

# Mapping of Decarbonisation Start-ups

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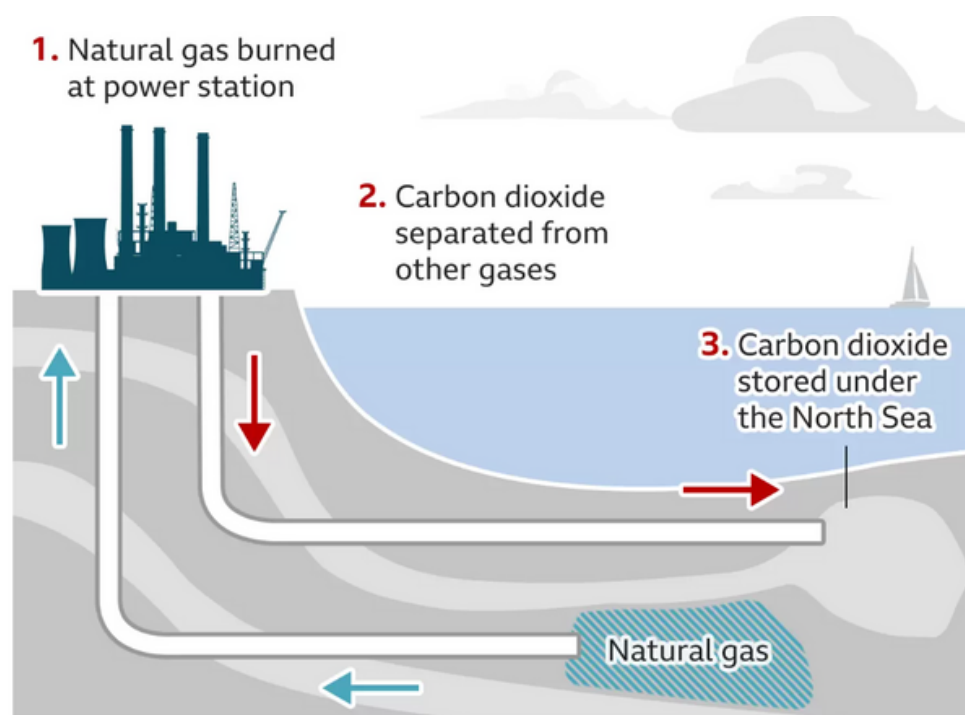
# CARBON CAPTURE, UTILISATION, AND STORAGE

The net-zero emissions goal is crucial to limit global warming, as outlined in the [Paris Agreement](#) on climate change, and the technology brief calls for rapid scale-up of carbon capture, utilisation, and storage (CCUS). As a result, carbon capture start-ups are also gradually taking an increasingly important position in the market.

**Carbon capture and storage (CCS)** refers to various technologies that can combat climate change by reducing carbon dioxide (CO<sub>2</sub>) emissions. CCS is a process in which relatively pure CO<sub>2</sub> from industrial sources is separated, treated, and transported to long-term storage.

**Carbon capture and utilisation (CCU)** is the process of capturing carbon dioxide (CO<sub>2</sub>) to be recycled for further usage. CCU aims to convert the captured carbon dioxide into more valuable substances or products, such as plastics, concrete, or biofuel. CCU may respond to the global challenge of significantly reducing greenhouse gas emissions from major stationary emitters.

## The process of carbon capture and storage



Source : [BBC Research](#)

# GEOGRAPHY AND MATURITY OF CARBON CAPTURE START-UPS

The mapping of carbon capture start-ups is based on the data on 96 start-ups listed on the Skopai platform in May 2023. These companies have their headquarters in Europe, Israel, United States, and Canada. They were created after year 2000, develop solutions for carbon capture, utilisation, and storage, and employ less than 500 employees.

