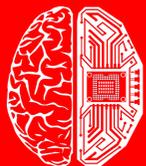
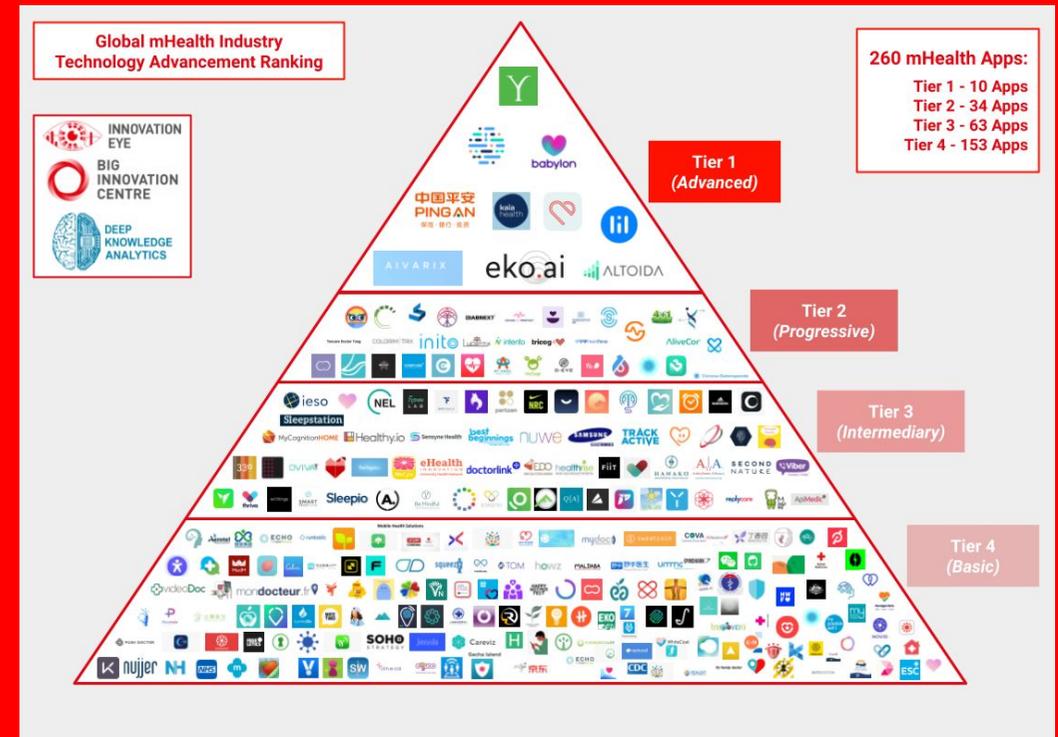
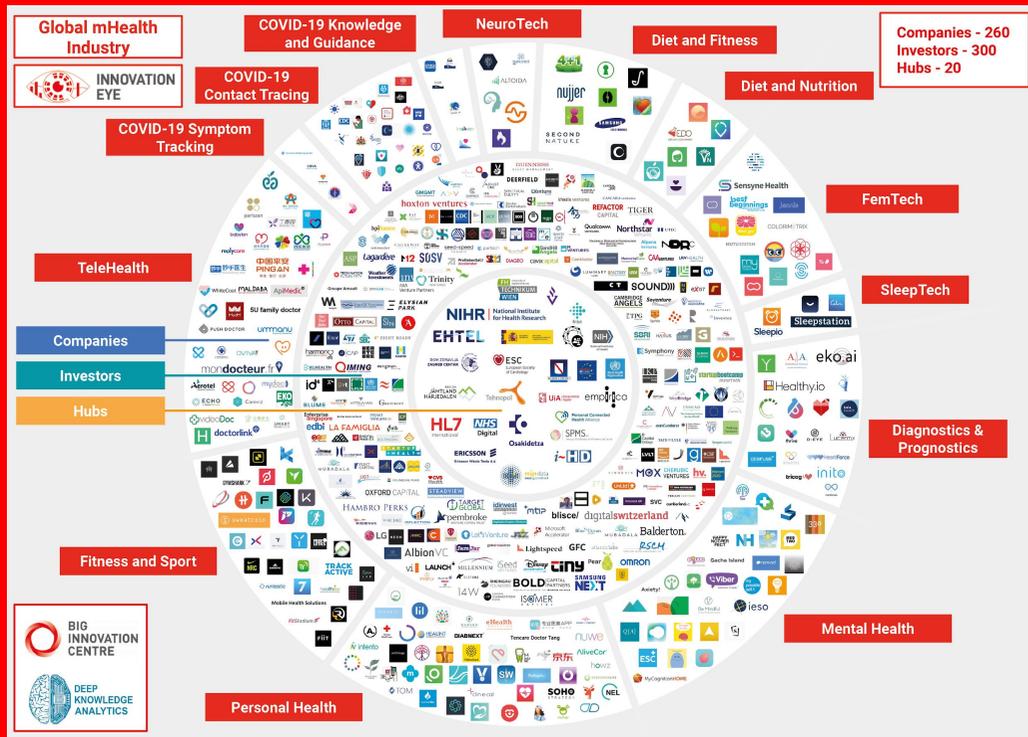


