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DeepTech Market Overview

2022

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Introduction

Deep Knowledge Group and its analytical associates, have constructed intricate analytical frameworks competent enough to analyse, define and foretell DeepTech industries and disruptive technologies which push them of exceptional breadth and sophistication.

Technology that affects an industry or market's typical operations is described as a disruptive technology. It displaces a well-established product or technology by creating a new industry or market. Deep Knowledge Group predicts the most practical means of advancing, optimising, and coordinating the trajectory of their constant advancement and the careful, de-risked, and socially responsible delivery of their advantages for global humanity.

This report summarises key observations in the private equity and venture capital ecosystem of the rapidly evolving and exponentially growing technological innovations. We have assembled information about key industry trends, more than 60,500 mature companies and startups, 85 disruptive DeepTech Industries, such as phenotypic drug discovery

Approach of DeepTech Market Overview Report

DeepTech Industries are the industries that are main beneficiaries of the microprocessors computational power growth which makes collection and processing of Big Data feasible and allows to train complex self-learning algorithms and apply them to a wide set of problems.

Database

60,500

Companies

18

Supersectors

40

Sectors

85

Tech and DeepTech Industries

100M

Data Points

Disruptive DeepTech Identification Process

Determining Supersectors with potential for DeepTech innovations

Based on their advanced technological nature



Based on macroeconomic environment and industries needs



Reviewing recent technological trends in sectors



Identification more than 40 sectors for disruptive technologies breakthroughs



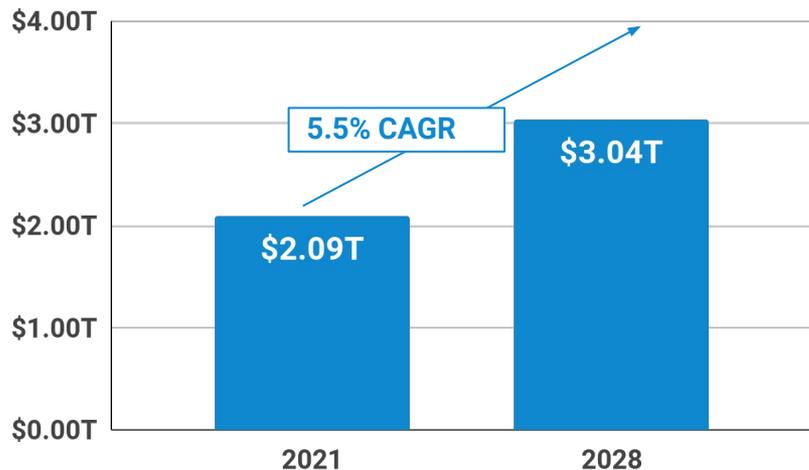
Categorising technologies in 85 technological groups (new industries) and selection of most prominent companies (potential disruptors) based on market or society impact

Relying on various research methods and analytics techniques, such as Descriptive and Comparative Big Data Analysis and Triangulation the report provides a comprehensive overview of the DeepTech Landscape. This approach has certain limitations, especially when using publicly available data sources and conducting the secondary research. Deep Knowledge Group is not responsible for the quality of the secondary data presented herein; however, we did our best to eliminate the risks using different analytics techniques and cross-validation. Please note that we did not deliberately exclude certain companies from our analysis, nor was their exclusion due to the data-filtering method we used or any difficulties encountered. The main reason for their non-inclusion was incomplete or missing information in the available sources.

DeepTech and Artificial Intelligence Market Size and Trends

During the predicted period from 2022 to 2028, the global market for Artificial Intelligence (AI) is expected to develop at a compound annual growth rate (CAGR) of 33.1%*. Various causes, such as the expansion of data-based AI and advancements in deep learning, as well as the necessity to attain robotic autonomy, are predicted to boost AI solutions and service adoption.

**Predicted DeepTech and Artificial Intelligence
Global Market Size**
(Trillion, US dollars)



Predicted Trends of the Global DeepTech and AI Market

SaaS model can provide cost-effectiveness, reduce capital expenditure and support firms in transitioning to a more operating expense structure.

AI and machine learning could be used in over 80% of IoT activities in enterprises in 2022 (according to Gartner).

Hyper-automation will continue to drive digital transformation, with the goal of optimisation to improve efficiency and productivity.

Video analytics may assist every company as a one-stop solution for all safety, security, and analytics solutions.

Collaboration between business and IT teams could help companies predict the business outcomes of AI implementations.

DeepTech Industry Framework (1/3)

Advanced Manufacturing

Manufacture of Computer, Electronic and Optical Products

Manufacture of Electronic Components and Boards

Manufacture of Computers and Peripheral Equipment

Manufacture of Communication Equipment

Manufacture of Consumer Electronics

Manufacture of Instruments and Appliances for Measuring, Testing and Navigation

Manufacture of Irradiation, Electromedical and Electrotherapeutic Equipment

Manufacture of Optical Instruments and Photographic Equipment

Manufacture of Magnetic and Optical Media

Manufacture of other Transport Equipment

Manufacture of Drones

Manufacture of Air and Spacecraft and Related Machinery

Manufacture of Military Fighting Vehicles

Repair of Machinery and Equipment

Repair and Maintenance of Aircraft and Spacecraft

Manufacture of Motor Vehicles, Trailers and Semi-Trailers

Manufacturing of Electric Powered Vehicles

Manufacture of Electrical Equipment

Manufacture of Electric Motors, Generators, Transformers etc
Manufacture of Batteries and Accumulators
Manufacture of Wiring and Wiring Devices

Other Manufacturing

3D Printing

Manufacture of Machinery and Equipment n.e.c.