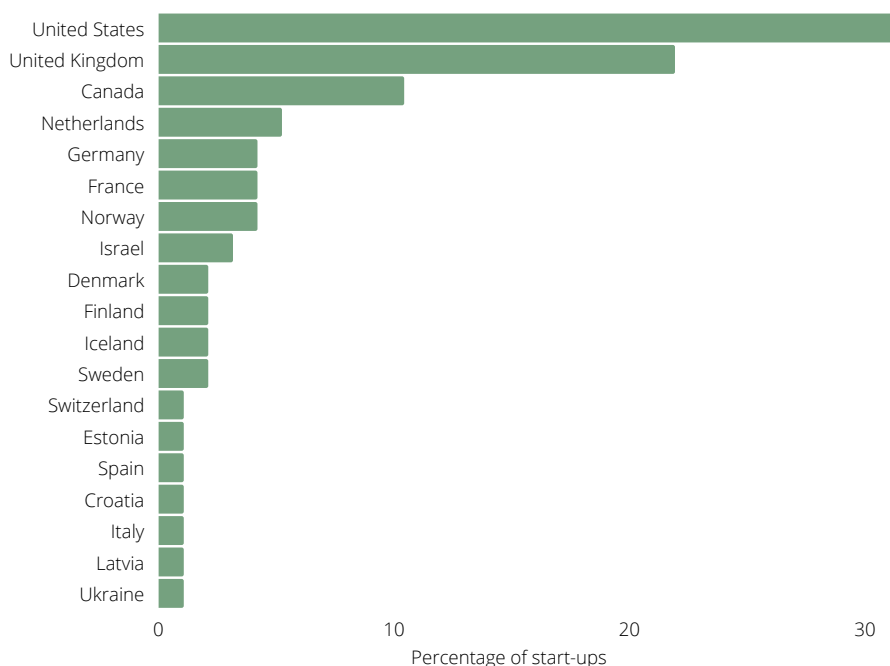
The analyzed start-ups are spread across **19 countries**, with the majority operating in the **United States (31.3%)** and the **United Kingdom (21.9%)**, followed by **Canada (10.4%)**, the **Netherlands (5.2%)**, **Germany, France**, and **Norway (4.2% each)**, among others.

All the information on the basis of this report, including **the profiles of 96 carbon capture start-ups**, can be accessed here:

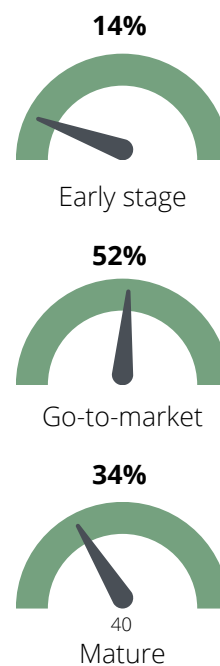
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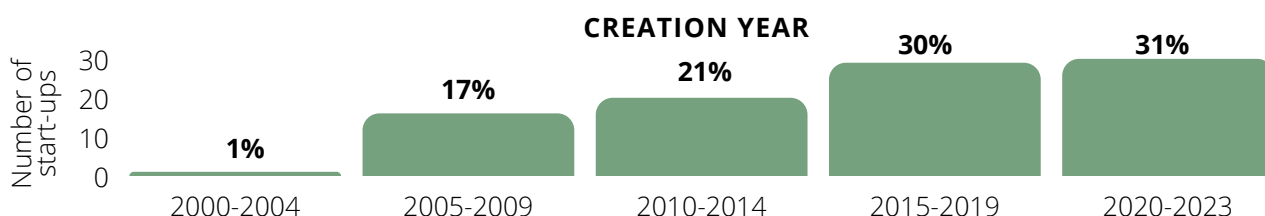
## HEADQUARTERS



## MATURITY STAGE

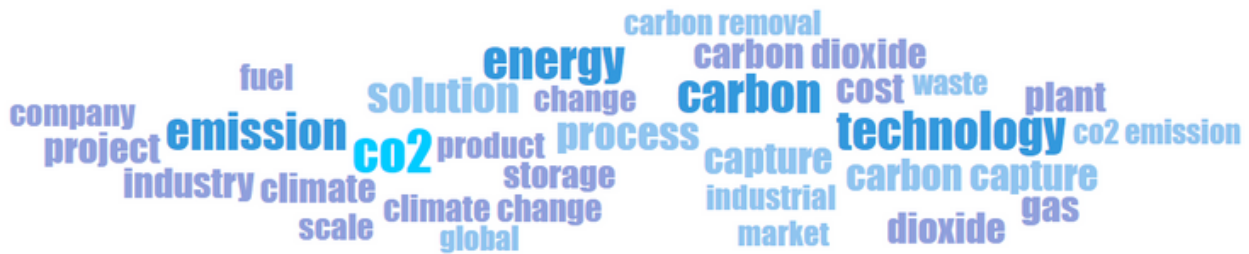


Most carbon capture start-ups in the landscape are on the **go-to-market stage (52.1%)**, followed by **mature stage (34.4%)** and **early-stage companies (14%)**. There is a positive trend in the creation of new carbon capture start-ups: **31%** of start-ups have been **created during the last three years (2020-2023)**.



