



AssistiveTech in the UK 2022

www.at-las.org



AGING
ANALYTICS
AGENCY



DEEP
KNOWLEDGE
PHILANTHROPY

Table of Contents

Introduction	2
Executive Summary	4
AssistiveTech in the UK Landscape	8
AssistiveTech Mindmap	11
Government Support of AssistiveTech in the UK	24
The Major Trends and Obstacles in the AssistiveTech	34
Conclusions	45
About ATLAS	47
Appendix	52
Legal Disclaimer	60

Developed by **ATLAS** (Assistive Technology, Longevity and Ageing Society) in association with Deep Knowledge Group leading subsidiaries, **Aging Analytics Agency** and **Deep Knowledge Philanthropy**, the **AssistiveTech in the UK 2022** report contains a brief overview of the UK Assistive Technology Ecosystem in general and by 5 unique segments. This report focuses on ecosystem participants, its major trends, obstacles, and the support of the government towards the AssistiveTech ecosystem. The project contains analysis of more than **170 companies**, **100 investors**, and **25 non-profit organisations** engaged into the AssistiveTech ecosystem in the UK.

The UK has the potential to become a global leader in the AssistiveTech Ecosystem. AssistiveTech businesses can thrive in the UK due to the presence of a talented workforce, technology partnerships and large growth opportunities for technology. For the purpose of this report, we considered the following use cases: people living with disabilities and technological advancements designed for the ageing population and rehabilitation. Furthermore, the report showcases an importance of the government support and its role in **AssistiveTech being a catalyst of social inclusion**, and highlights the UK's efforts in driving support for those in need of using advanced technologies.

Approach to the Report

Database

170 Companies	100 Investors	25 Non-Profit Organization	5 Unique Segments
-------------------------	-------------------------	-----------------------------------------	--------------------------------

The database was formed on the basis of:

- the **identification of companies** that are engaged in AssistiveTech and headquartered primarily in the UK
- the **determination of major funding and M&A** deals of selected companies, their investors and both charities and non-profits

Applied Research and Analytics Methods

Descriptive Analysis	Mixed Data Research	Data Triangulation
Comparative Analysis	Qualitative Data Collection	Data Filtering

Data Sources

Media Overview (Articles and Press Releases)	Industry-specialised Databases	Publicly Available Sources (Websites)	Industry Reports and Reviews
---------------------------------------------------------	-------------------------------------------	--------------------------------------------------	-----------------------------------------

Relying on various research methods and analytics techniques, the analysis provides a comprehensive overview of the AssistiveTech in the UK. This approach has certain limitations, especially when using publicly available data sources and conducting the secondary research. ATLAS is not responsible for the quality of the secondary data presented herein; however, we do our best to eliminate the risks by using different analytics techniques and by cross-checking data. 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.

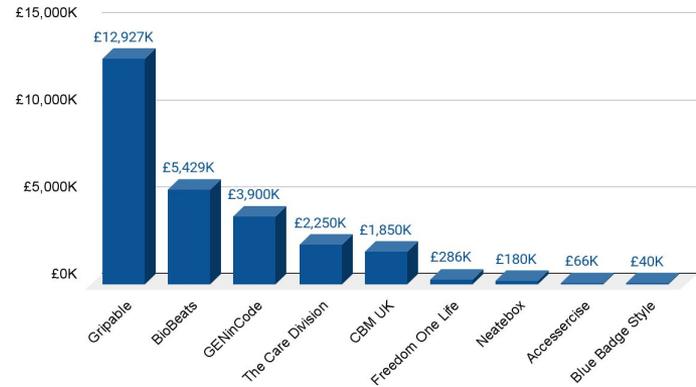
Executive Summary

Technology is most impactful when it is people-focused. It has become a life-changing tool to break down barriers and expand opportunities for people living with disabilities and those who need assistance in later life. **It is a powerful ally that fosters inclusivity.** Advanced Technologies (further referred to as AssistiveTech) enables a more independent way of living by identifying a service or need that can be provided through innovative tech.

According to the Family Resources Survey (2018/19) **at least 14 million people in the United Kingdom live with a form of disability.** Furthermore, the **World Health Organisation** estimates that by 2030, **over two billion people will need at least one assistive product.** However, only 1 in 10 people affected have access to assistive technology today.

AssistiveTech transcends its previous interpretation as simply DisabilityTech, allowing for communities who require the support of assistive technology, but are not identified as having a disability. For example, in providing support to the ageing population. **Therefore, the significance of the AssistiveTech ecosystem cannot be overemphasised.** The following report has been compiled to summarise the **UK's leading companies, investors, charities, and non-profits** championing efforts in the AssistiveTech Ecosystem.

Largest AssistiveTech Investment Prospects by Amount of Funding, GBP



Key Findings

£19.2B Total Global Capitalization in 2021	4.8% Estimated CAGR in 2022-2028
170+ AssistiveTech Companies	5 Unique Segments

Executive Summary

The UK National Disability Strategy, which began in January 2021, is formulated with the input of over 14,000 disabled persons in one of the largest-ever exercises of its kind, with aid from policy experts, campaign organisations, charities, and others. Overall, assistive technology aims to allow people living with disabilities to 'participate fully in all aspects of life' and increase their opportunities for 'education, social interactions, and potential for meaningful employment'. As a result, the UK is a leading country in AssistiveTech, providing strong government support and a quality entrepreneurial landscape for AssistiveTech startups.

Why the United Kingdom?



A Culture of Innovation and Inclusion.

The UK has an open competitive environment in which innovators can develop ideas and collaborate, find sponsors and partners.

Growth through AssistiveTech. The UK has excellence in startups fundings, which often serve as good foundation for AssistiveTech's-related innovation.

A Stable IP and Business System. The UK has a well-established transparent system for protecting technological innovation, as well as a stable business and political environment.

Advanced Consumer Markets. The UK provides AssistiveTech companies with a vast market of appropriate users with thousands of broad connections.

Diverse Workforce. The UK's multicultural population, social liberalism and quality of life make relocation a perfect inclusive environment for disabled people.

Attractive to Investors. UK AssistiveTech businesses have attracted significant investment from overseas companies and private and venture capital firms.

AssistiveTech as a Promising Integral Market on the Edge of Care and Tech

Connection Between Accessibility Tech Industries and Technologies



Assistive technology is an amalgamation of manufacturing solutions to make life easier for people with disabilities and the most advanced HighTech inventions for the inclusive development of this group of society.

AssistiveTech refers to technologies aimed at improving and automating the delivery and use of technologies or products by people living with a disability and accessibility limitations.

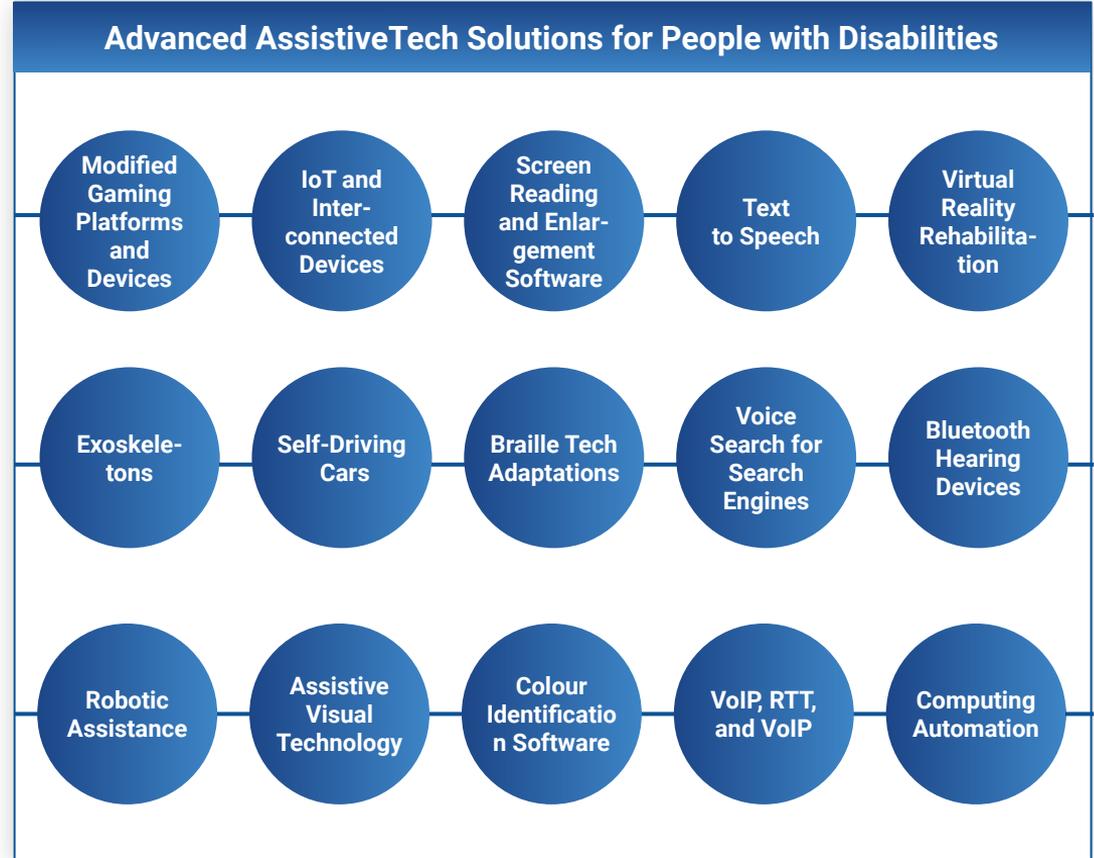
For workers with disabilities, tools for accessibility, such as screen readers and subtitles for video meetings, are necessary for workplace inclusion. Screen readers, braille displays, and screen magnifiers are examples of AssistiveTech, where technological solutions work for inclusive support of a specific group of users. For example, screen readers and magnifiers enable visually impaired people to use computers and read online literature. In addition, Assistive Visual Technology (AVT) allows people with vision impairments to read and 'see' without using their eyes.

Other examples of AssistiveTech may include Mobility aids, walkers, and wheelchairs. Furthermore, robotic assistance can assist with mobility and household tasks. These technologies can also **aid rehabilitation and recovery for people recovering from illnesses.**

Digital Accessibility and the Role of Tech Companies in Driving AssistiveTech

Regarding the use of digital devices, users have a variety of requirements. What appears to be simple to use for some may be extremely difficult for others. **Digital accessibility allows for a digital product or service (such as an app or website) to be beneficial and inclusive for all of its users, regardless of their ability levels.** It is critical for the future of global development to ensure that all users, regardless of ability, have access to the same information. For example, Neurodivergent technologies are designed to increase a person's freedom and help the neurological divergent become more productive. Virtual Reality Rehabilitation expands mental rehabilitation alternatives for improving cognition and physical limitations. These technologies enhance a person's overall quality of life.