Manufacture of Robots

Manufacture of non-Metallic Mineral Products

Manufacture of Pharmaceutical Preparations

Manufacture of Nanomaterials

Manufacture of Wearing Apparel

Manufacture of Clothes from Advanced Materials

Manufacture of Food Products

Artificial Meat

DeepTech Industry Framework (2/3)

ICT, IT and DeepTech Computing

Software Development

Navigation Software

Identification Software

Social Networks

Messaging Services

Publishing of Video Games

Information Service Activities

Cloud Computing

Data Storage

Cyber Security

Telecommunications

Satellite Telecommunications

Programming and Broadcasting

Internet Broadcasting

Professional, Scientific and Technical Activities

Scientific R&D

Research and Experimental
Development in BioTech

Bioinformatics

Biomarkers

Other R&D

Advertising

MarTech

Technical Testing and Analysis

Technical Testing and Analysis

Predictive Analytics Based on Data

Translation and Interpretation Activities

Automatic Translators

Legal Activities

RegTech

Human Health and Social Work Activities

Human Health Activities

Deep Dentistry

NeuroTech

Pharmaceuticals
AI delivery

TeleMedicine

Deep
Diagnostics

PharmTech

Mental Health

Health Tracking
Systems

Social Work Activities Without Accommodation for the Elderly

AgeTech

Advanced Mining and Quarrying

Mining Support Service Activities

Drones for Mining

Automation

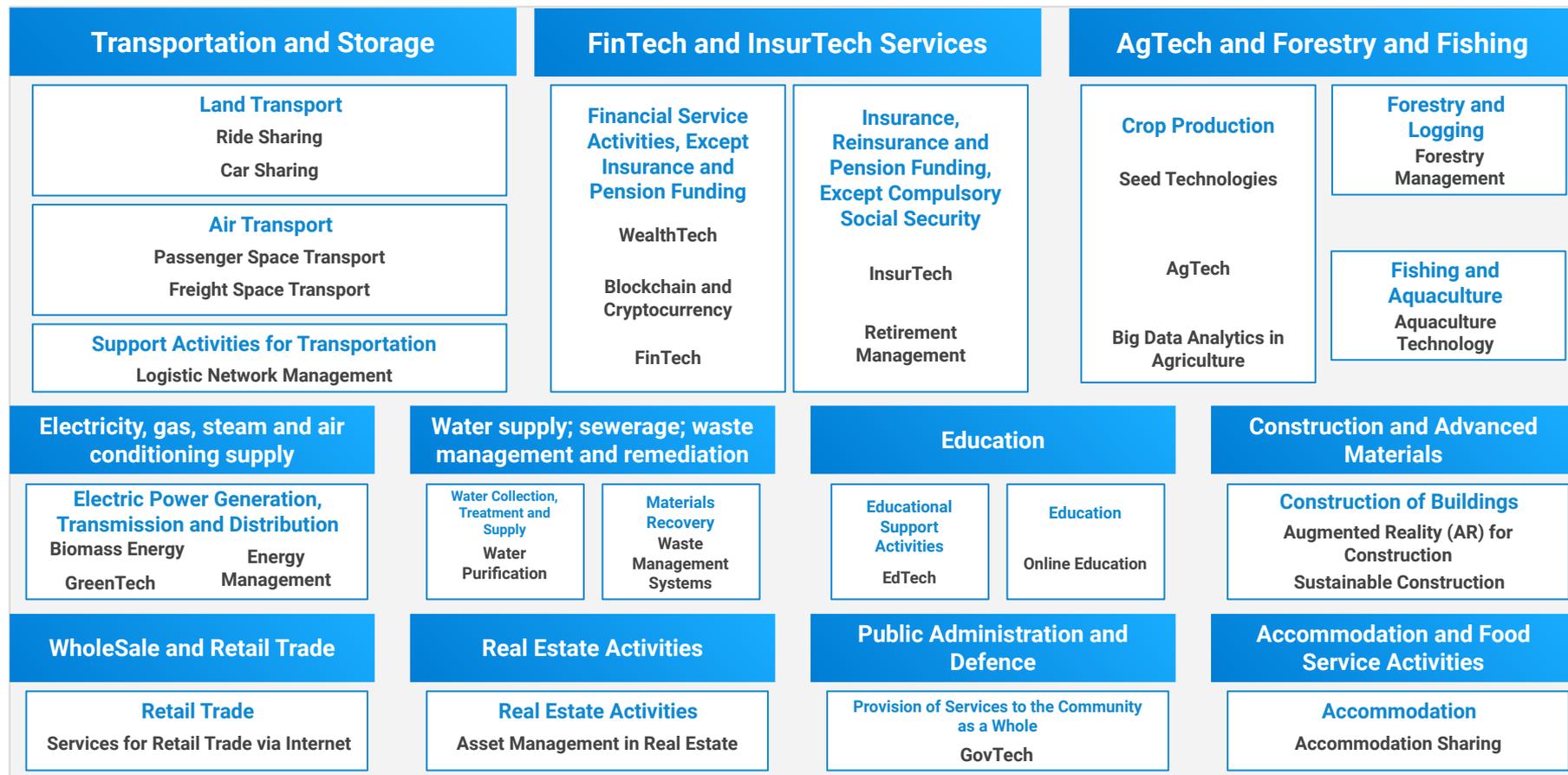