# INNOVATION MAP OF CARBON CAPTURE START-UPS

## THEMATIC CLUSTERS



Carbon capture start-ups within the landscape can be broadly divided into two categories

### 1. Dedicated to developing new capture technologies



**Biorecro** develops Carbon Cleanup, a service aiming to capture CO<sub>2</sub> from the atmosphere and store it permanently below the ground.



**Carbfix** captures CO<sub>2</sub> and turns it into stone underground in less than two years through proprietary technology.



**Soletair Power**'s patented onsite carbon capture technology empowers commercial property owners to cut their buildings' overall carbon emissions while earning them significant cost savings. The modular carbon capture systems operate with a plug-and-play approach, enabling property owners to rapidly and easily install onsite carbon capture solutions.



**Climeworks** develops an innovative technology called "direct air capture" to remove excess CO<sub>2</sub> from the air to fight global warming.

### 2. Use of captured CO<sub>2</sub> to produce industrial feedstock or generate economic benefits

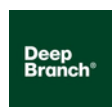
**Airovation**'s outstanding carbon capture technology efficiently captures high concentrations of carbon dioxide from point source, stores the carbon, and yields valuable materials. Ideally, closing circular economy.



**Carbominer** develops the new DAC technology to capture CO<sub>2</sub> from the open air locally, at the place of use. And Carbominer aims to provide CO<sub>2</sub> captured from the air to indoor agriculture growers in the EU as a sustainable and fossil-free alternative to the CO<sub>2</sub> they use now.



**Deep Branch** uses clean and renewable carbon and energy sources to create ingredients for a more sustainable food system and produce a range of high-value products.

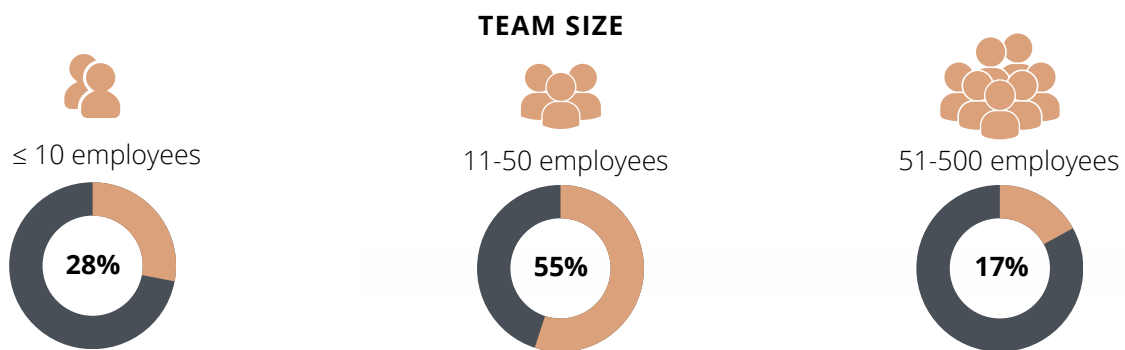


**CarbiCrete**'s technology enables the production of cement-free, carbon-negative concrete using industrial by-products and captured CO<sub>2</sub>.