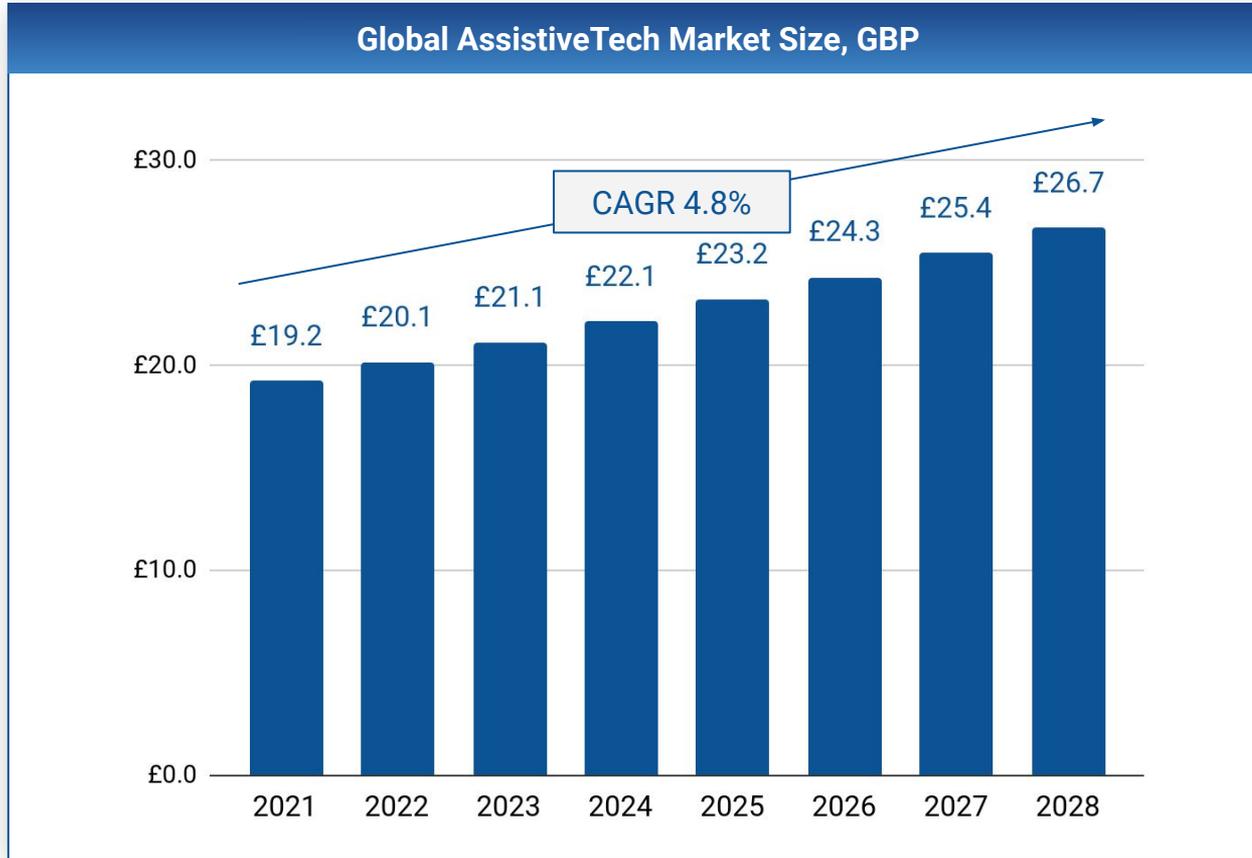
Today, big software companies like Google, Apple, and Microsoft are integrating assistive technologies into their products to promote complete inclusion for both able-bodied and impaired customers.





AssistiveTech in the UK Landscape

Global AssistiveTech Market Size and Pillars of Growth



The global AssistiveTech market size was calculated as the total value of the five markets, which accounted for £19.2B in 2021 and is projected to grow at a CAGR of 4.8% from 2022 till 2028 to reach £26.7B.

The worldwide AssistiveTech market is expected to grow due to reasons such as an increasing incidence of orthopaedic and neurological problems, population ageing, and non-communicable disease abundance prevalence.

According to WHO, it is estimated more than 2 billion people will require at least 1 assistive product by 2030.

UK AssistiveTech Ecosystem Framework

Segmentation of the UK AssistiveTech

Assistive Care Services

DeliveryTech, Mobility Aid, Medication Management and apps that enhance perception

Devices and Apps

Gadgets, applications, and wearables that help a person to move

Education and Consulting

Companies providing relevant insight and truthful information about people with special needs.

Smart Homes

Applications, digital and physical solutions which make modern home accessible for a person with disabilities

Tech-Enabled Home Care

Professional home care with the latest IT solutions, application, and devices enabling and securing caregiving

Assistive technology is an umbrella term covering the systems and services related to the delivery of assistive products and services. Assistive products maintain or improve an individual's functioning and independence, thereby promoting their well-being.

After thoughtful examination of the global and the UK markets, we develop a universal framework to ease the comprehension and analysis of the market. Despite the variety of the classification, we used functional segmentation for our analysis. It provides both descriptive and intuitive snapshot of the ecosystem. In the report, we refer to the following 5 segments: **Assistive Care Services, Devices and Apps, Education and Consulting, Tech-Enabled Home Care, and Smart Homes technologies.**

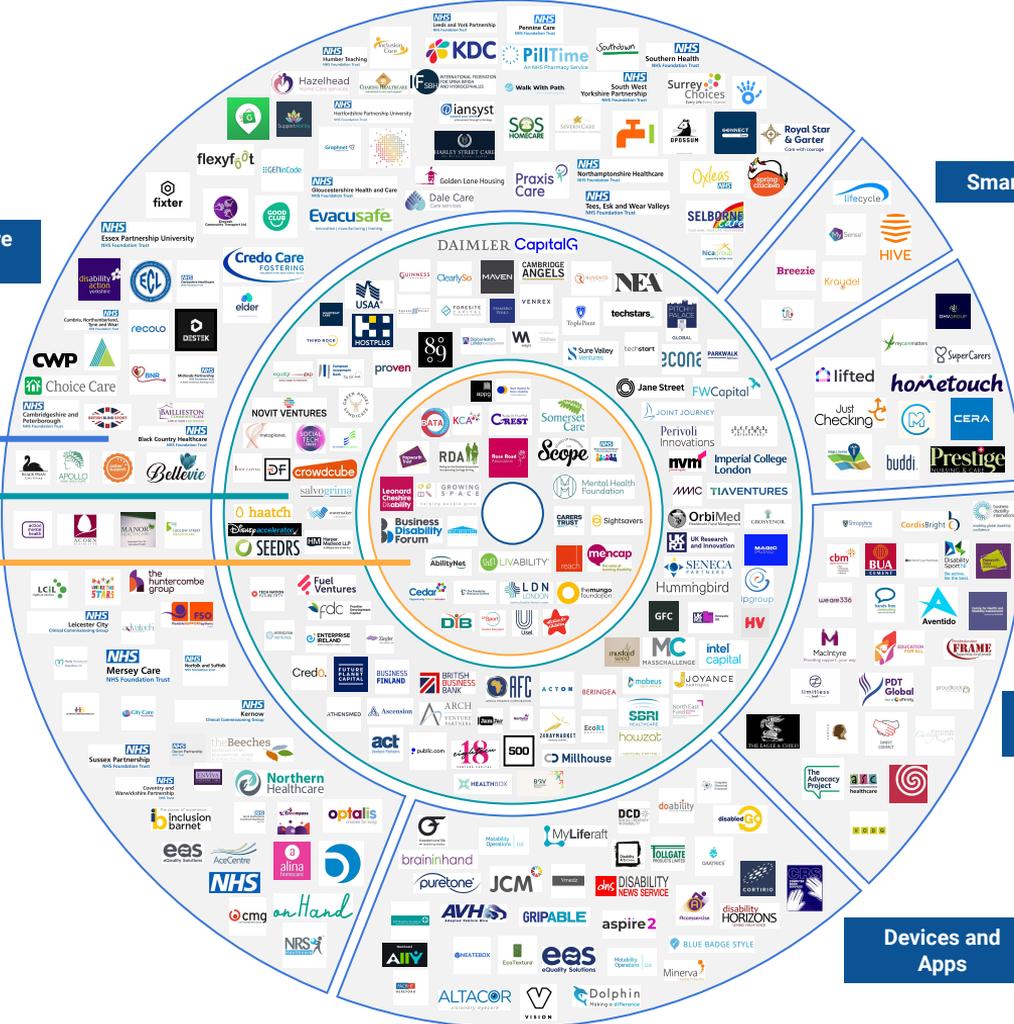
Moreover, this framework allows government agencies to pursue complex solutions for people with disabilities. Contrasted to segmentation by product, our framework allows seeing gaps in needs and demand by revealing true purpose of AssistiveTech products and services.

Additionally, the report covers geography of the AssistiveTech Ecosystem of the UK.

Assistive Tech in the UK 2022

Companies - 170
Investors - 100
Non-profits - 25

- Assistive Care Services
- Companies
- Investors
- Charities & Non-profits



Smart Homes

Tech-Enabled Home Care

Education and Consulting

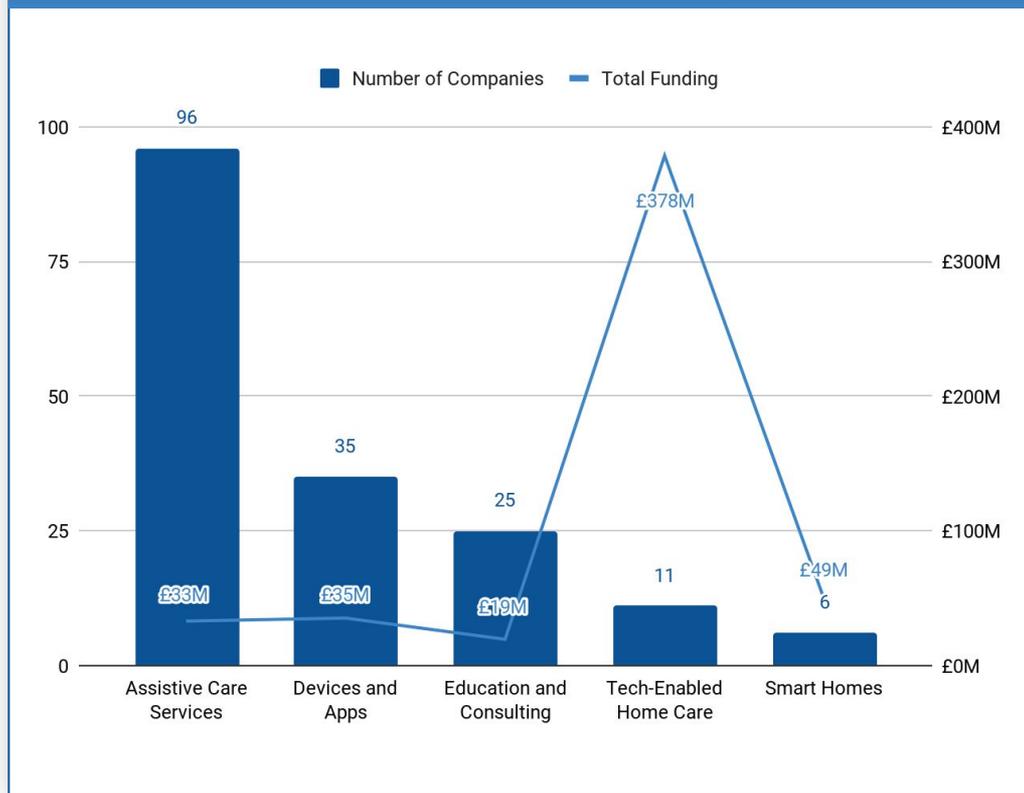
Devices and Apps



View More:
www.at-las.org

AssistiveTech Companies Breakdown by Segments

Distribution of AssistiveTech Companies of the UK by Segments



AssistiveTech refers to technologies aimed at improving and automating the delivery and use of technologies or products by people living with a disability and accessibility limitations.

Using functional segmentation our analysis refers to following 5 segments:: Assistive Care Services, Devices and Apps, Education and Consulting, Tech-Enabled Home Care, and Smart Homes technologies.

Assistive Care Services (96 or 70.2% of the companies) provide non-specialised, non-medical assistance in everyday life. **Devices and Apps** are universally designed devices to engage most people in the new age of smart recording and IT driven support. **Education and Consulting** companies provide professionals, industries and society with relevant insight and truthful information about people with special needs. **Tech-Enabled Home Care** companies are professional home care with the latest IT solutions implemented to ease interaction between caregivers and clients. **Smart Homes** create technological environment in order to achieve the greatest possible independence and self reliance.