Artificial
Intelligence for
Mining

GIS Systems

Workforce
Tracking

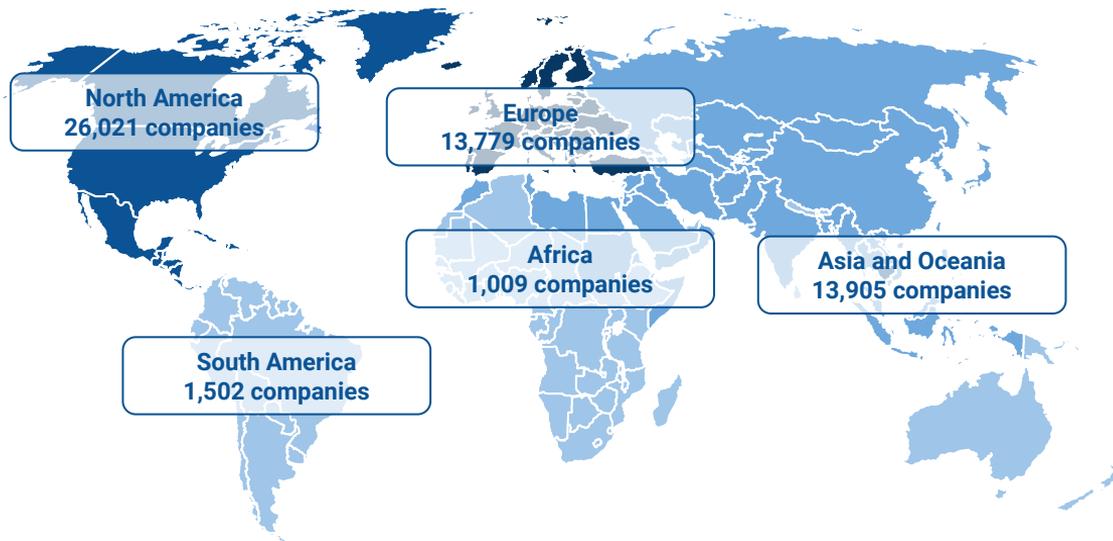
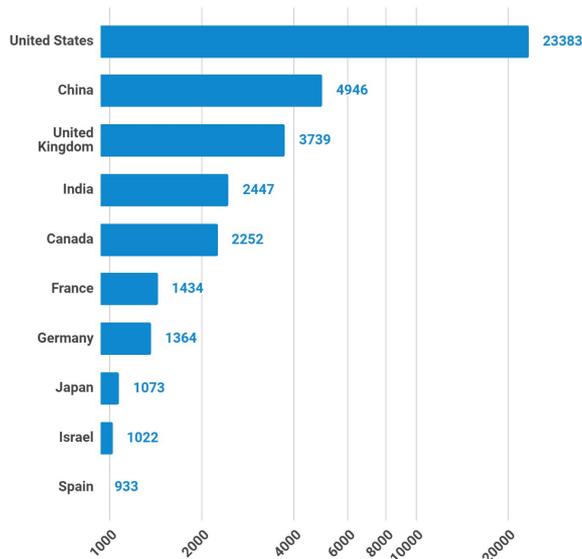
3D Modeling for
Mining
(Spatial Data
Visualization)

DeepTech Industry Framework (3/3)



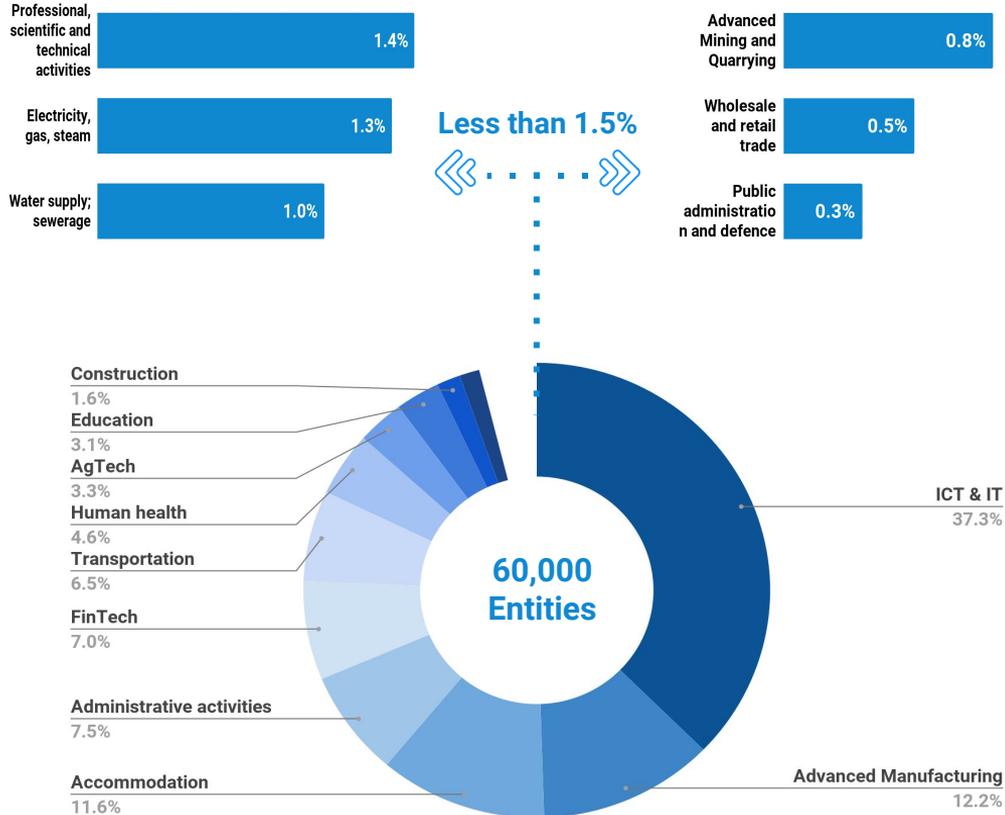
DeepTech Industry Regional Distribution

Regions-based ranking of the DeepTech Industry identifies the innovative geographical clusters of significant potential for future growth. The results may serve as the basis for strategic expansion on new markets or proper assessment of the competitive environment.



The USA is still firmly in the lead in terms of the number of DeepTech-focused companies, and the EU is the second biggest market in the world. However, Asia increased the market share to 9.4% (represented by 13,905 companies of different sizes and funding structures) and keeps growing every day. We expect steady growth of Asia-based companies with increasing the number of public offerings among them.

Companies Distribution by Industry Sectors



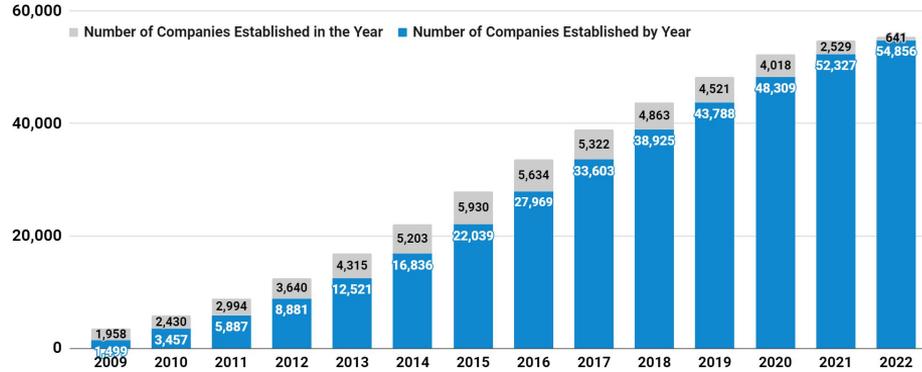
ICT, IT and DeepTech Computing, Advanced Manufacturing, Accommodation and Food Service Activities are Global Economy sectors involving the largest number of DeepTech and AI companies and receiving the highest volume of investments. The subsequent pages outline the key trends of private investing in top DeepTech subsectors.