Global mHealth Industry Landscape Overview 2020



**INNOVATION
EYE**



**DEEP
KNOWLEDGE
ANALYTICS**

www.innovationeye.com
www.biginnovationcentre.com
www.dka.global



**BIG
INNOVATION
CENTRE**

Introduction

Introduction	2
Methodology	3
Global mHealth Industry: Industry Distribution Mindmap	4
Global mHealth Industry: Geographic Distribution Mindmap	5
4-Tier Technology Advancement Ranking System	6
Global mHealth Industry Technology Advancement Ranking	8
Comparative Analysis of 260 mHealth Companies	9
Main Technological Trends in mHealth in 2020	10
Regional mHealth Trends	11
Main trends in Asia	12
Main trends in the EU	13
Main trends in the USA	14
Main trends in the UK	15
How COVID-19 is Reshaping the Possibilities of mHealth	16
COVID-19 mHealth Applications	20
Main Findings	29
Major Conclusions	30
Disclaimer	32

“Global mHealth Industry Landscape Overview 2020” is produced by [Deep Knowledge Analytics](#) and [Big Innovation Centre](#), and powered by [Innovation Eye](#). It presents a birds-eye overview of the fast growing Global mobile Health (mHealth) ecosystem underpinning the apps on our mobiles phones and wearable technology.

The unprecedented case study profiles and categorizes **260 mHealth apps companies, 330 investors and 25 hubs**, and classifies them according to **13 industry subsectors and practical applications** (Personal Health, Mental Health, TeleHealth, NeuroTech, SleepTech, FemTech, Diet and Nutrition, Diet and Fitness, Fitness and Sport, Diagnostics & Prognostics, COVID-19 Contact Tracing, COVID-19 Symptom Tracking and COVID-19 Knowledge & Guidance) and **12 regions** (United Kingdom, USA, Singapore, China, Israel, Switzerland, Germany, France, Italy, Austria, India and others).

The report also features an **online interactive IT-Platform**, consisting of a dynamic [mHealth Sectors MindMap](#) and a corresponding [mHealth Regions MindMap](#), which allows the monitoring of relationships between different actors in the emerging mHealth, e.g. who is investing in which mHealth-apps (or firms), and which apps are growing with which technologies. Additionally, the analysis includes a preliminary ranking of its apps’ levels of sophistication, segregating all 260 companies and their apps into **4 distinct tiers of technological advancement**: Advanced, Progressive, Intermediary and Basic. Finally, **individual profiles** on all entities are all reported in the report, with opportunities for deeper dives online.

The report also features a dedicated profile section of **COVID-19 mHealth apps** (with data on number of installs sourced directly from Google Play and App Store profiles). This accompanied by a discussion of the **main trends in mHealth in 2020**, and the current **reshaping of the possibilities** of mHealth from wellbeing to prevention, care and treatment support.