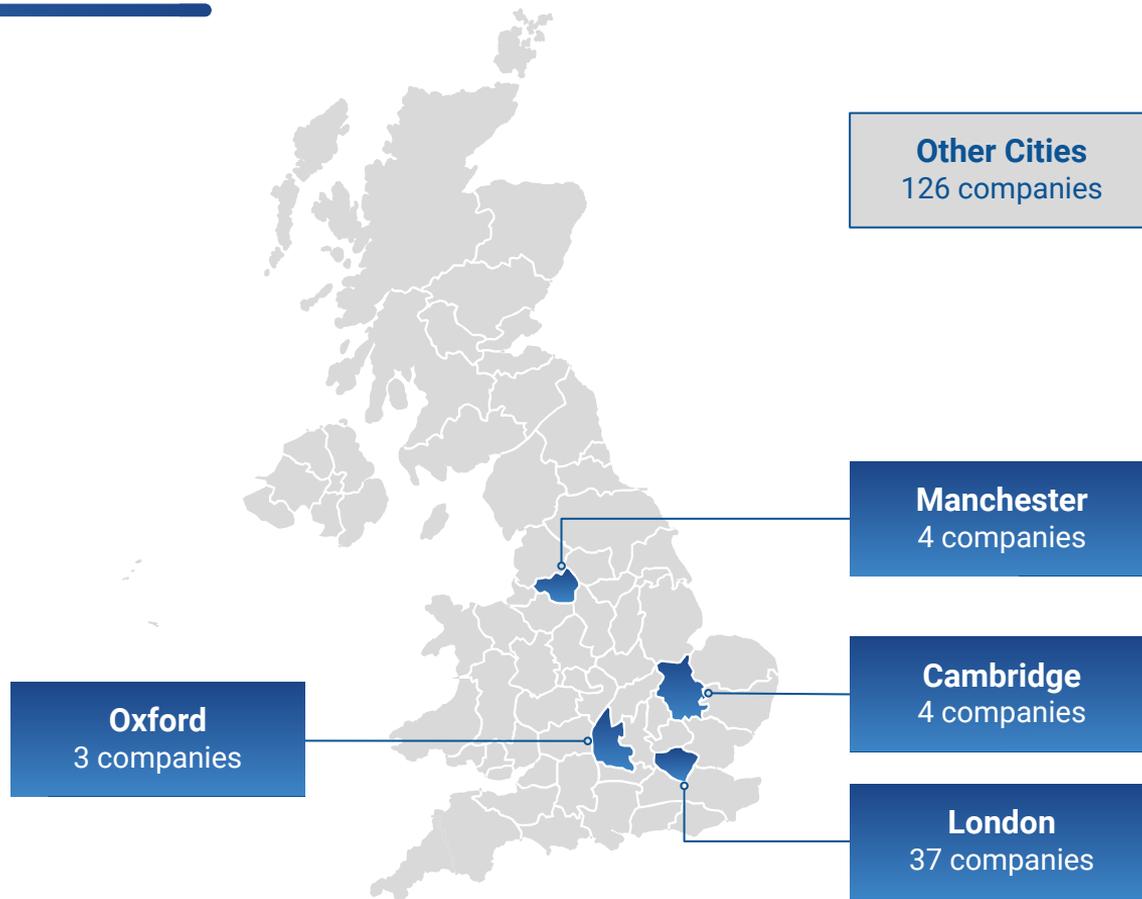
AssistiveTech at Glance: Companies

The United Kingdom has a significant commercial health sector, ranking first among European comparator countries in terms of the number of life sciences Foreign Direct Investment (FDI) projects. The NHS supply chain provides suppliers with fewer points of sale and a single route to market.

From the geographical perspective, London area is represented by the largest number of companies providing services and solutions in the Assistive Tech ecosystem. The rest of the companies are roughly evenly distributed across the regions.

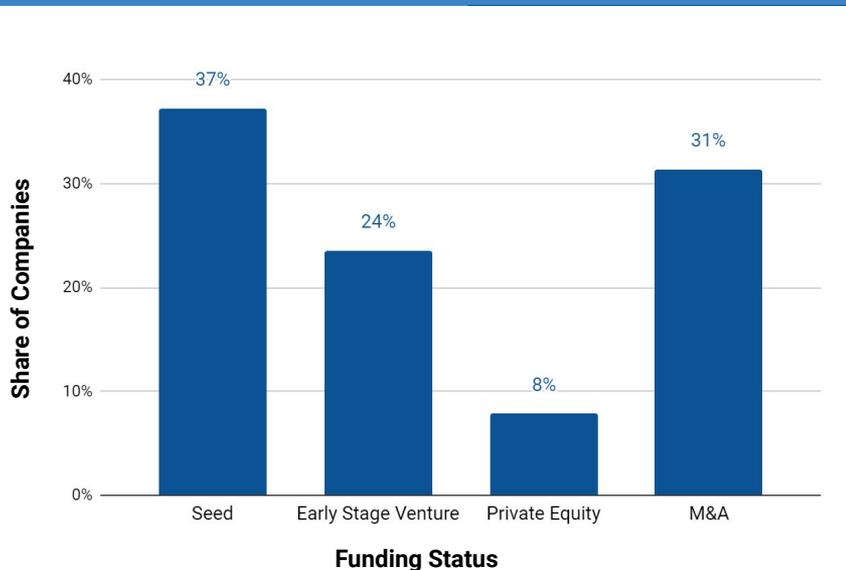
Local 137 providers are situated in more than 105 cities of the UK, including Cambridge, Manchester, Oxford, and many others.

There are also 3% and 4% companies that allocated in Wales and Scotland respectively.

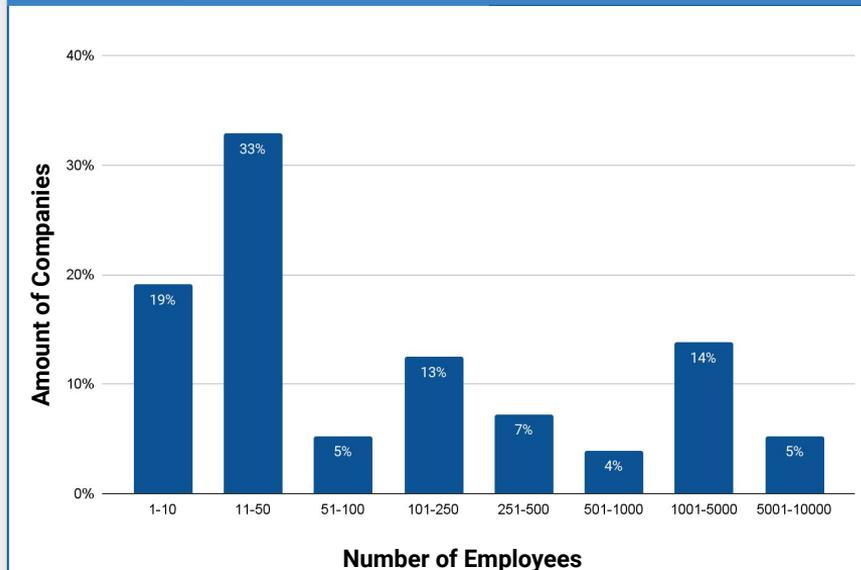


AssistiveTech at Glance: Companies

Distribution of AssistiveTech Companies by Funding Status

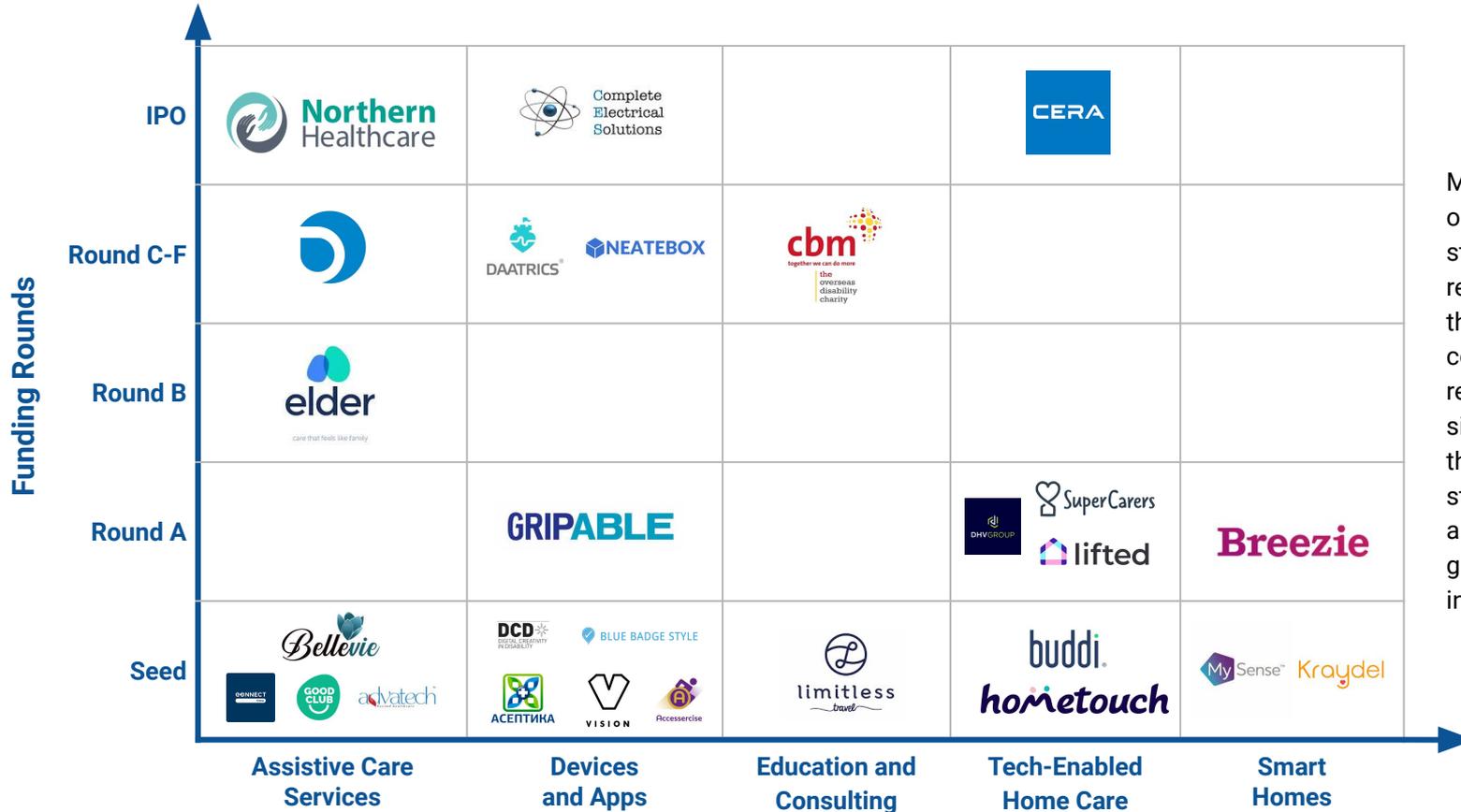


Distribution of AssistiveTech Companies by Number of Employees in 2021



More than 37% of companies are on the stage of granting, seeding or angel financing. Additional 24% of companies are on the Funding Series A-B. Evolving AssistiveTech market attracts risk-taking as well as social conscious investors. Moreover, 52% of companies have less than 50 employees, that categorises them as small or medium business.

Top Assistive Tech Companies by Last Founding Round and Categories



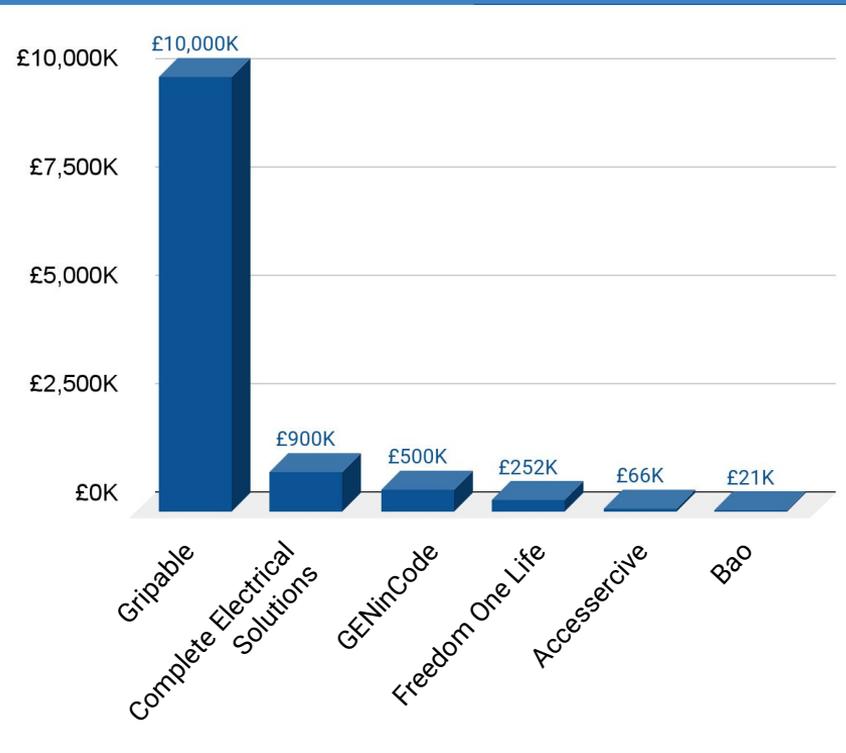
Most of companies are on the early venture stages, as market is relatively new. However, there are some companies that reprofile, showing significant shift toward the later investment stages, which indicates a young market with a great growth potential in the near future.