Even Global Education Industry includes more than 1,500 (only 3% from the full database) entities that accelerate productivity using DeepTech

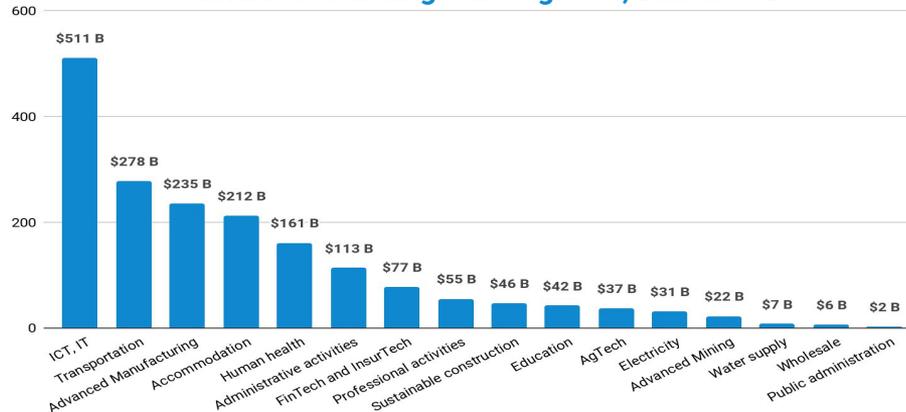
There are at least 1,000 publicly traded corporations that can be considered part of the DeepTech and AI industry.

Industry Growth and Distribution of Funding

Cumulative Number of Established Companies



Cumulative Funding Sub-segment, Billion USD



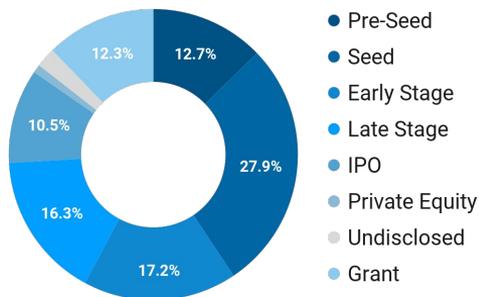
The number of companies in DeepTech has been exponentially growing over the last decade. More than 60,000 companies have been established in DeepTech since 2009 with a CAGR at 29.3%. The highest growth in the number of new companies took place in 2015-2016.

The total funding in DeepTech reached \$1.83 trillion. The highest interest is observed in information and communication, transportation and storage, and manufacturing sectors, together constituting more than \$1 trillion in funding.

DeepTech in AgTech, Forestry, and Fishing Overview

The agricultural technology business is expanding quickly, which bodes well for the AgTech innovation arena. These technologies are intended to assist farmers in maximizing crop productivity and field and soil health to guarantee a prosperous agricultural year. Pressure on farmers to provide healthful goods is stressing our planet's health. Digital agriculture breakthroughs are needed to feed a hungry planet. AgTech strives to improve agricultural output, growth, quality and harvesting through technology. This is done using Big Data, smart sensors, interactive apps, high-tech and autonomous machines, and more.

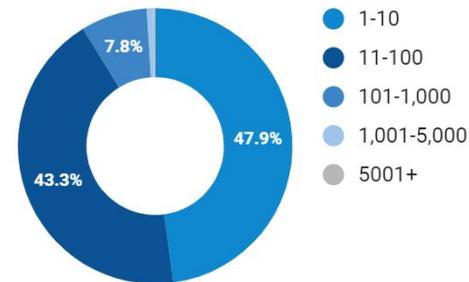
Funding Status



Distribution of Companies by Country (Top 5)



Number of Employees

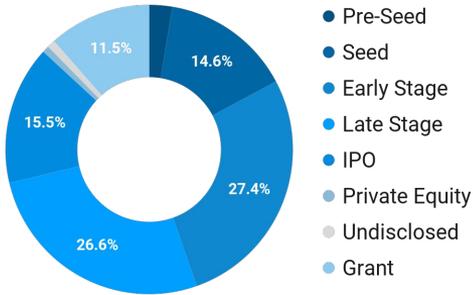


Total Funding of Sector	Number of Companies	Avg Money Raised per Company	Avg Number of Funding Rounds per Company	Avg Money Raised per Funding Round
\$37B	1861	\$19M	3	\$7,5M

DeepTech in Professional, Scientific, and Technical Activities Overview

Professional, scientific, and technical activities supersector unites companies that are leaders in research and experimental development of biotechnology. These companies are working mainly in the areas of cell and tissue culture and engineering, bioinformatics, nanobiotechnology, and regenerative medicine, which rapidly developed in the last decade. Another essential part of the companies in the supersector are those that use advanced technologies for discovering new biomarkers of aging and aging-related diseases – one of the most important steps for precise early diagnostics.

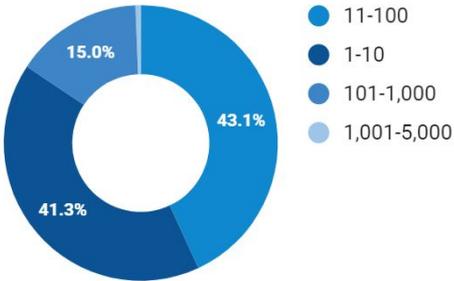
Funding Status



Distribution of Companies by Country (Top 5)



Number of Employees

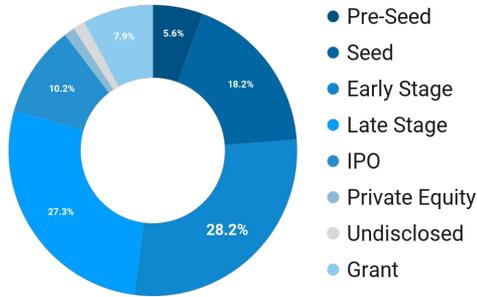


Total Funding of Sector	Number of Companies	Avg Money Raised per Company	Avg Number of Funding Rounds per Company	Avg Money Raised per Funding Round
\$55B	789	\$70M	3	\$21M