Methodology

The present special analytical case study is intended to provide insight into the most capable, functional, popular and sophisticated mobile health (mHealth) apps available today.

We present the mHealth industry using infographic mind-maps, state-of-the-art data visualization and interactive data analytics.

This first edition was produced in order to gain a better understanding of the general size and diversity of the mHealth sector, and future iterations of the report and associated IT-Platform on [Innovation Eye](#) will include a more diverse array of sectors and practical applications, a larger scope of geographic regions, and a deeper and more comprehensive set of factors and parameters used to formulate the technology advancement ranking component of the special analytical case study.

mHealth apps, companies and developers were selected for inclusion in the special case study in accordance with factors that impact their overall **applicability** and **potential user-base**, **scope of applications** and **functionalities**, and **technological sophistication**.

The report has made a specific effort to feature a sufficiently wide level of **geographic diversity** in the constituent apps and companies comprising its list, selecting a **critical sample** of the most useful apps within each region.

The data represented in the company profiles featured in this report's accompanying Global mHealth Interactive IT-Platform, were aggregated from a wide variety of reputable and public sources of data, including general and industry-specific databases, media and news reports, Apple and Google Play stores, and company websites.

mHealth Sector Classification



mHealth Regional Classification



Global mHealth Industry



COVID-19 Knowledge and Guidance

NeuroTech

Diet and Fitness

Companies - 260
Investors - 330
Hubs - 25

COVID-19 Contact Tracing

Diet and Nutrition

COVID-19 Symptom Tracking

TeleHealth

FemTech

Companies

SleepTech

Investors

Diagnostics & Prognostics

Hubs

Fitness and Sport

Mental Health

Personal Health



Global mHealth Industry



Germany

US

Companies - 260
Investors - 330
Hubs - 25

France

Italy

India

Austria

Israel

Singapore

Switzerland

Others

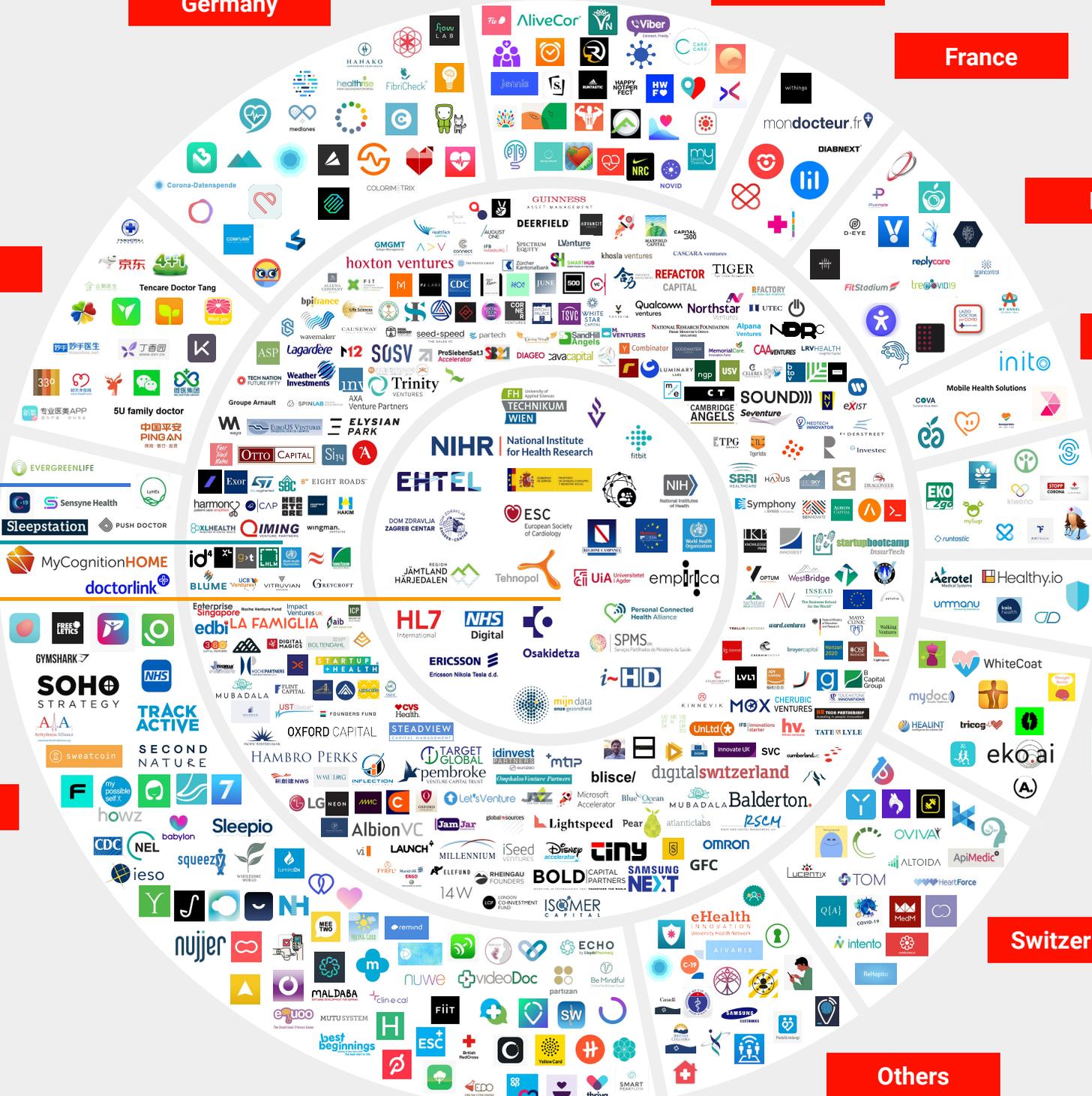
China

Companies

Investors

Hubs

UK



4-Tier Technology Advancement Ranking System

The present analysis employs a 4-tier ranking of apps according to their levels of technological advancement. The focus is on AI adoption, scope and user-base) precision health-services via personalization, and the degree of expert knowledge embedded in the app .