Latest Deals in AssistiveTech 2021-2022

During 2021-2022 there were 9 deals for AssistiveTech companies and biggest are:

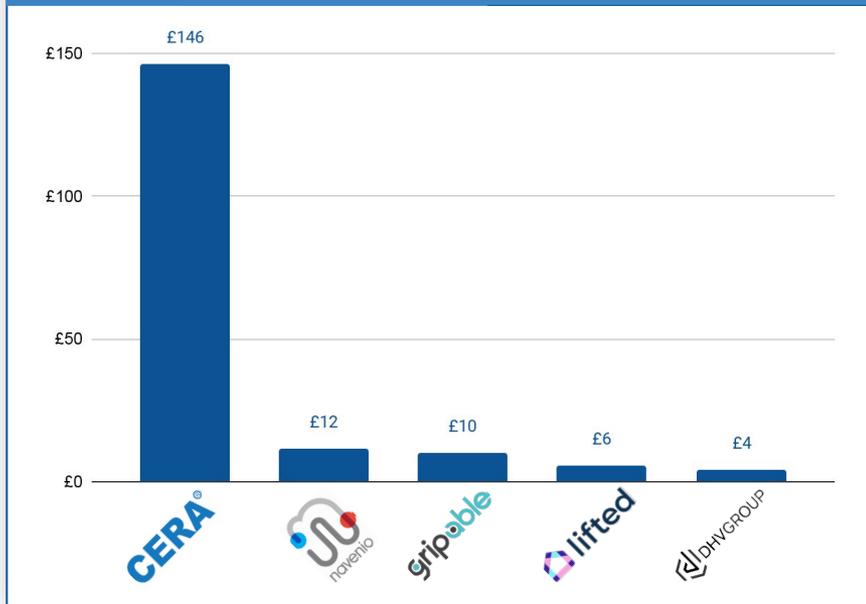
- **GripAble**, develops digital therapy tools, combining them with mobile games, and motivating physically impaired patients, closed two rounds during last two years. Closed their Seed stage in March, 2021, led by IP Group, with equal investment from Parkwalk Advisors, the company were enable GripAble to expand its data platform and therapy services, with a particular focus on growing markets in Europe and the US, while second investment of £8.2M allows to expand the market performance.
- **Complete Electrical Solutions**, a company that specialises on design, installation, testing, commissioning, maintenance and repair, as well as specialised lift, fire alarm, warden call and disability solutions, closed their first announced Debt Financing round in April, 2021 allowed them to start new products development.
- **GENinCode** is a genetic testing business specializing in the risk assessment and prediction of cardiovascular diseases. Closed a private round deal in August, 2021, they haven't announced the purpose of the new round
- **Freedom One Life** is a young company founded in 2013 that develops a autonomous wheelchair, closed their Crowdfunding campaign that allowed to push ahead of planned commercial launch in October, 2021
- **Accessercise**, fitness app for the disability community, closed their seed round for further development of the app.

Companies with the biggest fundings in 2021-2022, GBP

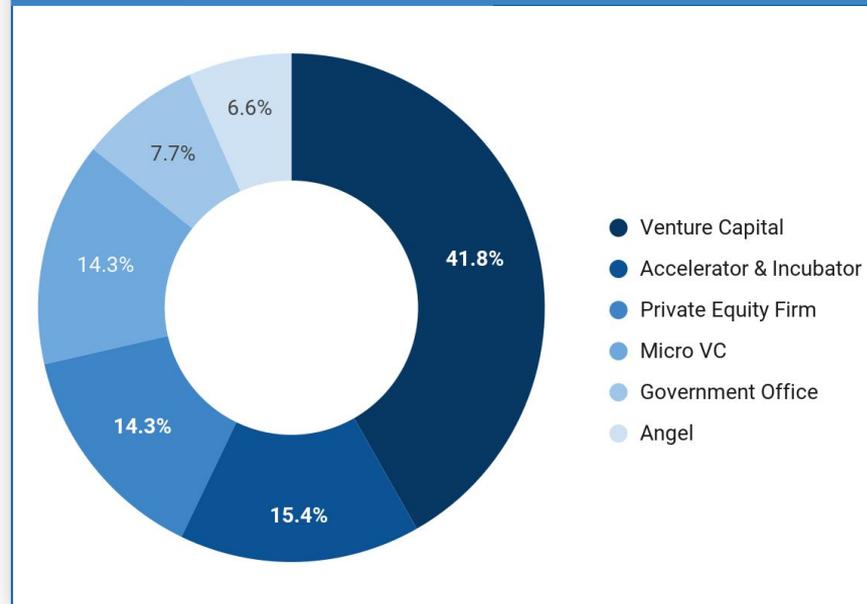


AssistiveTech at Glance: Investors

Largest Investment Targets (Companies) in 2021-Q2 2022



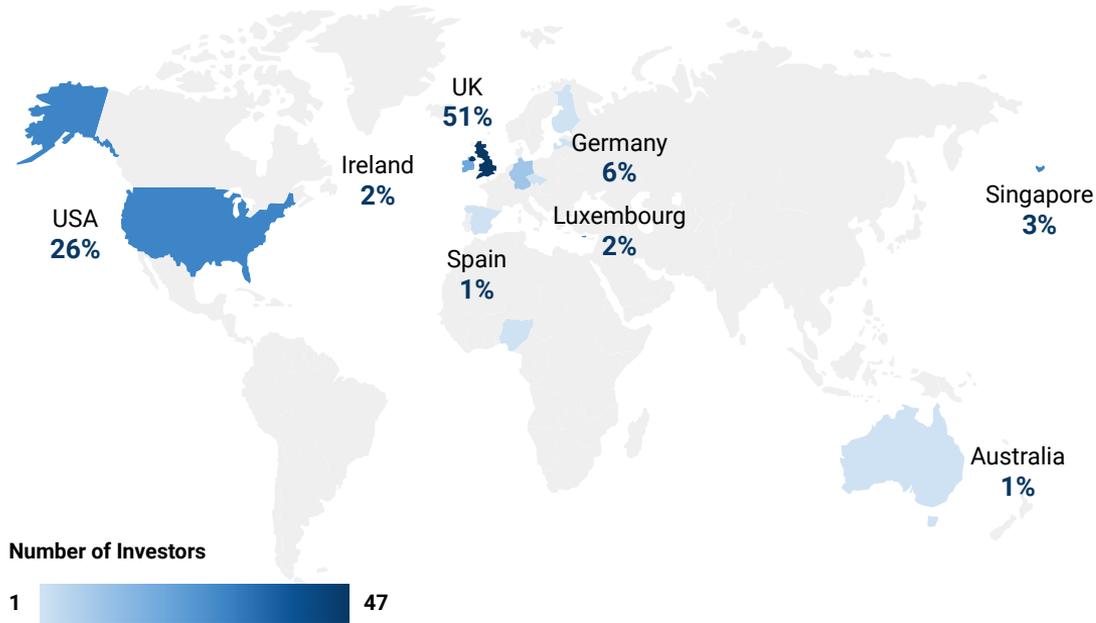
Investors Distribution by Type



The largest investment were in April 2022. Cera, funded by £146M, is digital-first home healthcare company that delivers care, nursing, telehealth, and repeat prescriptions. Overall, investors that consist of Venture Capital (41.8%) and Accelerators (15.4%) companies are prone to more risk. Among investors there are also significant share of Government and Angel investors, that are pursuing also socially meaningful investments.

Geographic Distribution of Investors, Q3 2022

Companies Distribution by Countries



Proportion of Investors by Region



Europe



North America



Asia-Pacific



Australia

Domestic investments are dominating the AssistiveTech ecosystem of the UK. Recent analyses reveal more than a half of all investors are situated in the UK. Moreover, 16% of investors are from continental Europe. Second-biggest investors' domain is the USA, with around 26% of the total investors number. Consequently, we may conclude that the UK as a leading country among other European countries is the most attractive investment destination within AssistiveTech ecosystem.

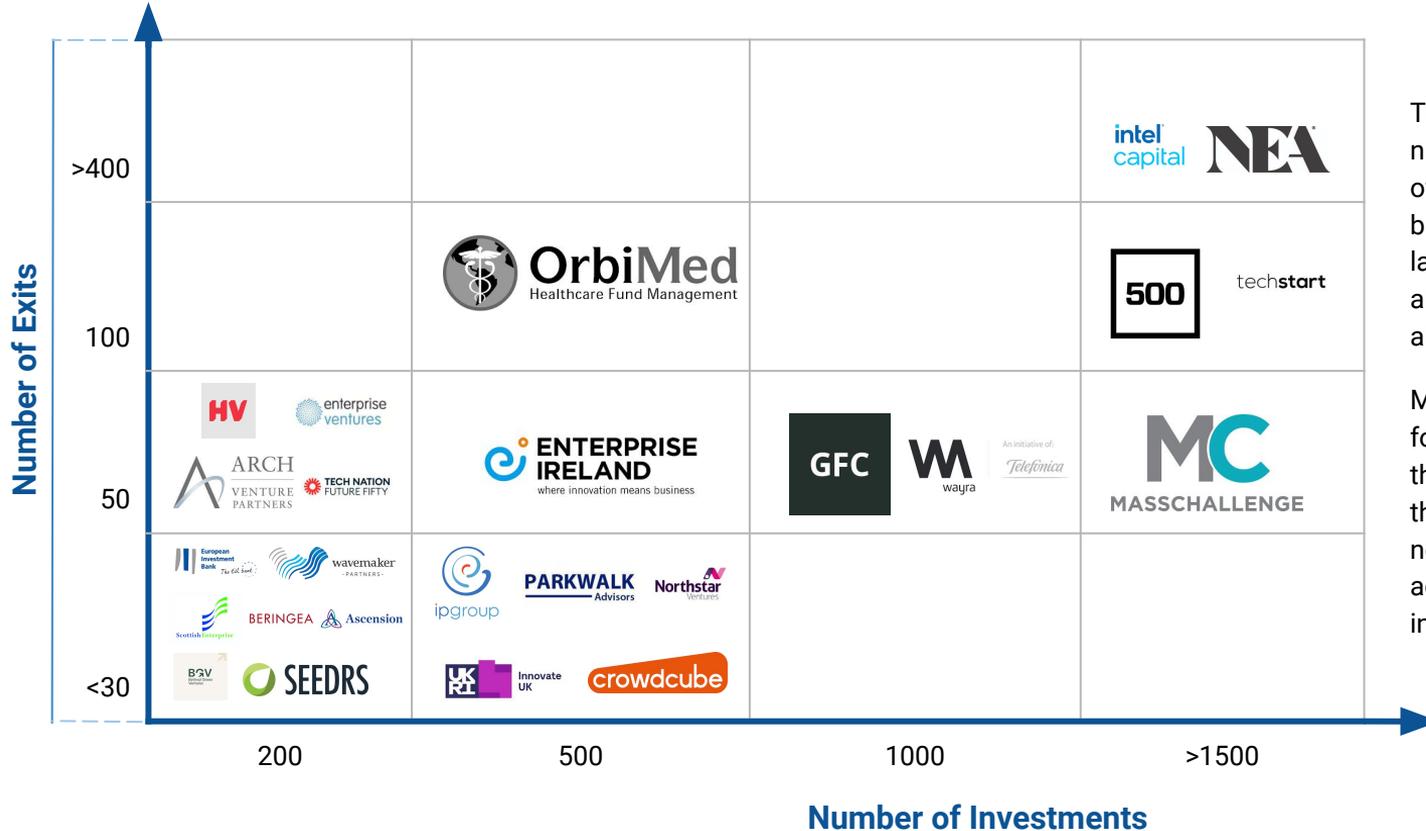
Top Assistive Tech Investors by Founding Round and Number of Investments



Most of top investors supports companies though all stages of funding, however select their targets quotionously (low right corner).

