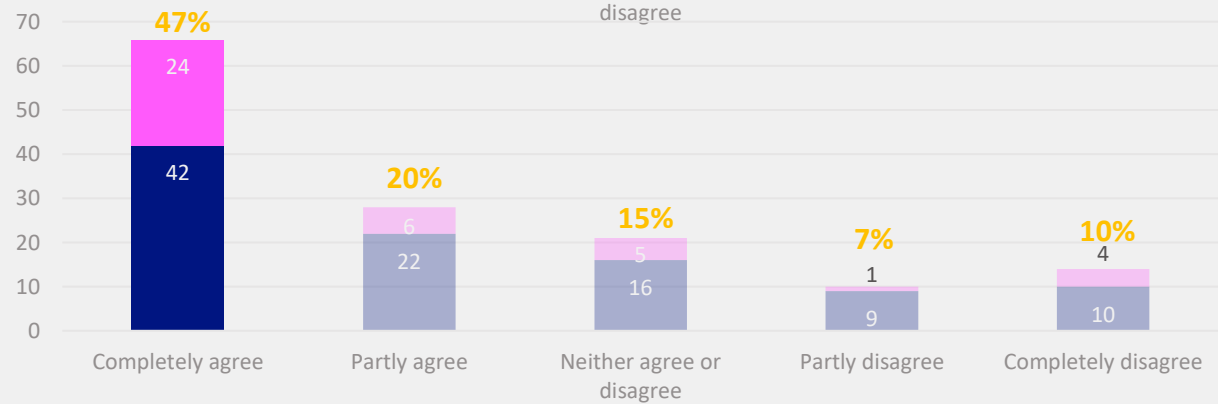
Your organization being net zero by 2050



Your country being net zero by 2050



The EU being net zero by 2050



Companies especially innovators, are very optimistic about the possibility of their organization achieving net-zero emissions by 2050.

They have less confidence in the prospect of their entire nation doing the same and even less in the idea of the entire EU reaching this goal

**1 choice for each row**

Ecosystem Innovator

- 
- 23. What is your position in the company? (please specify both the role and the business unit)**
  - 24. What is your name and surname?**
  - 25. What is your email address?**
  - 26. What is your phone contact? (Please, remember to specify the national prefix e.g. +39 3331234567) c**

110 respondents provided personal information reported in the last section. They therefore made themselves available to be contacted for a potential second interview step

# Research team



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di Torino

This wordcloud aggregates the denomination of the companies that took active part in the survey



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