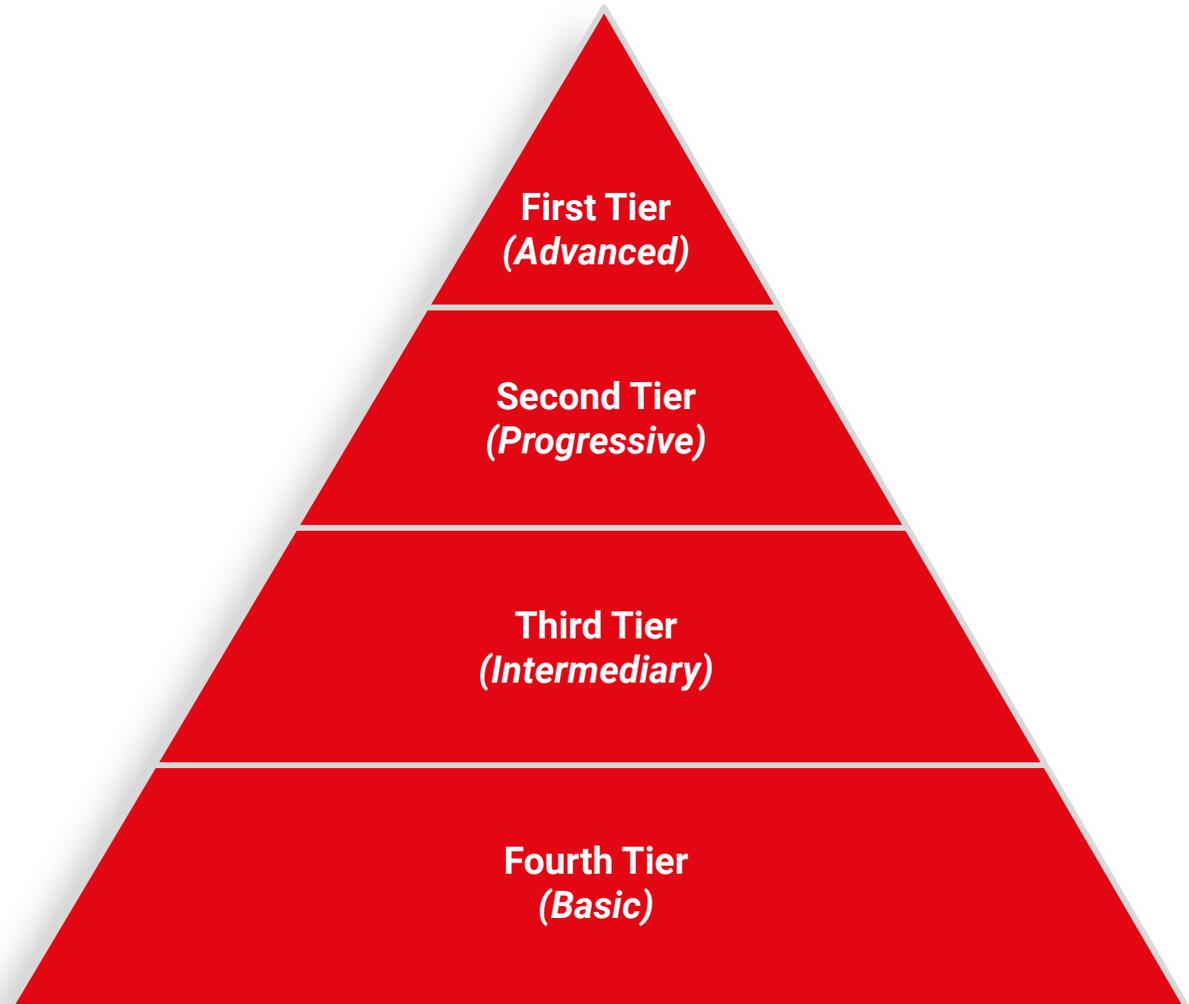
Tier 1 apps (i) utilize advanced forms of Artificial Intelligence (such as Deep Learning and Machine Learning), (ii) have a wide scope of use-cases, (e.g. monitors bio-signals then recommends breathing patterns in the form of an intuitive VR game) (iii) feature a high degree of user personalization and/or (iv) incorporate a high degree of specialist or expert knowledge.

Tier 2 apps incorporate (i) modern (but not cutting edge) forms of AI and/or connectivity to wearables and other external devices, (ii) a fairly broad focus and scope of use-cases, (iii) personalized data analysis, and (iv) some degree of expert knowledge. **e.g. a dynamic, general purpose website-based chatbot.**