There are fewer companies that carpet bombed the market with investments (mid left section).

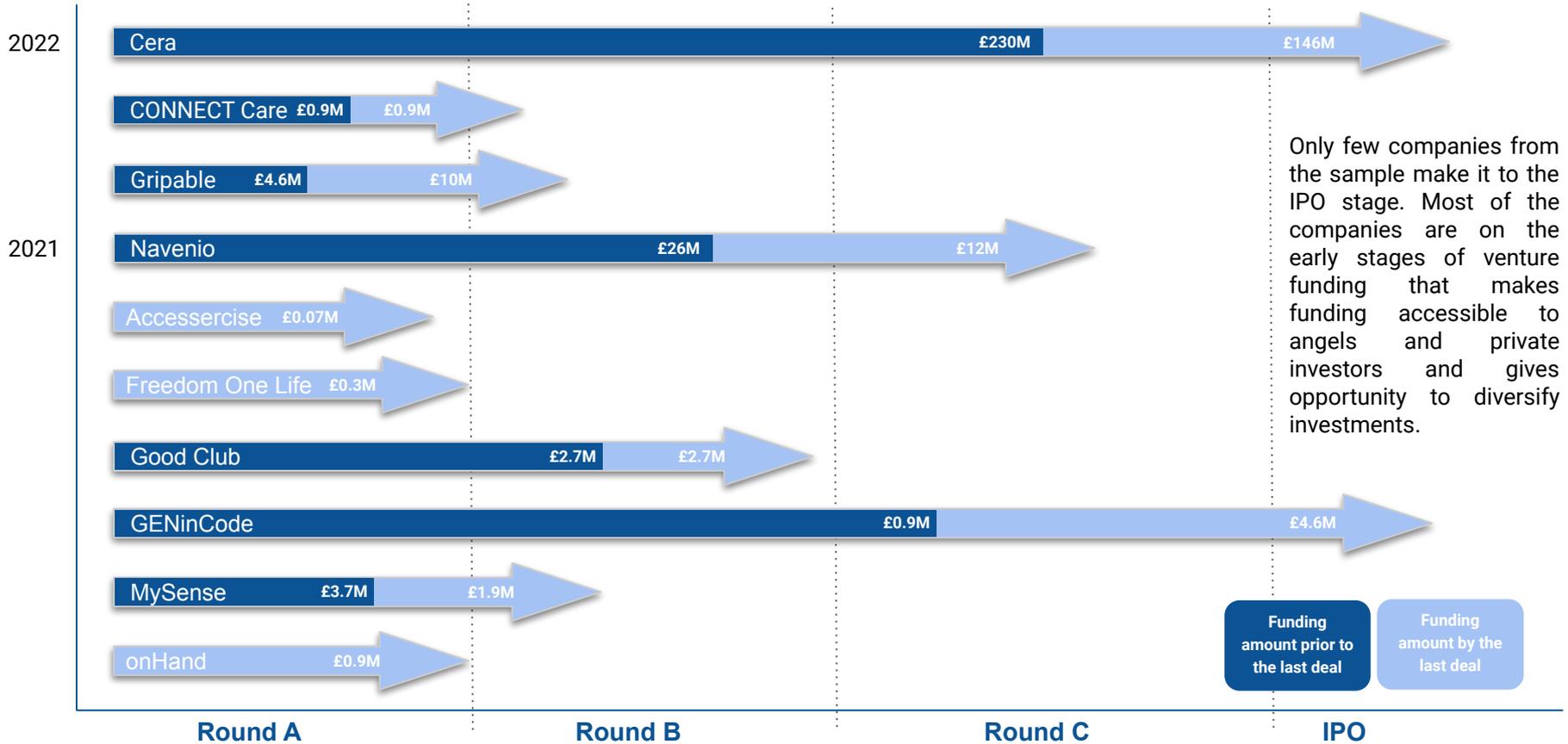
Top Assistive Tech Investors by Number of Investments and Number of Exits



There are correlation between number of investments and number of successful IPOs. Moreover, bigger investors not only can afford larger number of investments, but also provide with extra support along the process of offering.

Most of the top investors are focusing on support with starting, thus rarely take part in the IPO. In the lower left corner accumulates non-profile, portfolio investors or accelerators that boost their investment target.

Top Companies by Investments and Investment Stage



Only few companies from the sample make it to the IPO stage. Most of the companies are on the early stages of venture funding that makes funding accessible to angels and private investors and gives opportunity to diversify investments.

Funding amount prior to the last deal

Funding amount by the last deal

25 UK AssistiveTech Non-Profit Organisations



Action for children



Business Disability Forum



Carers Trust



Black Country Healthcare



Cedar Foundation



Growing Space



Disability Resource Centre



Disability Information Bureau



CREST Waltham Forest



Cerebral palsy sport



Learning Disability Network London



Leonard Cheshire Disability



LIVABILITY



Kids Can Achieve



MAINSTAY TRUST LIMITED



Reach Learning Disability



Mental Health Foundation



Mencap



Reach Learning Disability



Riding for the Disabled Association



Somerset Care



SCOPE



Sightsavers



Royal Hospital for Neuro-disability



The Mungo Foundation

AssistiveTech in the UK Media Overview 2022

Journals



Journals - 10
 Conferences - 15
 Non-profits - 25
 Media Entities - 8

Media Entities



AssistiveTech in the UK
 Media Landscape 2022

Upcoming Conferences



Non-Profits





Government Support of AssistiveTech in the UK

Government Support of AssistiveTech Globally

Proportions of Countries Reporting Established Elements of AssistiveTech System Preparedness, in 70 Member States

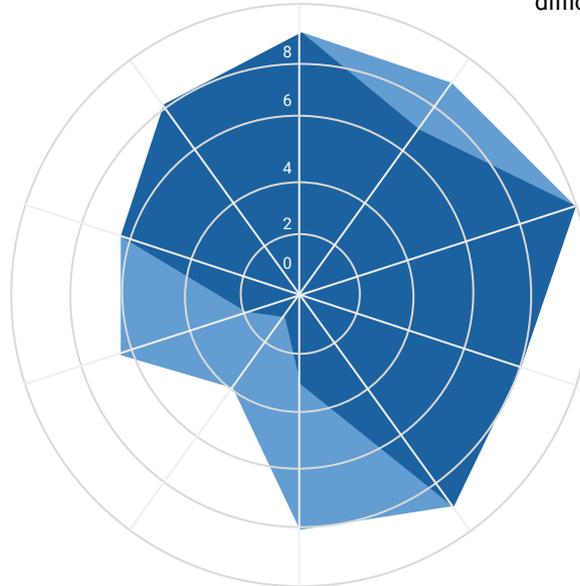
Investing, promoting, facilitating or supporting at least one AssistiveTech initiative

At least one regulation, standard or protocol on AssistiveTech

Training and education on assistive technology for all functional domains

Adequate and trained human resources for AssistiveTech provision at all levels for all functional domains

At least one legislation on access to AssistiveTech



Legislation on access to AssistiveTech covering people with difficulties in all functional domains

At least one ministry or authority responsible for access to AssistiveTech

At least one public budget allocated for AssistiveTech

At least one measure to fully or partly cover users' costs for AssistiveTech

AssistiveTech services for all functional domains across all the territory

Yes/Full coverage
Partial coverage

The study shows that the majority of developed and developing countries which were the subject of the research are well-prepared in terms of assistive technology adoption, which make many of them great competitors to the UK.

Notes: Full coverage: all six functional domains covered; Partial coverage: one to five functional domains covered. Outcome of service coverage refers to the combination of coverage of domains and coverage of geographical areas.

UK Government Far Ahead of Its Competitors in the AssistiveTech

Government Advancements in AssistiveTech Globally

In April 2021, WHO called for all Member States to provide data on these progress indicators through an online survey. By December 2021, 70 Member States had completed the survey through the focal points in ministries of health or other relevant ministries and/or government agencies.

They created original methodology to measure system preparedness in terms of: governance, legislation, public budget, financing mechanisms, regulations and standards, collaborations and initiatives, service provision coverage; workforce availability; and training.



UK

didn't participate in the mentioned survey, but within the research conducted by Deep Knowledge Philanthropy, it is concluded that the country fits all six functional domains covered, which brings it to the top of the list among such competitors as the US, the UAE, Sweden and other powerful states with the inclusion as their high priority.

Governance

Of the 70 participating countries, 69 (99%) had at least one ministry or authority responsible for access to assistive technology, and in 65 countries (93%) this was the ministry of health (or an equivalent authority). Forty-four (63%) of participating countries reported having three or more ministries responsible for assistive technology.

Legislation

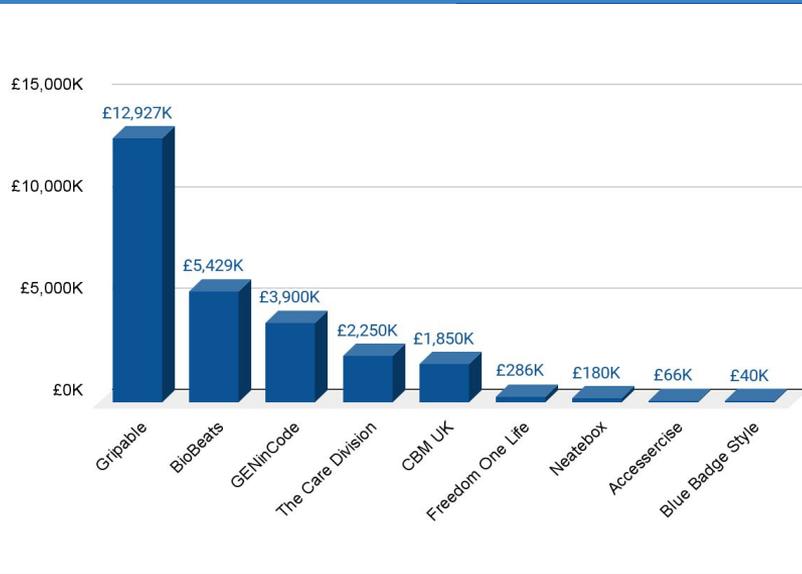
Sixty-two countries (89%) had at least one piece of legislation on access to assistive technology. In most of these countries, assistive technology was covered in legislation on health (51 countries, 73%) or social services (49 countries, 70%).

Public Budget

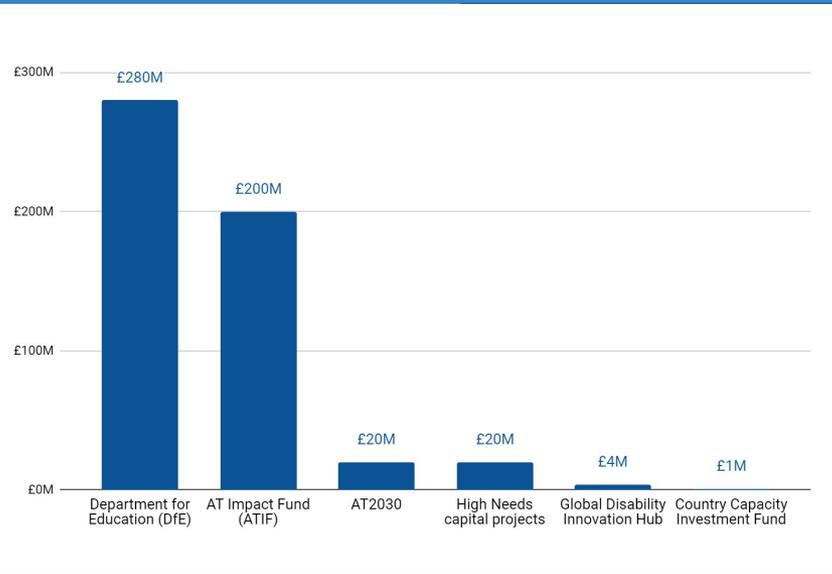
At least one public budget was allocated for assistive technology in 56 countries (80%), while seven countries (10%) had no budget dedicated to assistive technology.

A Breakdown of the UK Government Support for the AssistiveTech

Largest Investment Prospects by Amount of Funding, GBP



Government Programs Fundings to Support AssistiveTech, M GBP



The Assistive Technology market is relatively new, and more than one-third (42%) of companies are small. Despite that, big companies still significantly influence the market and develop their products without external funding. Therefore, this overview presents small businesses better and shows more funding rounds. The biggest funded company is Gripable, a company that creates digital therapy tools, combining them with mobile games and motivating physically impaired patients.