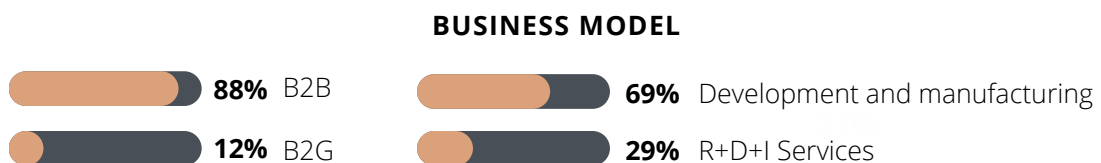


# SIZE, BUSINESS MODEL, AND TECHNOLOGY

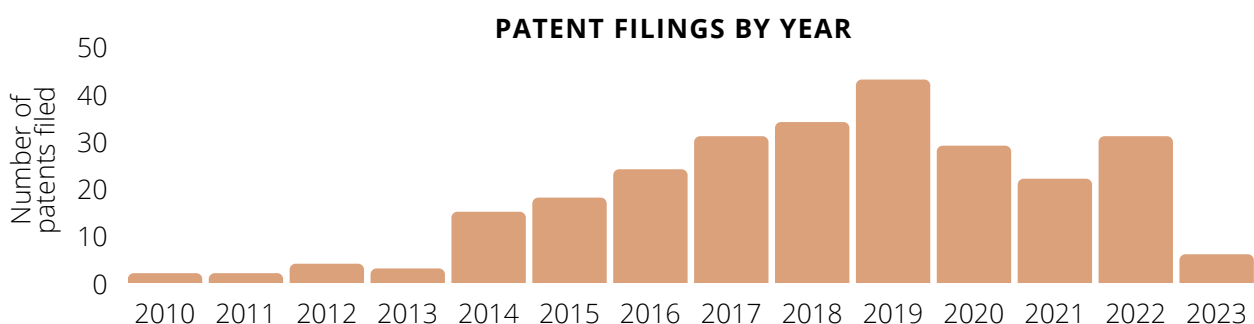
In terms of team size, more than half of the analyzed carbon capture start-ups have **between 11 and 50 employees** (54.7%), and more than a quarter of start-ups have **less than 10 employees (28.4%)**. Nearly 17% of companies are larger and employ between 51 and 500 employees.



The dominant form of commercial transaction of carbon capture start-ups is **Business-to-Business (B2B, 87.9%)**. 12.1% of start-ups provide their solutions to government (Business-to-Government - B2G). The data on business models show that the majority of start-ups operate in the sector of **development and manufacturing (68.9%)**. The share of start-ups providing **R+D+I Services** (Research, Development and Innovation/Industrialization) equals 28.8%.



According to the data, **43% of carbon capture start-ups have filed patents** (41 start-ups). A total of **275 patent filings** were registered by the start-ups, with an **average of 7 patents per start-up**.



# INVESTMENTS IN 2023

CCS is one of the key tools to address the climate crisis, and CCU is more likely to reuse and recycle CO<sub>2</sub>. In recent years it can be seen that carbon capture start-ups are becoming more and more competitive in many countries and regions. According to Skopai's landscape data, **CCS and CCU-related financing took a giant leap forward in 2022**. The outlook for the carbon capture industry has never been more positive, which is good news for climate change mitigation. However, global efforts to reduce emissions, including investment in CCS or CCU, are still grossly inadequate, and are on a downward trend in 2023.

According to the data, **over the last five years (2018-2023), carbon capture start-ups raised more than 3.3 billion euros in funding**. Below are some examples of start-ups that raised **funds in 2023**, according to analysis from the Skopai platform.



In January 2023, Singapore's sovereign wealth fund Temasek led the latest funding round for climate tech firm **Living Carbon**, which aims to increase the carbon-absorbing ability of trees, the start-up's chief executive told Reuters. The biotech's \$21M Series A round was also backed by the world's biggest automaker Toyota and venture firms Lowercarbon Capital and Felicis Ventures, and takes the total funding raised to date to \$36 million.

**Noya**, a San Francisco-based climate tech company, raised \$11M in Series A funding in April 2023. The round was led by Union Square Ventures and Collaborative Fund, with participation from Lowercarbon Capital, Fifty Years, MCJ Collective, EQT Foundation, Climate Capital, and Nexwell Group. The company intends to use the funds to hire new team members, expand testing and manufacturing capabilities, and deploy their first pilot later this year.



**Svante**

**Svante** closed \$75M in Series D equity financing in February 2023. Temasek led the round, including strategic investors Chart Industries (NYSE: GTLS), Carbon Direct and Export Development Canada (EDC). The company, which has now attracted more than \$150M in funding since it was founded in 2007, intends to use the funds to advance several initiatives over the next three years, including work to support several commercial-scale carbon capture facilities to address hard-to-abate emissions from industrial operations (such as cement manufacturing, blue hydrogen production, and natural gas boilers).

**NovoNutrients** will be building a pilot-scale plant with help from a \$3M technology and investment deal from Woodside Energy, one of Australia's largest oil and gas companies, which has begun dipping its toes into the carbon capture waters.