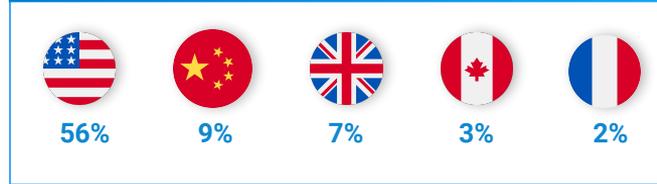
DeepTech in Human Health and Social Work Activities Overview

Human health and social work activities supersector of the DeepTech Industry contains companies that mainly provide deep diagnostic services since the main global trend in the healthcare industry is to prevent the disease before its visible progression. Advanced technologies play a crucial role in this process. Beside deep diagnostics companies, the supersector mainly contains telemedicine, PharmTech, and NeuroTech companies, which use frontier technologies for remote patients control, advanced development of drugs, and neurological diseases cure, respectively.

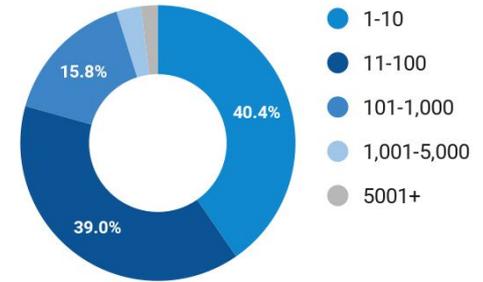
Funding Status



Distribution of Companies by Country (Top 5)



Number of Employees



Total Funding of Sector

\$217B

Number of Companies

3,388

Avg Money Raised per Company

\$64M

Avg Number of Funding Rounds per Company

3

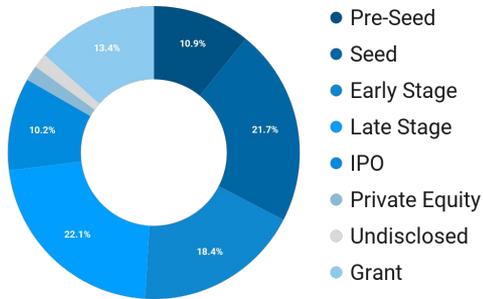
Avg Money Raised per Funding Round

\$19M

DeepTech in Advanced Manufacturing Overview

The supersector has experienced a massive influx of companies lately as the electronic manufacturing techniques have vastly improved. Advanced Manufacturing supersector includes all kinds of manufacturing that requires sophisticated technologies, such as robots, spacecrafts, military vehicles, electrical equipment, optical equipment etc. Companies that do repair and maintenance of hi-tech machinery and systems are also included on the list. The total funding of sector is high due to the number of companies while average total funding and funding per round are relatively medium.

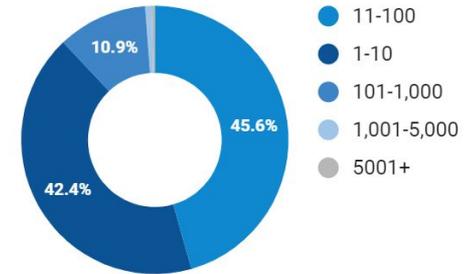
Funding Status



Distribution of Companies by Country (Top 5)



Number of Employees



Total Funding of Sector

\$235B

Number of Companies

6918

Avg Money Raised per Company

\$34M

Avg Number of Funding Rounds per Company

2

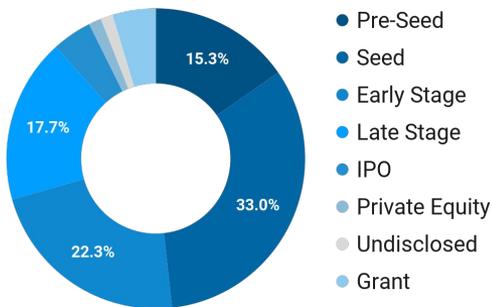
Avg Money Raised per Funding Round

\$13,9M

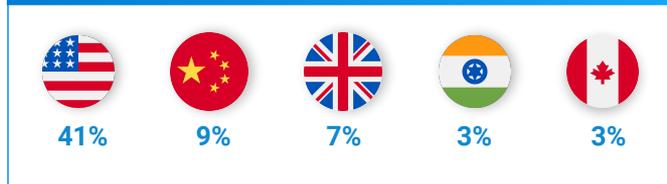
DeepTech in ICT, IT, and DeepTech Computing Overview

ICT, IT and DeepTech Computing supersector of the DeepTech Industry is the largest of all and contains companies that provide software development, programming and broadcasting activities, telecommunications, and information service activities. Companies in this sector are characterized by their close relationship with other industries through the provision of information technologies. Also, this industry includes companies that provide cybersecurity services, data storage, processing, and management services.

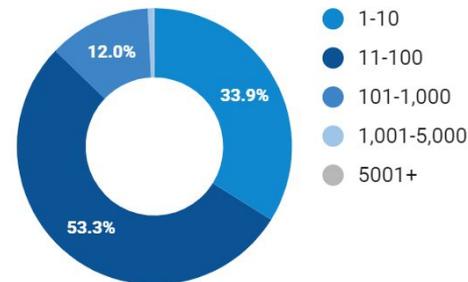
Funding Status



Distribution of Companies by Country (Top 5)



Number of Employees

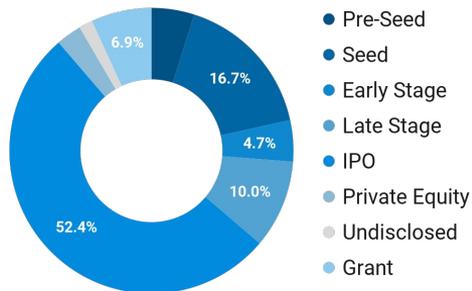


Total Funding of Sector	Number of Companies	Avg Money Raised per Company	Avg Number of Funding Rounds per Company	Avg Money Raised per Funding Round
\$511B	21,262	\$24M	3	\$9M