The UK Government Programs Supporting the AssistiveTech



Department
for Education

Children with special educational needs and disabilities (SEND) or requiring alternative provision in England will benefit from a **£280 million investment** to improve accessibility in schools, the Department for Education (DfE) has unveiled. Allocated to local authorities across the country, the money could be used to improve accessibility in schools through installing various assistive devices, such as ceiling hoists, ramps or handrails.



ukaid
from the British people

UK Aid funding to support **10.5 million more people** with access to life changing Assistive Technology through three innovative investments. Globally, 900 million more people need access to Assistive Technology to take care of their health, go to work, to school or participate in their community. In a year when COVID has hit disabled people the hardest, with even less support available (especially in the Global South), the need to trial bold approaches could not be greater.



Department
for Work &
Pensions

UK Government to Fund the Cost of Assistive Technology for disabled Employees. **Access to Work** provides financial support to ensure someone's disability or health condition doesn't hold them back at work and cover AssistiveTech, workplace adaptations, transport, and interpreters. As part of the government's drive to ensure disabled people can benefit from the latest advances in technology, this cost will now be waived for all employers under the new Tech Fund.

AssistiveTech Regulations in the UK

The phrase 'assistive technology' is often used to describe products or systems that support and assist individuals with disabilities, restricted mobility or other impairments to perform functions that might otherwise be difficult or impossible.



An assistive technology product can be classed as a medical device, which needs to be appropriately conformity marked and is regulated by **the UK Medical Devices Regulations 2002** (as amended) (**UK MDR 2002**) in Great Britain. However, assistive technology products can also be considered an 'aid for daily living'. It depends on the claims made by the manufacturer.

Assistive technology: medical device or not?

Equipment intended for alleviation of, or compensation for, a disability may or may not be a medical device. The determining factor will be whether there is a direct link between the corrective function of the equipment and the individual concerned. This is based on the product's primary intended purpose as defined by the manufacturer.

Examples of medical devices

baths with integrated hoists	orthopaedic footwear	slider boards
communication aids	orthoses	standing aids
epilepsy / enuresis monitor	patient hoists	walking / standing frames
external limb prostheses / accessories	pressure management	walking sticks / crutches
hearing aids	posture management	wheelchairs

Aids for Daily Living – Not Medical Devices

There are many products that help people carry out day-to-day activities. Although they may be used by people with disabilities or other impairments, in healthcare environments or by healthcare professionals, many of these products may be used by anyone and will not have a specific medical purpose or direct link to the individuals concerned. Such products are usually referred to as 'aids for daily living' and are not medical devices.

Aids for daily living		
Acoustic signals at traffic lights	Grab rails (at doorways, stairs, beds etc.)	Shower chair
Bariatric chairs and stools	Personal alarm systems (including fall alarms)	Toilet equipment (toilets seats, shower seats, commodes)
Bath with easy access door	Portable ramps, wheelchair vehicle restraints	Special water taps
Chair riser	Rise and recline chairs	Stair lifts

It is important to note that just because a product is used by individuals with disabilities or other impairments and has the CE* or UKCA marking, this does not necessarily mean it is a medical device. For example, white sticks used by people who are blind or visually impaired are likely to be regulated as Personal Protective Equipment (PPE) as they do not actually help the user to walk, but rather they act as protection while the user is moving. Hip protectors for prevention of injury for those at risk of falling would also be likely to come within the remit of the PPE regulations. Such products are likely to be regulated as PPE rather than medical device legislation.

Technology used to support patients with limited mobility or injuries and help them carry out tasks they would be unable to carry out on their own is referred to as assistive technology. **The UK's Medicines and Healthcare Products Regulatory Agency (MHRA)**, which is in charge of monitoring and regulating the medical device market, has released guidance on the key issues surrounding assistive technologies and how their use is governed by current law in order to assist medical device manufacturers in maintaining compliance with applicable regulations.

Devices Examination

The authority studies and examines each report of an adverse event to look for patterns in how often they happen, paying particular attention to those that are **linked to serious repercussions for the patient's health**. The manufacturer is also required to do additional research into any adverse event reports sent to the MHRA, and they are required to submit the findings to the agency for evaluation. In some circumstances, it may be reasonable to take some corrective and preventative measures to lessen or stop harm to the patients' health.

One of the main criteria taken into account when assessing whether the product is a medical device or not is a connection with the patient it provides a corrective function to. In particular, this rule means that:

1

The product that is directly intended to assist patients with disabilities is a medical device

2

The product that is intended to be used for a wide range of situations without a direct emphasis on the corrective function provided to the particular patient is not a medical device

3

If the manufacturer explicitly states that the product is intended to be used by patients with certain disabilities for the specified medical purpose, it is a medical device

4

If the product is intended to be used by a broad range of users even those having no disabilities, it is not a medical device

What the Assistive Tech Sector Needs to Know About MHRA's Plans

Medicines and Healthcare products Regulatory Agency (MHRA) has published important new plans about the future of medical devices regulation in the UK, which are designed to encourage innovation and improve patient safety.

Background information

The changes to UK medical device regulation comes following the UK's exit from the European Union (EU). MHRA says it has a unique opportunity to 'improve' the way devices are regulated in the UK, ultimately with a goal of improving people's health.

The plans also cover IVDs, or in vitro diagnostic medical devices, which are intended for use in vitro to examine specimens derived from the human body, solely or principally to provide information about a physiological or pathological state, monitor therapeutic measures, provide information about a congenital abnormality, or assess the safety and compatibility of donations with potential regenerative uses. Below, AT Today has summarised important ecosystem reactions from the British Healthcare Trades Association (BHTA) and Association of British HealthTech Industries, as well as what the assistive technology sector needs to know about the MHRA's medical devices regulation plans in the UK (ABHI).

Recent movement with medical devices regulation in the UK

- 1 Strengthening the MHRA's powers to act to keep patients safe
- 2 Increasing the scope and extent of regulation to respond to public need
- 3 Addressing health disparities and mitigating identified inequities throughout medical devices development and use, ensuring they function as intended for diverse populations
- 4 Making the UK a focus for innovation by ensuring the new regulatory framework encourages responsible innovation
- 5 Building the new UKCA mark, which will replace the CE mark, and ensuring the mark has a strong global reputation

Transitional Plans

The government has acknowledged the serious concerns raised by BHTA regarding supply continuity, a lack of conformity assessment bodies, a **resource-constrained MHRA**, and the need for ecosystem input into the guidance on how the regime will operate, even though the new regulatory regime is still expected to take effect on **July 1, 2023**. The MHRA has established a **transitional period** until the new regulatory system takes effect to secure the ongoing supply of medical devices in the UK and give the sector adequate time to adapt to these changes. The BHTA has welcomed this transitory period because the initial July 2023 deadline was causing growing anxiety among trade organisations and business.

There are two caveats that apply to both categories of CE-marked medical devices covered by these arrangements:

➤ **Devices that are subject to significant changes in design or intended purpose will be excluded from these provisions**

➤ **All post-market requirements applicable to the new regulatory framework must be complied with for all products which benefit from the transitory arrangements**

William Lee, Head of Policy and Compliance at the British Healthcare Trades Association, explained this transitional period in his consultation response:

'General medical devices and in-vitro medical diagnostic devices (IVDs) that are CE marked under EU MDR or EU IVDR may continue to be placed on the GB market until either the certificate expires or for five years after the new regulations take effect (i.e. 01-Jul-28), whichever is sooner, with a view to reviewing this provision at the end of the five-year period. This will apply even if the certification/declaration of conformity is dated after the new regulations take effect.'



Key takeaway

The whole healthcare system welcomed this transitional period for the UK medical devices sector, echoing the BHTA's statement that this will give the ecosystem enough time to adapt to these changes. We can expect engaging further via planned focus groups over the coming months, which are intended to help draw up guidance to accompany the UKCA regulations.



The Major Trends and Obstacles in the AssistiveTech Development

The Major Trends and Obstacles in the UK Assistive Tech Ecosystem



Major Obstacles

Lack of Investments

Although, in 2020, the UK's assistive tech sector managed to receive £157B in support from the government to stay afloat, the Industries remain highly under-capitalised.

Inclusion

Even though the consumer system aims to integrate inclusion for the sake of normalisation of daily processes for people with disabilities, there are still a lot of regulations and solutions to be implemented in order to streamline the process.

Innovations

There are certain requirements to be followed by companies in order to be eligible to claim corporation tax benefits for qualifying expenditure.

Weak Skill and Employment Policy

Assistive tech industries vastly rely on freelancers, who are most of the time excluded from direct government support. As a result of the pandemic, a negative trend in the freelance employment disability tech sector was noticed.

Economic Globalisation as the Main Trend in AssistiveTech

The Millennium Development Goals (MDGs) are benchmarks established by the United Nations Department of Economic and Social Affairs to assess the level of success attained by the international community in an effort to halt various human catastrophes brought on by the incident of unequal distribution of the benefits of globalisation and social injustice that is pervasive in developing nations. In the 2000 United Nations Millennium Declaration, 189 nations—both wealthy and developing—made an unprecedented commitment to end global poverty, advance development, and support sustainable development.

The Eight MDGs

Eradicate extreme poverty and hunger

Achieve universal education

Promote gender equality and empower women

Reduce Child Mortality

Improve maternal health

Combat HIV/AIDS, malaria and other diseases

Ensure environmental sustainability

Develop a global partnership for development

Oversight for the future

- Because there are some marginalised groups in society who are as a result of the nature of their biological, physiological, geographical contexts, etc., marginalised owing to a variety of reasons, policy makers should always avoid making generalisations about disability. The topic of sharing resources and services can always receive less attention.
- The Millennium Development Goals and The African Decade of Disabled Persons must be closely related in order to make them feasible with a view to addressing the issues faced by disabled people in Africa. These two programs must be reflected in all of the UN's initiatives.

Links Between Disability and Sustainability

Around 15% of people worldwide are disabled, and this number rises to 20% in the world's poorest nations. People with disabilities are disproportionately vulnerable to harm, death, and impairment and are all too frequently denied access to policies and information intended to reduce this risk and protect them.

Global Trends

1

Varied representation: Brands are diversifying their representation to create a more inclusive community, whilst employers are seeking to increase opportunities and nurture skills.

2

Technology for all: Across supermarkets, homes, cities and virtual worlds, communication innovation is opening up and creating new spaces, experiences and freedoms.

3

Inclusive sustainability: Amidst the clamour to address climate change, policy and product makers are taking a more protective and inclusive approach across solutions and innovations.

57%

of disabled and older people feel excluded from being able to reduce their environmental impact through using greener transport modes.

- **Research Institute for Disabled Consumers**

But people with disabilities are excluded from the solutions

The research by RiDC shows that accessibility issues are also frustrating people's efforts to reduce their emissions by using public transport or electric vehicles (EVs), with 57% feeling excluded from these options due to issues like a lack of staff awareness or an absence of convenient charging points.

Whilst 93% of surveyed people tried to be greener at home, 17% could not contribute as much as they would like. Elsewhere, we see challenges around pre-prepared food ingredients, single use plastic in medical goods, packaging that only carries visual recycling information, and a lack of home collections for clothes recycling.

A Combination of Artificial Intelligence and Disability Could Enhance a Diversity



CONVENTION on the RIGHTS of
PERSONS with DISABILITIES

More than a billion people live with disability and there is a need to explore how AI technologies can affect this very diverse group. AI research could be a force for

good for disabled people as long as they are not marginalised. A roadmap, including ethical issues and the exploration of the gaps in innovative digital accessibility, has yet to be developed. The creation of a network of experts and resources for AI and inclusion could help to address the 'unmet need of assistive products crucial to achieve the Sustainable Development Goals, to provide Universal Health Coverage, and to implement the UN Convention on the Rights of Persons with Disabilities'.

The supporting AI tools available today are more accurately referred to as **'augmented'** or **'assistive'** intelligence technologies because they complement human capabilities rather than taking their place. As a starting point for a project on AI and inclusion, it has been intriguing to investigate how a list of **machine learning applications** from integrate.ai's 'Responsible AI in Consumer Enterprise' may be modified. Machine learning demands precise and tightly specified goals.