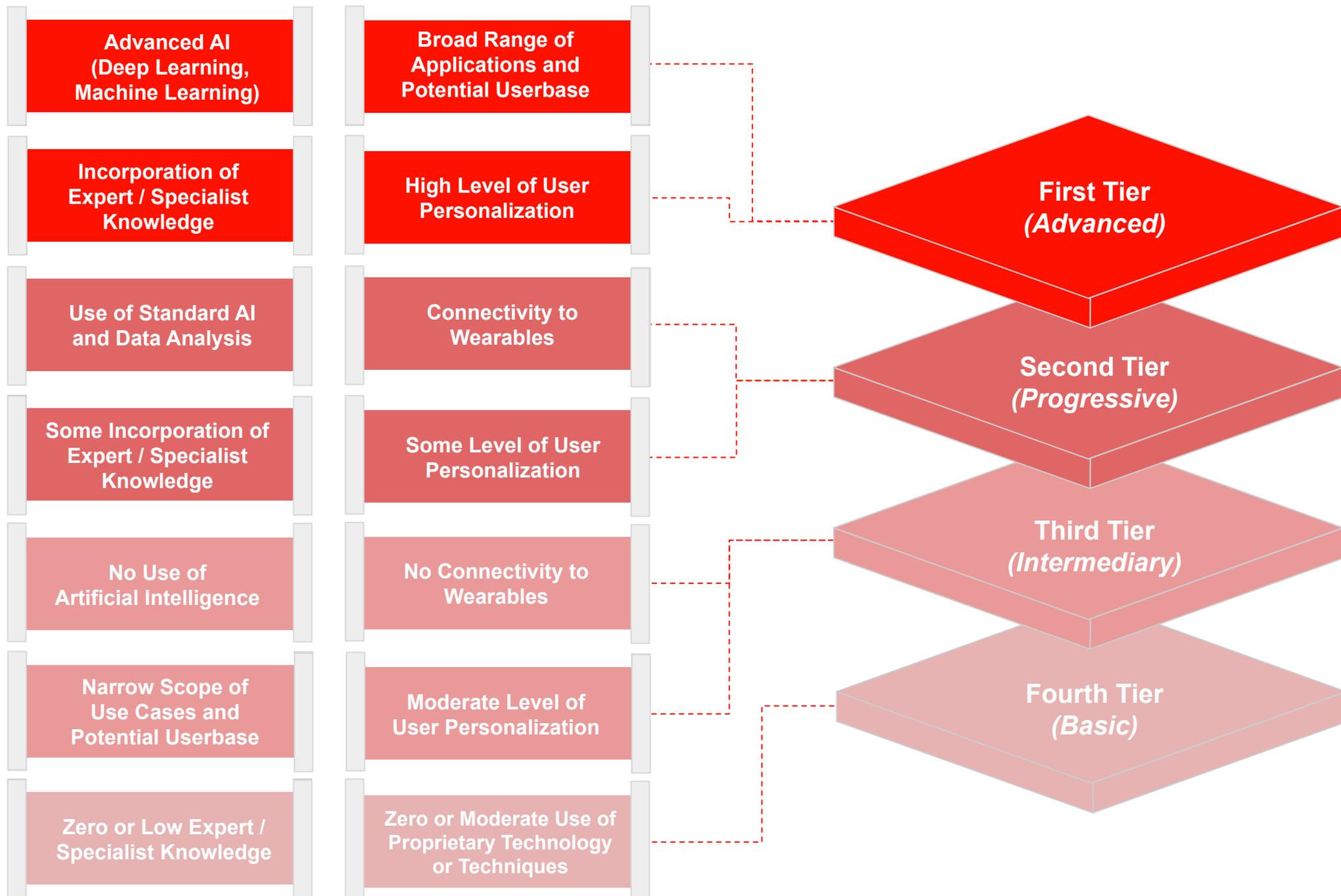
Tier 3 apps feature (i) very little or no incorporation of AI, (ii) moderate user personalization, (iii) low or no connectivity to wearables and (iv) typically have a more moderate range of applications. **E.g. a standard contact-tracing app.**

Tier 4 apps have (i) the most narrow scope of use-cases, (ii) do not utilize a substantial degree of proprietary technology or techniques, (iii) have low to zero use of specialist or expert knowledge, and (iv) no incorporation of AI. **E.g. a simple exposure notification system or self-check app.**

This general framework will be expanded in future editions of this report to encompass a broader scope of factors and features taken into account when formulating app technology advancement rankings.