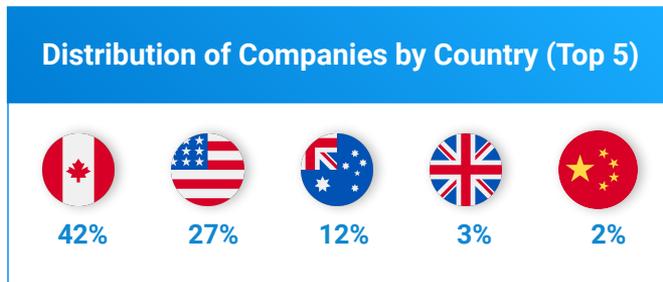
DeepTech in Advanced Mining and Quarrying Overview

Advanced Mining and Quarrying supersector of the DeepTech Industry contains companies that provide mining support service activities—allowing them to extract natural resources from the earth efficiently. The DeepTech industry plays an essential role in this process by automating various mining processes (e.g., surveying, quarrying, etc.) and production activities, ensuring that mines are safe, efficient, and environmentally friendly. Industries such as geospatial data visualization help monitor work activities at mines and quarries, while AI is used to simplify complex processes, such as scheduling or quality control.

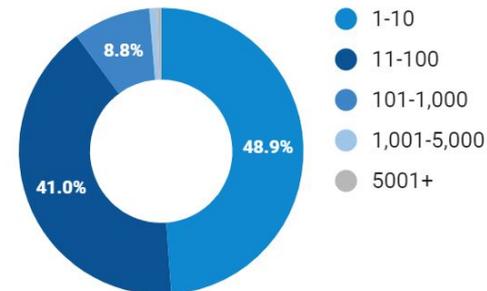
Funding Status



Distribution of Companies by Country (Top 5)



Number of Employees



Total Funding of Sector

\$22B

Number of Companies

466

Avg Money Raised per Company

\$49M

Avg Number of Funding Rounds per Company

2

Avg Money Raised per Funding Round

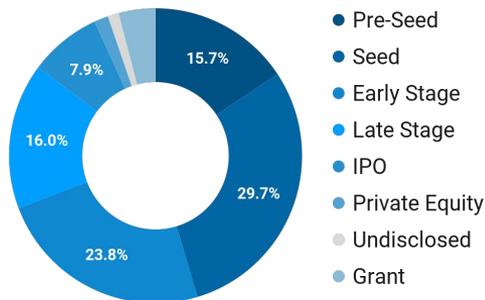
\$20M

DeepTech in Transportation and Storage Overview

Technological trends for reducing carbon footprints, efficient recycling, and energy consumption affect the sustainability sector. CCS separates, captures, and compresses CO2 from industrial flue gas before transporting it by pipeline to a permanent storage site. This CO2 can be stored in porous underground rock.

Services for car owners where they can start a ride-sharing remain the leading and most rapidly growing trend, as well as the services of sharing a car for regular traveling.

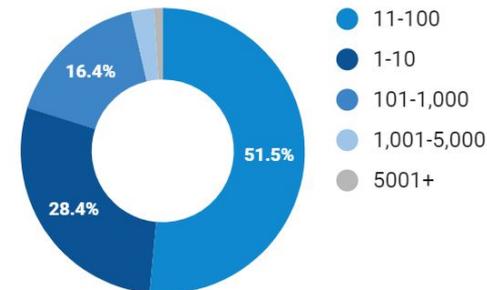
Funding Status



Distribution of Companies by Country (Top 5)



Number of Employees



Total Funding of Sector

\$278B

Number of Companies

3682

Avg Money Raised per Company

\$75M

Avg Number of Funding Rounds per Company

3

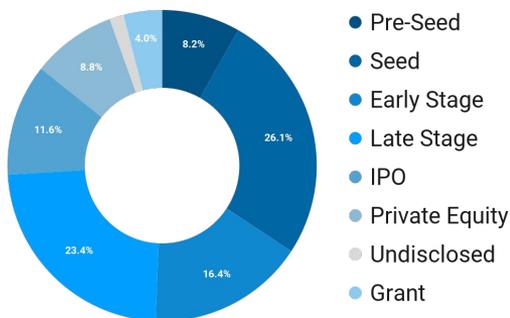
Avg Money Raised per Funding Round

\$26M

DeepTech in FinTech and InsurTech Services Overview

FinTech and InsurTech Services supersector of the DeepTech Industry contains companies that mainly provide financial service activities, insurance, reinsurance, and pension funding. The supersector mostly has WealthTech, FinTech, and InsurTech companies but also includes blockchain and cryptocurrency companies. This industry comprises companies that use blockchain technology, issue a cryptocurrency, and provide services related to cryptocurrency (mining, trading, payments, storage, issuance, development, etc.)

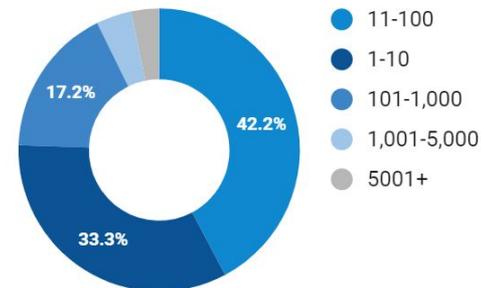
Funding Status



Distribution of Companies by Country (Top 5)



Number of Employees



Total Funding of Sector

\$77B

Number of Companies

938

Avg Money Raised per Company

\$82M

Avg Number of Funding Rounds per Company

3

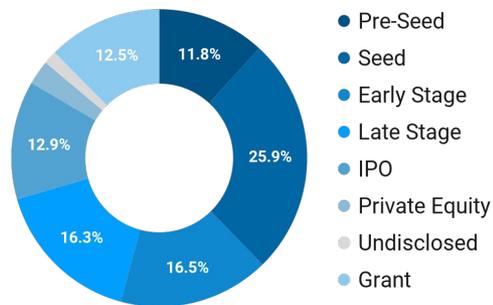
Avg Money Raised per Funding Round

\$24,5M

DeepTech in Electricity, Gas, Steam and Air Conditioning Supply Overview

Driven by decarbonisation, digitisation and decentralisation, projects in electricity, gas, steam and air conditioning supply supersegment are already helping energy network operators identify new ways of better serving their customers by helping them develop quicker, more efficient and cheaper ways to deliver these vital for consumers and industry resources. These ways include new management solutions for existing permanent supply networks, modification of existing permanent networks or constructing alternative networks with deep renovation of storage and transportation methods.