AI could enhance 'Augmented and Alternative Communication' services, devices and applications in the following ways:

Recommendation systems	Compare user actions to other AAC user actions and recommend suitable symbols or language possibilities based on attributes and activities
Audience segmentation	Separate AAC users into groups that look/act like one another in a way that is relevant to the user application improvements needed
Personalisation	Modify the experience of an application, symbol set etc, that best suits the user 'at a scale too large for human teams to execute'
Chatbots	Allowing users to respond to queries or find the ideal solution without human assistance and rerouting human resources to higher-value interactions requiring discretion.
Risk assessments	Modify options offered on a device or application when there is a predicted risk or likelihood of failure arising that could mean lack of use or attention loss etc
Anomaly detection	Recognise a change in user behavior that might indicate a chance to improve the options available and avert likely behavior that might lead to an unfavorable outcome.
Support prediction	Enhance communication speeds through the use of natural language generation
Data products	Use algorithms to identify useful insights about user behaviour that can be shared with others to enhance product development

How Data Science is Used in Helping Disability?

Data Science For Disability Real Examples:

Intelligent Prosthetics



An open-source, AI prosthetic limb was revealed public during Amazon's Re:MARS conference in Las Vegas in 2019. The flaws in how an ankle flicks when we walk are ironed out by this open-source prosthetic limb, which makes use of AI. The AI can then forecast how the patient is moving by cutting, standing up, and turning using the numerous sensors on the prosthetic leg.

Image Recognition for the Visually-impaired



Microsoft's Seeing AI is a great illustration of how image recognition technology might aid with assistive devices for the visually-impaired. It is an app that harnesses the power of machine learning to detect images of short text, documents, products, people, scenes around the user, currencies, light, color and handwriting.

Research in Parkinson's disease



In another area of application of data science, clustering algorithms are used for the identification and tracking of the behavior of patients with Parkinson's disease. Wearable technology, which patients can use even when at home, is used to collect data.

Self-Driving Cars



The driverless experience can help the blind because it uses AI-driven autonomous driving. Imagine a vehicle with traffic-navigation capabilities; it would provide blind people more options for getting about.

Natural Language Processing (NLP) for People With Deafness



The App ecosystem has also been going toward AI in data science for the deaf. A real-time app that translates sign language into speech was created by the Dutch startup Evalk.

AR/VR as a Disruptor of AssistiveTech

AR/VR Benefits for Disabled People

- 1 Opportunity to Experience the World in a Different Way
- 2 Sensory Enhancement
- 3 Development of Social Skills
- 4 Communication Improvement
- 5 Capacity to Plan Better
- 6 Recovery From Severe Injuries
- 7 Chance to Be Better Understood

The goal: Respond to the actual disability situation

135 million Europeans, or **18% of the population**, suffer some sort of disability, according to the World Health Organization. Additionally, about a third of this population faces a significant **danger of social marginalisation**. However, numerous startups and businesses over the past few years have discovered a method to close this social divide through virtual reality.

There are numerous facilities attempting to modify the virtual reality environment to accommodate various types of disabilities. As an example, the **Microsoft Seeing VR toolkit** provides the visually impaired with an audio interpretation of the images. For instance, the software **WalkinVR** enables the substitution of controller movements for some body movements. People with limited mobility can now experience activities that were previously out of their reach, such as mountain climbing or running due to this technology.

What Role Play Digitalisation for People with Disabilities?

Interventions will take into account the particular difficulties that individuals with disabilities encounter, such as difficulties with communication or a lack of digital literacy, as observed in the GSMA study. As a result, suggested interventions may focus on some of the following areas, but not exclusively:

As a result of their typically lower wages than their peers without disabilities, people with disabilities frequently find the cost of devices and connectivity services to be prohibitive. There can be further access problems with gadgets that involve both hardware and software. Opportunities to make connectivity more accessible can be found by exploring initiatives with regional service providers and phone manufacturers.

Particularly in low- and middle-income countries, many people with disabilities, their families, and disability service providers are unaware of the variety of accessible web tools available and how to utilise them. It is crucial to make sure that people with disabilities can use them efficiently if you want to guarantee meaningful online involvement.

**Tackling
access and
affordability
roadblocks**

**Accessible
information &
engagement
mechanisms**

**Building
digital skills**

**Enhancing
livelihoods
opportunities**

Content must be created, presented, and distributed through the modalities and channels favored by this vulnerable population if successful information sharing among individuals with disabilities is to be ensured. A responsible humanitarian response is ensured by making essential protection information and engagement techniques accessible to all disability constituencies.

The global digitalisation trend of the labour market can positively impact the access of refugees with disabilities to job opportunities. Connectivity can underpin the promotion of income generation activities.

Smart Home Technology for Disabled People

What smart home technology can do?

Smart home technology has the potential to help you control your home's:

- lighting
- temperature
- security
- cookers, microwaves, washing machines
- TV, radio, entertainment and gaming systems
- The technology is constantly improving so it is worth keeping up to date.

You can control smart home devices using:

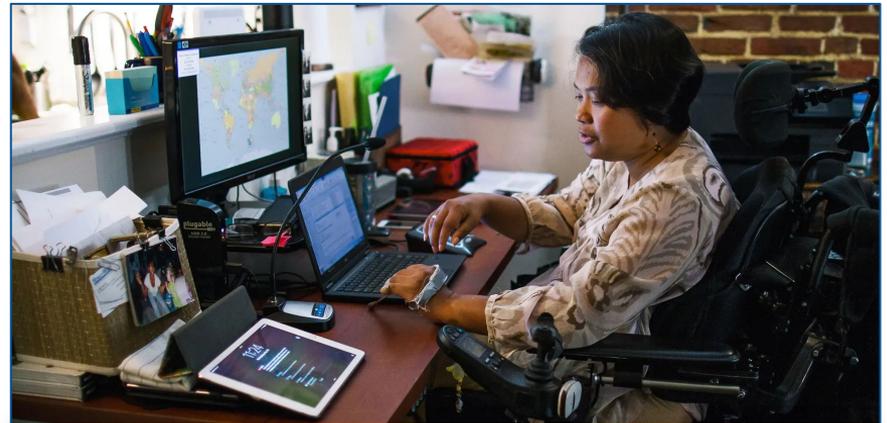
Smartphones

Laptops

Tablets

Voice-activated hubs (Apple HomeKit, Amazon Echo or Google Nest)

Smart home technology can occasionally seem nearly miraculous. They enable you to adjust your temperature with a straightforward voice command, answer the door from your bedroom (or a hotel room), and turn on lights without touching a switch. Those abilities are a luxury or a convenience for many people. However, smart home technology can be a great enabler for those who struggle with accessibility, enabling them to live a more independent and empowered life.



Suria Nordin (CPA, member of PATF's advisory board, quadriplegic, and co-owner of SunKirb Ideas (which assists people with special needs in using consumer products as adaptive technology)) in her home office, using a variety of assistive technology and smart-home technology. Photo: Pennsylvania Assistive Technology Foundation

Social Media Usage and Opportunities for Disabled People

There is no disputing the influence social media and technology have on our capacity to interact with one another. It enables us to communicate with individuals who share our passion for the social and political topics that are important to us. Social media is eliminating the geographical barriers limiting interaction, whether these like-minded individuals are in our communities or on the other side of the world. The ability for persons with disabilities to effectively advocate for and/or protest against laws and programs that have an impact on their quality of life is what matters most. All ages of people with disabilities are using websites like Twitter, Facebook, blogs, businesses, and Kickstarter campaigns to share their life stories. Furthermore, it gives disabled persons a platform to advocate for the improvements they wish to see in broader inclusion, advocacy, education, and work possibilities.

Social Media Statistics

4.7B

Number of Social Media Users

+1.0%

Quarter-on-quarter Change in Social Media Users

+5.1%

Year-on-year Change in Social Media Users

2H 29M

Average Daily Time Spent Using Social Media

7.4

Average Number of Social Platforms Used Each Month

59.0%

Social Media Users vs. Total Population

75.5%

Social Media Users vs. Population Age 13+

93.6%

Social Media Users vs. TOTAL INTERNET USERS

45.7%

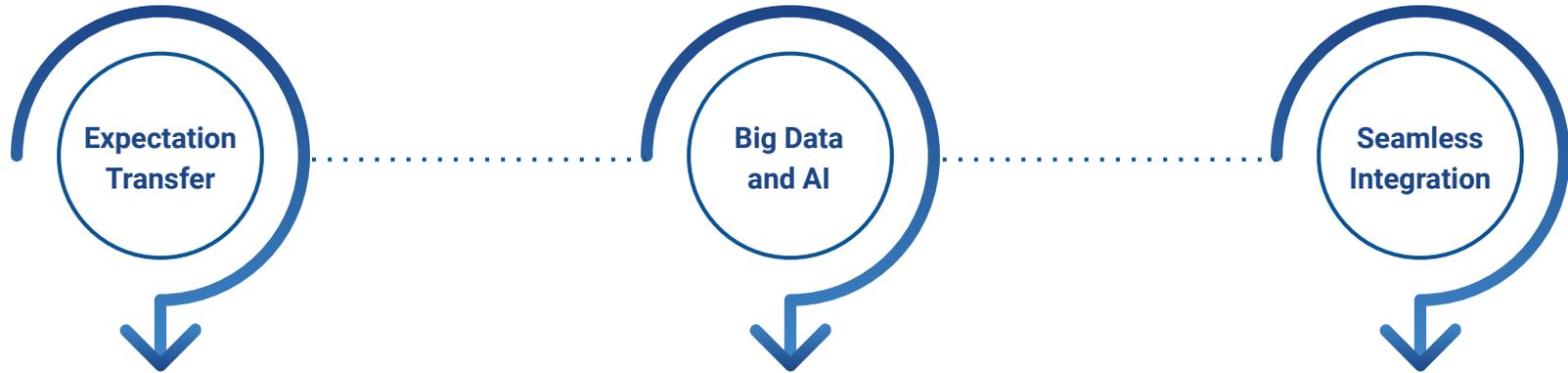
Female Social Media Users vs. Total Social Media Users

54.3%

Male Social Media Users vs. Total Social Media Users

Major Tendencies Shaping DisabilityTech Agenda in the UK

Advancements in technology for people with a disability are lagging. Lots of assistive technology remains mono-functional, expensive and clunky. DKP's mission is to see elegant and affordable technology solutions in the hands of people with a disability, as a way to overcome barriers to inclusion.



Through technology, we are exposed to new tiers of user experience every day. The positive feedback loop raises our expectations for how we want to connect with businesses. Typically, this has included things like a feeling of value for the money and exceptional customer service.

Humans are intriguing creatures because we frequently face constant contradictions in our attitudes about data, disclosure, and customer experience. Customers want personalised service, but they also have serious doubts about how their information will be handled and whether it will be utilised for the company's advantage.

A moment when the seamless integration of technology into our lives is more likely than ever before is quickly approaching. Other company technology can be hosted on smartphones or built into development from the start, while some of the best technological solutions are hidden and effortlessly integrated into the user's life.

Conclusions

Key Takeaways

- According to the Family Resources Survey (2018/19) at least 14 million people in the United Kingdom live with a form of disability. Furthermore, the World Health Organisation estimates that by 2030, over two billion people will need at least one assistive product. However, only 1 in 10 people affected have access to assistive technology today.
- ATLAS analysis depicts 5 segments of companies within AssistiveTech Ecosystem represented in the UK: Assistive Care Services, Devices and Apps, Education and Consulting, Tech-Enabled Home Care, and Smart Homes technologies.
- The global AssistiveTech market size was calculated as the total value of the five markets, which accounted for £19.2B in 2021 and is projected to grow at a CAGR of 4.8% from 2022 till 2028 to reach £26.7B.
- From the geographical perspective, London area is represented by the largest number of companies providing services and solutions in the UK Assistive Tech. The rest of the companies are roughly evenly distributed across the regions.
- The investments into the AssistiveTech sphere are spread unevenly. Some companies receive relatively huge amounts of money, compared to the others that lack financing whatsoever and thus struggle to make difference and develop.
- AssistiveTech in the UK follow the same trends as the whole ecosystem globally. Digitalisation, Data-Driven Approach, and Social Media Significance Growth are the few examples of tendencies that influence the market the most.
- The UK has the potential to become a global leader in the AssistiveTech Ecosystem. Assistive tech businesses can thrive in the UK due to the presence of a talented workforce, technology partnerships and large scale growth opportunities for technology.