4-Tier Technology Advancement Ranking System



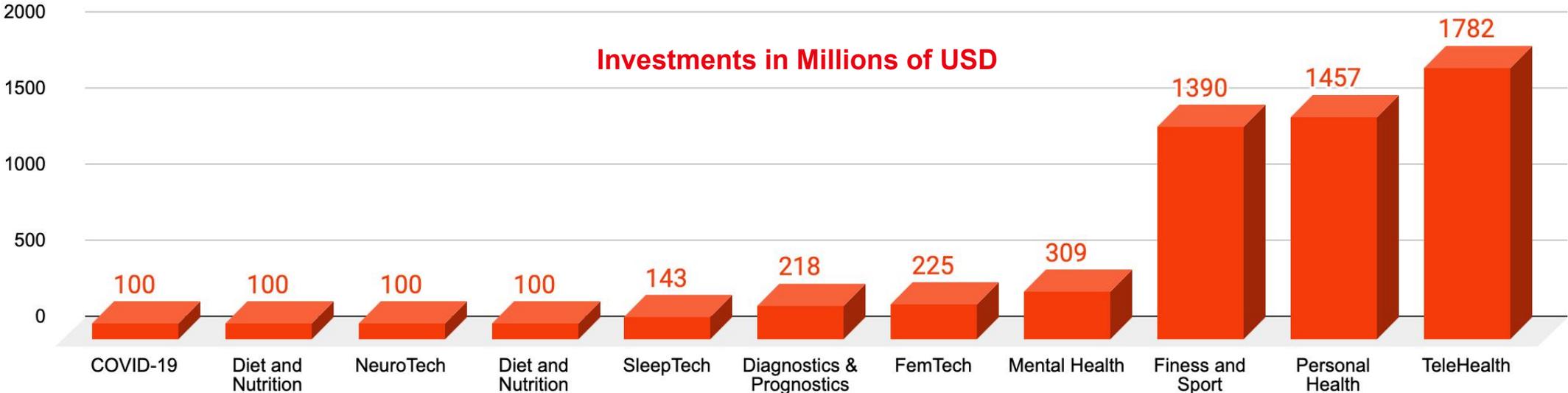
Comparative Analysis of 260 mHealth Companies

Overall, the size of the mHealth sector, the range and diversity of its constituent sectors and practical applications, and the level of technological sophistication offered by its apps have seen tremendous growth in recent years, driven in tandem by increasing mobile phone penetration (the proportion of the global population with access to mobile phones generally and smartphones in particular) and internet availability.

Furthermore, these positive growth factors also appear to be working synergistically with a number of negative growth factors that increase the need for novel approaches to healthcare delivery and personal health optimization, including rising healthcare costs, decreasing healthcare affordability and economic disparities centered around access to healthcare resources and services, as well as ongoing rise in the prevalence of Non-Communicable Diseases (NCDs) and ageing population in developed nations.

These factors, in combination with the overall rise in mHealth app technological sophistication, are converging in order to establish a self-perpetuating mechanism driving overall industry growth and diversification.

And, while traditional and long-standing mHealth sectors such as TeleHealth, Personal Health and Fitness and Sport still appear to occupy dominant proportions of the overall market, we are also seeing significant growth in several emergent sectors, like apps focused on Mental Health, FemTech and those aiming to improve access to services, social connectivity and quality of life for the elderly growing quite rapidly. In classifying them, we can regard them as subsector spin-outs of the overall Personal Health and TeleHealth segments of the industry. The issues they aim to ameliorate and optimize continue to gain increasing levels of public awareness, and rising degrees of public and private sector prioritization and support.