**RAVEN**

There were also two financings with undisclosed deal amounts.

**Raven SR** received an investment from Stellar J. The company intends to use the funds to commence commercial operations for waste-to-hydrogen production in early 2024 and commercial operations for sustainable aviation fuel (SAF) in 2025.



Norway's **Aqualung** announced the investment and strategic carbon capture and sequestration partnership with Denbury in February 2023.

# METHODOLOGY

The study is based on the data on **96 carbon capture start-ups** in Europe, Israel, United States, and Canada, presented on the Skopai platform and extracted in May 2023. The data on start-ups are collected from sources publicly available on the internet, using data science and AI algorithms.

## CRITERIA



Europe, Israel,  
United States,  
Canada



Solutions for **carbon capture, utilization, and storage**



Created **after 2000**



Employ **less than 500 employees**

### List of carbon capture start-ups

**FREE**, for a limited time only : Access the **FULL LIST of carbon capture start-ups:**

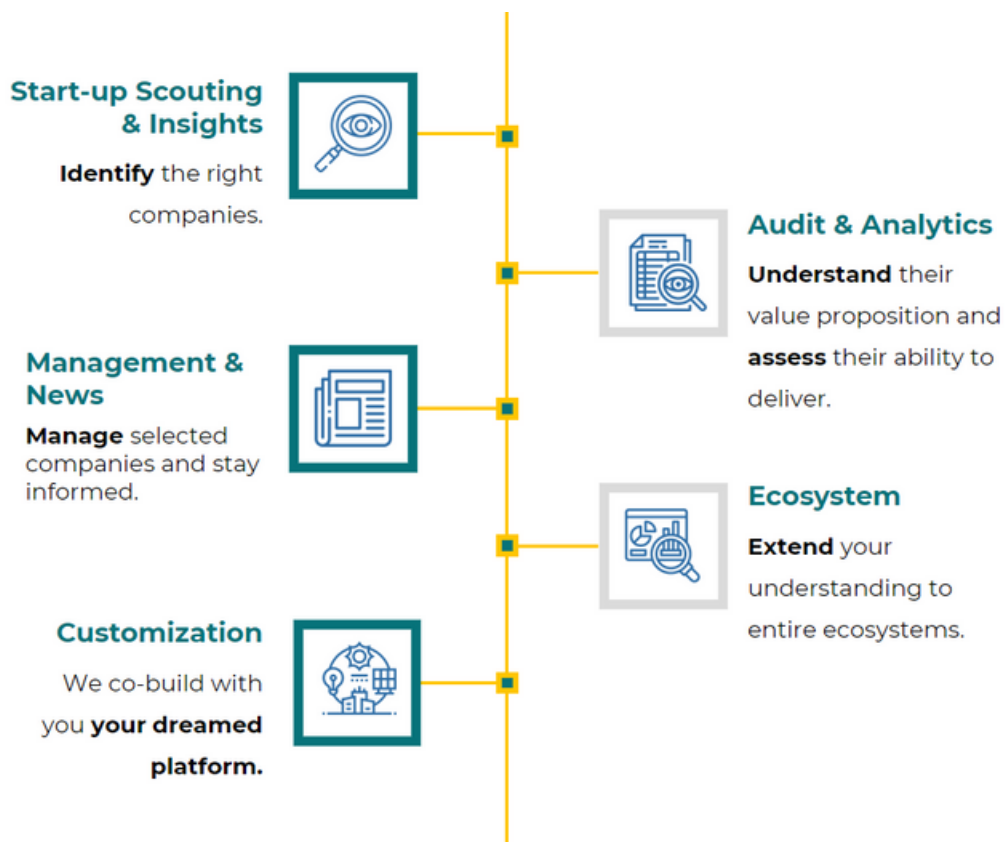
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► Skopai user: [link](#)



# BIG DATA AND AI TO CAPTURE THE NUMBER AND DYNAMICS OF START-UPS

**Skopai intelligence and innovation platform** offers a full set of comprehensive and qualified real-time information on start-ups worldwide. Using the validated methodology and machine learning algorithms, the Skopai platform helps discover, monitor and evaluate technology companies and innovation ecosystems across all sectors by providing accurate and reliable information in real-time.



**An AI-backed service supporting your needs**





# SKOPAI



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