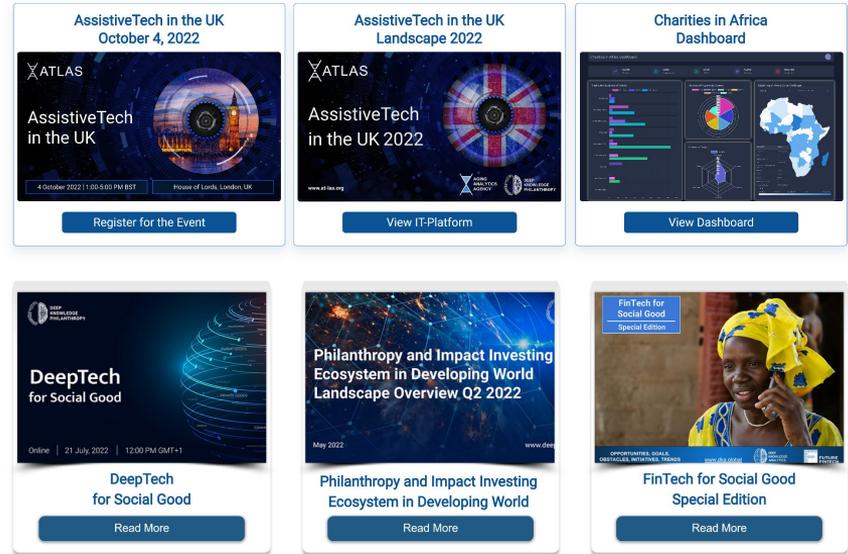
About Assistive Technology, Longevity and Ageing Society



ATLAS (Assistive Technology, Longevity and Ageing Society) is an Advocacy for the prioritisation of frontier technologies in AssistiveTech and AgeTech to impact lives on a global scale. We believe that technology is a major enabler of social inclusion in the world, and so we leverage partnerships via tech founders, venture philanthropy and impact investment to deliver a future of technology for all.

ATLAS pledges to:

- Champion the AssistiveTech Ecosystem and its potential to drive social inclusion
- Promote healthy Longevity and its importance to society and ecosystem
- Restore the Technological Rights of our senior community





AssistiveTech in the UK

4 October 2022 | 1:00-5:00 PM BST

House of Lords, London, UK



The UK has the potential to become a global leader in the AssistiveTech Ecosystem. Our report showcases the importance of AssistiveTech in driving social inclusion and highlights the UK's efforts in providing support for those in need of using advanced technologies.

Join us in the House of Lords to take a first-hand look at a comprehensive review of the UK's assistive technology landscape overview. This newly created report focuses on ecosystem participants, its major trends and obstacles and the support of the UK Government towards the assistive tech Industries.

[Register Now!](#)

info@at-las.org

[Event Agenda](#)

African Charities Analytical Dashboard

The 'AssistiveTech in the UK' report was produced in collaboration with Deep Knowledge Philanthropy, a data-driven non profit subsidiary of Deep Knowledge Group, committed to the support, development and advancement of DeepTech for social good, impact philanthropy and ethical investment.

Deep Knowledge Philanthropy has recently created the African Charities Analytical Dashboard. This unified platform aims to map, categorise, and rank market participants of their respective sectors by filtering them through geographical maps and mindmaps with visualised analytics of associated global challenges. The platform also features profiles of organisations, donors/investors, and tools for matchmaking impact startups with investors and charity organisations – donors and charities – with impact startups as well as with financial institutions, volunteers, and other partners.

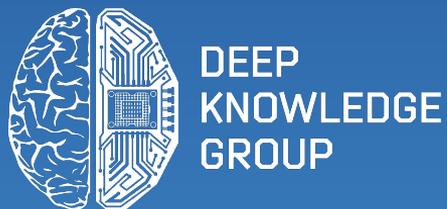




www.aginganalytics.com
info@aginganalytics.com



www.deep-knowledge.org
info@deep-knowledge.org



www.dkv.global
info@dkv.global



www.at-las.org
info@at-las.org

Appendix

100 Leading Companies in the UK AssistiveTech Ecosystem in 2022*

1	Accessercise	12	Baillieston Community Care	23	CBM UK
2	Acorn Stairlifts	13	Black Country Partnership NHS Foundation Trust	24	Centre for Health and Disability Assessments
3	Action Mental Health	14	Blue Badge Style	25	Charing Healthcare
4	Adapted Vehicle Hire	15	BNR Agency	26	Choice Care Group
5	Advatech Healthcare Europe Ltd	16	Breezie	27	City Care Partnership
6	Altacor	17	British Blind Sport	28	Complete Electrical Solutions
7	Amber Support Services	18	Bua	29	CONNECT Care
8	ASC Healthcare	19	Buddi	30	Cordis Bright
9	Aseptika	20	Business Disability International	31	Cortitio
10	Aspire2 Mobility	21	Care Management Group	32	Coventry and Warwickshire Partnership NHS Trust
11	Aventido	22	CARINGMATE	33	Credo Care

100 Leading Companies in the UK AssistiveTech Ecosystem in 2022*

34	Crossroads Caring Scotland	45	Disability News Service	56	eQuality Solutions
35	CWP	46	Disability Sport NI	57	Erewhash Community Transport
36	Daatrics	47	Disabled Go	58	Evacusafe
37	Dale Care	48	Doability UK Ltd	59	Fixter
38	DERBYSHIRE HEALTHCARE	49	Dolphin Computer Access	60	Flexible Support Options
39	Destek	50	Eagle and Child	61	Flexyfoot
40	Digital Creativity in Disability	51	ECL	62	Freedom One Life
41	Direct Enquiries	52	EcoTextura	63	GENin Code
42	Disability Action Yorkshire	53	Education for Everybody	64	GiveVision
43	Disability Arts Online	54	Elder	65	Good Club
44	Disability Horizons	55	EnViva Paediatric Care	66	Gripable

100 Leading Companies in the UK AssistiveTech Ecosystem in 2022*

67	Grocemania	78	Inclusion Care	89	Limitless Travel
68	Guideposts Trust	79	JCM Seating Solutions	90	Lothian Centre For Inclusive Living
69	Hands Free Computing	80	Just Checking	91	MacIntyre
70	Harley Street Care	81	Kent Association for Spina Bifida and Hydrocephalus	92	Map a Nurse
71	Hazelhead Homecare	82	Kings Bromley Nursing Home	93	Minerva Hearing Protection
72	Hertfordshire Partnership University NHS Foundation Trust	83	Knowsley Disability Concern	94	Motability Operations Limited
73	Hometouch	84	Kraydel	95	Mycarematters
74	Humber NHS Foundation Trust	85	Leeds York Partnership	96	MyLiferaft
75	Humberside Independent Care Association Limited (HICA)	86	Leicester City Clinical Commissioning Group	97	MySense
76	Lansyst	87	Lifecycle Software	98	Neatebox
77	Inclusion Barnet	88	Lifted	99	NHS
				100	onHand

100 Leading Investors in the UK AssistiveTech Ecosystem in 2022*

1	1818 Venture Capital	12	Bethnal Green Ventures	23	Dotforge
2	24 Haymarket	13	British Business Bank	24	ECONA AG
3	500 Startups	14	Business Finland	25	EcoR1 Capital
4	8090 Partners	15	Cambridge Angeles Group	26	Enchant
5	Act Venture Capital	16	CapitalG	27	Enterprise Ireland
6	Acton Capital	17	Clearly Social Angels	28	Enterprise Ventures
7	Africa Finance Corporation	18	Credo Ventures	29	Equity Gap
8	ARCH Venture Partners	19	Crowdcube	30	European Investment Bank
9	Ascension	20	Daimler	31	Foresite Capital
10	Athensmed	21	DigitalHealth.London Accelerator	32	Frontier Development Capital
11	Beringea	22	Disney Accelerator	33	Fuel Ventures

100 Leading Investors in the UK AssistiveTech Ecosystem in 2022*

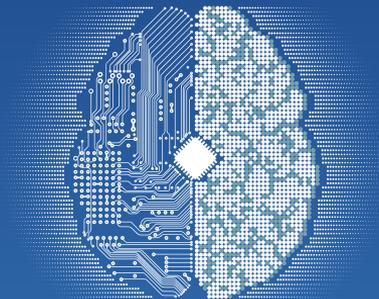
34	Future Fifty	45	Healthbox	56	IP Group
35	Future Planet Capital	46	Heartbeat Labs	57	JamJar Investments
36	Global Founders Capital	47	HOF Capital	58	Jane Street Capital
37	Green Angel Syndicate	48	Hostplus	59	JOINT JOURNEY
38	Grima Ventures	49	HOWZAT Partners	60	Joyance Partners
39	Grosvenor Food & AgTech	50	Hummingbird Ventures	61	MAGIC Fund
40	GSMA Innovation Fund	51	HV Capital	62	MassChallenge
41	Guinness Ventures	52	Imperial College London	63	Maven Capital Partners
42	Haatch	53	Innovate UK	64	Metaplanet Holdings
43	Hambro Perks Ltd	54	Intel	65	Millhouse
44	Harper Macleod	55	Intel Capital	66	MMC Ventures

100 Leading Investors in the UK AssistiveTech Ecosystem in 2022*

67	Mobeus Equity Partners	78	Perivoli Innovations	89	Sure Valley Ventures		
68	Mustard Seed	79	Pitch@Palace	90	Techstars		
69	New Enterprise Associates	80	ProVen VCT	91	Techstars Ventures		
70	North East Innovation Fund	81	Public.com	92	Third Rock Ventures		
71	Northstar Ventures	82	Ruvento	93	TIA Ventures		
72	Novit Ventures	83	SBRI Healthcare	94	Triple Point Ventures		
73	NPIF - FW Capital Debt Finance	84	Scottish Enterprise	95	UK Research and Innovation		
74	NVM Private Equity	85	Seedrs	96	USAA		
75	OrbiMed	86	Seneca Partners	97	Venrex		
76	Oxford Science Enterprises	87	Social Tech Trust	98	Wavemaker Partners		
77	Parkwalk Advisors	88	Squarepoint Capital	99	Wayra	100	Ziegler Link-Age Funds

25 Leading Non-Profits in the UK AssistiveTech Ecosystem in 2022*

1	AbilityNet	9	CREST Waltham Forest	17	Mencap		
2	Action for Children	10	Disability Information Bureau	18	Reach Learning Disability		
3	APPG	11	Disability Resource Centre	19	Riding for the Disabled Association		
4	BATA	12	Growing Space	20	Royal Hospital for Neuro-disability		
5	Black Country Healthcare	13	Kids Can Achieve	21	SCOPE		
6	Business Disability Forum	14	Learning Disability Network London	22	Sightsavers		
7	Carers Trust	15	Leonard Cheshire Disability	23	Somerset Care		
8	Cerebral Palsy Sport	16	LIVABILITY	24	The Mungo Foundation	25	The Rose Road Association



Link to the Report: www.deep-knowledge.org/assistivetech-in-the-uk

E-mail: info@at-las.org

Website: www.at-las.org

ATLAS Disclaimer

The information and opinions in this report were prepared by Assistive Technology, Longevity and Ageing Society (ATLAS). The information herein is believed by ATLAS to be reliable but ATLAS makes no representation as to the accuracy or completeness of such information. There is no guarantee that the views and opinions expressed in this communication will come to pass. ATLAS may provide, may have provided or may seek to provide advisory services to one or more companies mentioned herein. In addition, employees of ATLAS may have purchased or may purchase securities in one or more companies mentioned in this report. Opinions, estimates and analyses in this report constitute the current judgment of the author as of the date of this report. They do not necessarily reflect the opinions of ATLAS and are subject to change without notice. ATLAS has no obligation to update, modify or amend this report or to otherwise notify a reader thereof in the event that any matter stated herein, or any opinion, estimate, forecast, or analysis set forth herein, changes or subsequently becomes inaccurate. This report is provided for informational purposes only. It is not to be construed as an offer to buy or sell or a solicitation of an offer to buy or sell any financial instruments or to participate in any particular trading strategy in any jurisdiction.