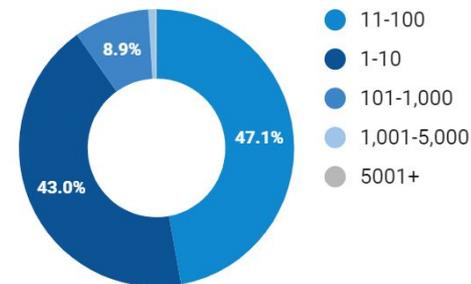
Funding Status



Distribution of Companies by Country (Top 5)



Number of Employees



Total Funding of Sector

\$31B

Number of Companies

754

Avg Money Raised per Company

\$41M

Avg Number of Funding Rounds per Company

3

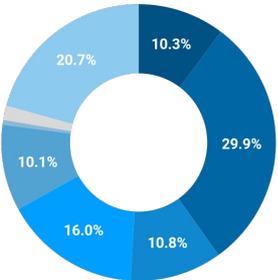
Avg Money Raised per Funding Round

\$14,6M

DeepTech in Water Supply; Sewerage; Waste Management and Remediation

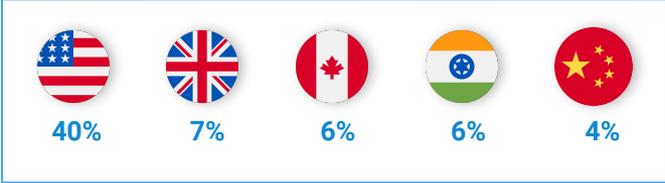
From source to treatment, to tap, a lot of energy, time, and expense goes into supplying the water that flows from our taps. Yet billions of people still do not have access to safe drinking water, or for basic hygiene at home, or to water their crops. So meeting global water demand requires the highest levels of management and treatment, which can be ensured by technological innovation offered by DeepTech. DeepTech solutions for water treatment go from detection of water contamination, through automatization of management processes, to various techniques for water remediation.

Funding Status

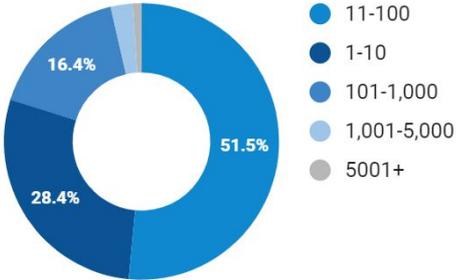


- Pre-Seed
- Seed
- Early Stage
- Late Stage
- IPO
- Private Equity
- Undisclosed
- Grant

Distribution of Companies by Country (Top 5)



Number of Employees

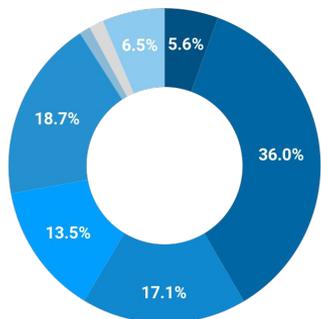


Total Funding of Sector	Number of Companies	Avg Money Raised per Company	Avg Number of Funding Rounds per Company	Avg Money Raised per Funding Round
\$7B	576	\$13M	3	\$5M

DeepTech in Education Overview

The education landscape is changing through adoption of new forms of learning that go beyond textbooks and typical classroom settings. The education supersector unites companies that leverage emerging technologies to improve educational processes and outcomes for learners and teachers. AI-based tools, such as personalised learning paths, together with Virtual Reality (VR) and Augmented Reality (AR) learning tools, ensure a more productive and interactive way of learning and help students meet their individual learning objectives faster.

Funding Status

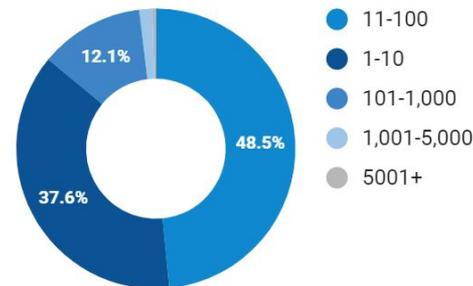


- Pre-Seed
- Seed
- Early Stage
- Late Stage
- IPO
- Private Equity
- Undisclosed
- Grant

Distribution of Companies by Country (Top 5)



Number of Employees



Total Funding of Sector

\$42B

Number of Companies

1243

Avg Money Raised per Company

\$24M

Avg Number of Funding Rounds per Company

3

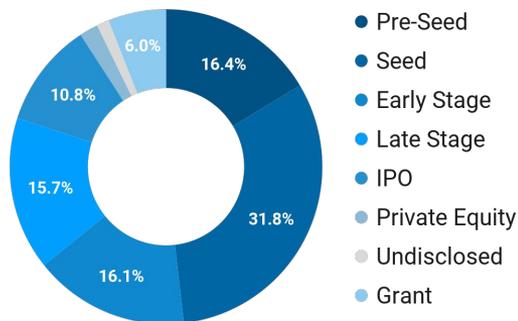
Avg Money Raised per Funding Round

\$9,5M

DeepTech in Construction and Advanced Materials Overview

There is a range of DeepTech solutions for construction problems. These included addressing the net-zero agenda, cutting waste, managing supply chains, and finding sufficiently well-trained workers at a time when retiring veterans of the construction trade are not being replaced at a fast enough rate by younger counterparts. For instance, Mighty Buildings is a company set up to make affordable homes using 3D-printed components. SafeAI retrofits site machinery with autonomous technology designed to combine greater productivity with safety.

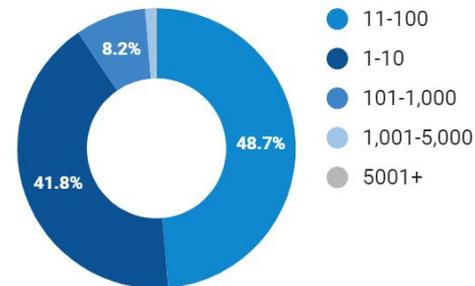
Funding Status



Distribution of Companies by Country (Top 5)



Number of Employees

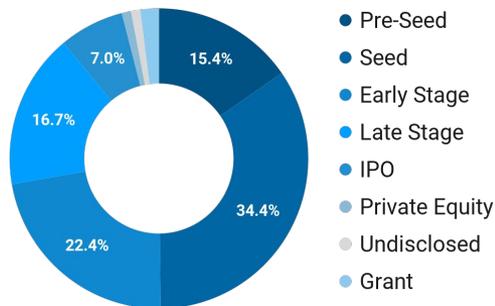


Total Funding of Sector	Number of Companies	Avg Money Raised per Company	Avg Number of Funding Rounds per Company	Avg Money Raised per Funding Round
\$46B	938	\$49M	2	\$20,7M

DeepTech in Wholesale and Retail Trade Overview

There are a variety of companies within the wholesale and retail trade supersector of the DeepTech Industry. These companies provide services for the retail trade market that are delivered over the internet. Their primary focus is on providing excellent customer service, which, in some way or another, will make the customers' shopping experiences more accessible.

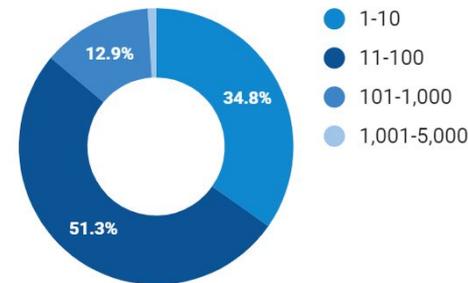
Funding Status



Distribution of Companies by Country (Top 5)



Number of Employees



Total Funding of Sector

\$6B

Number of Companies

306

Avg Money Raised per Company

\$20M

Avg Number of Funding Rounds per Company

3

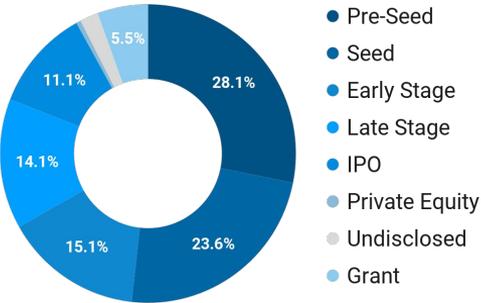
Avg Money Raised per Funding Round

\$7M

DeepTech in Public Administration and Defence Overview

The public administration and defense supersector of the DeepTech Industry contains companies that mainly provide the provision of services to the community as a whole. The supersector consists of GovTech companies. Companies that integrate technologies into government services to improve and simplify them.

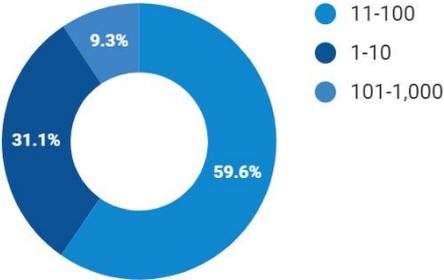
Funding Status



Distribution of Companies by Country (Top 5)



Number of Employees



Total Funding of Sector	Number of Companies	Avg Money Raised per Company	Avg Number of Funding Rounds per Company	Avg Money Raised per Funding Round
\$2,8B	161	\$17M	3	\$5M

Takeaways



DeepTech Industry Classification Framework developed by **Deep Knowledge Group** is a thorough and comprehensive framework for sector and industry analysis that makes it easier to compare businesses internationally and focuses on the technological aspect of a company's business activity.

The framework has 3 layers with increasing levels of details: supersectors, sectors and industries. While industries are mostly formed at the DKG discretion, supersectors and sectors structure is similar to the national industry taxonomies for the purpose of standardisation.



Construction and Advanced Materials supersector of the DeepTech Industry mainly contains developing startups with less than 100 employees and are on seed and pre-seed funding round. The vast majority of companies are located in the USA, which makes the country a leader in the sector.

Companies in the sector are exerting every possible effort to implement advanced technologies for addressing net-zero agenda, cutting waste to decrease the influence of the construction industry on the environment, considering this industry responsible for 6% of global CO2 emissions. Managing supply chains, recruiting sufficiently well-trained workers and increase their safety is another focus of DeepTech nowadays.



ICT, IT and DeepTech Computing

Over the last decade, DeepTech businesses have increased a lot. Since 2009, the DeepTech Industry has had a CAGR of 29.3% and 60,000 new enterprises. 2015-2016 saw the most new businesses. DeepTech raised \$1.83 trillion. Information and communication, transportation and storage, and manufacturing get almost \$1 trillion combined. ICT, IT, and DeepTech Computing, Advanced Manufacturing, Accommodation, and Food Service Activities are Global Economy sectors, involving the largest number of DeepTech and AI companies and receiving the highest volume of investments. The subsequent pages outline the key trends of private investing in top DeepTech subsectors.

Takeaways



Human Health and Social Work Activities supersector of the DeepTech Industry primarily comprises startups still in the early stages of their respective development processes. These startups typically have fewer than one hundred employees and are in the preliminary funding stages. Because the United States of America is home to the large majority of the industry's players, it is often regarded as the most prosperous nation in this field.

Companies in this area are making every effort necessary to apply cutting-edge technology in the field of precise early diagnosis and fit into the worldwide trend of preventive medicine, as well as enhance its practices for individuals who wish to attain healthy longevity in their lives.



Electricity, Gas, Steam and Air Conditioning Supply supersector of the DeepTech Industry mainly consist of small startups and are on seed, series A and B funding round. The vast majority of companies are located in the USA, which makes the country a leader in the sector.

Companies in the sector are striving to implement new management solutions for existing permanent supply networks. Advanced technologies are used for modification of existing permanent networks and with novel approaches construction of alternative networks is possible and with advanced technologies improvement of storage and transportation is achievable.



Professional, scientific, and technical activities supersector unites mainly small startups on the early stages of funding. The USA continues to be the leader in the number of companies in the sector. The sector is comprised of improving and enhancing their understanding of regenerative medicine, gene therapy, and other fields that have experienced rapid growth over the course of the past decade as a direct result of the application of advanced technologies.

The supersector will continue to evolve in part as a result of the COVID-19 pandemic and the increased usage of cutting-edge technologies (such as AI, Machine Learning, and Big Data) that are able to transform the current methodologies in research and experimental biotechnology.



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