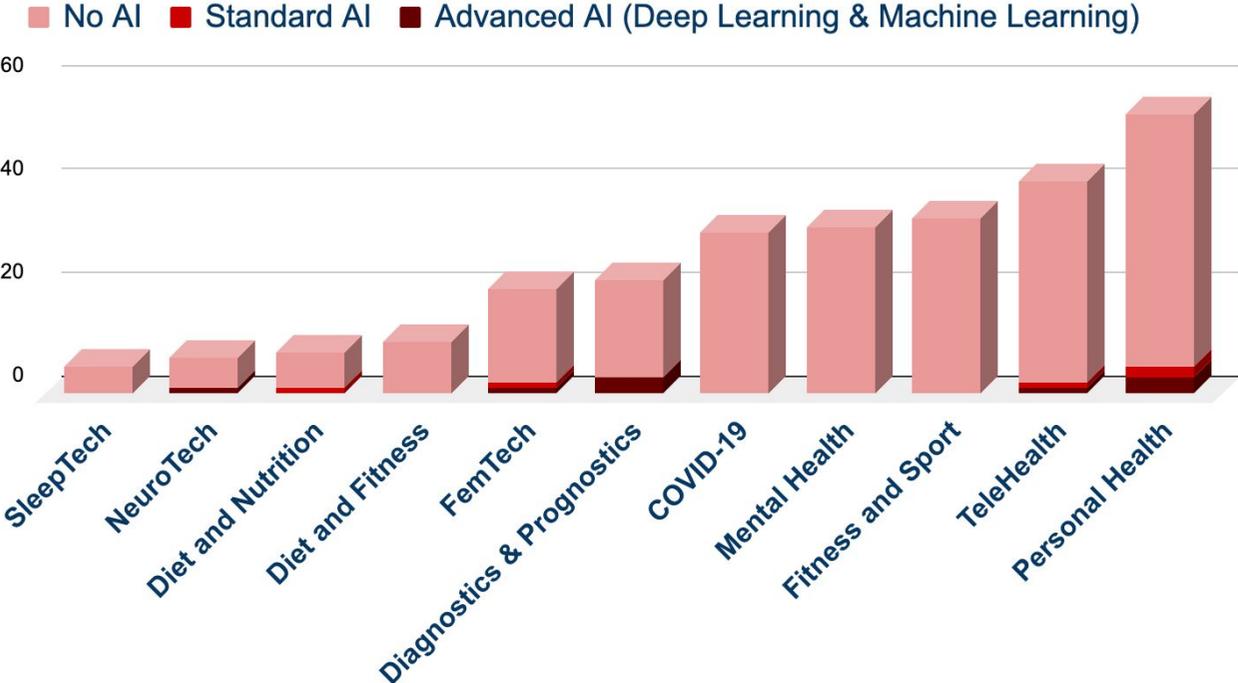
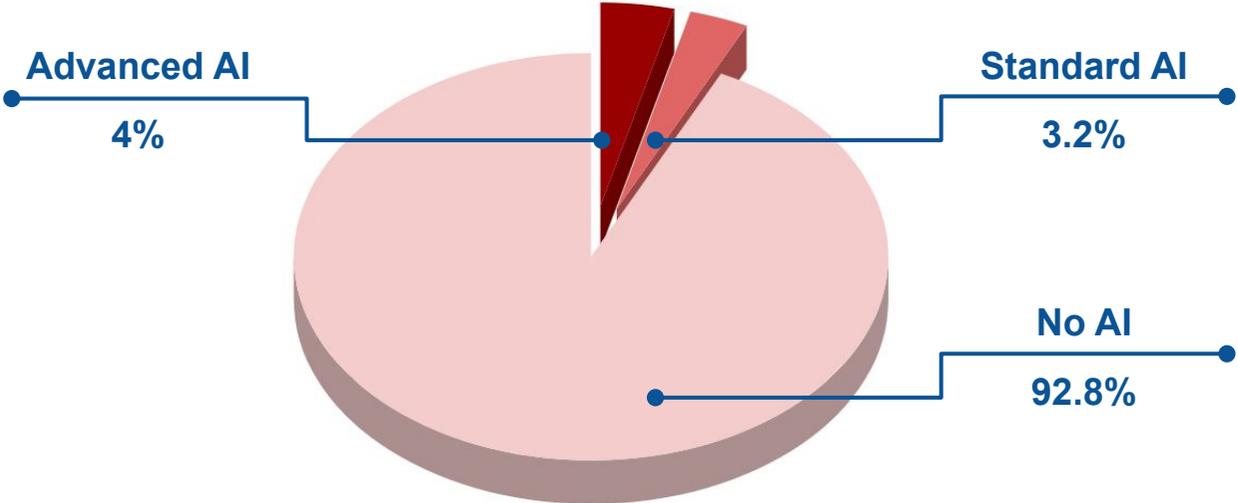
Main Technological Trends in mHealth in 2020

The role of AI in mHealth is growing rapidly, with a still small but steadily increasing proportion of mHealth apps incorporating modern AI technologies and techniques, data science and personalized analysis of user data in order to deliver tailored recommendations, due to the increasing sophistication and functionality of AI generally, as well as its decreasing cost and growing availability to SMEs.

In turn, this appears to be driving an overall increase in the level of user personalization, and the precision of user-specific data monitoring, analysis and tailored recommendations offered by mHealth apps. As the capacity to collect and analyze larger volumes of user data rises, the breadth and depth of insights that can be extracted from AI-driven analysis of such data also increases.

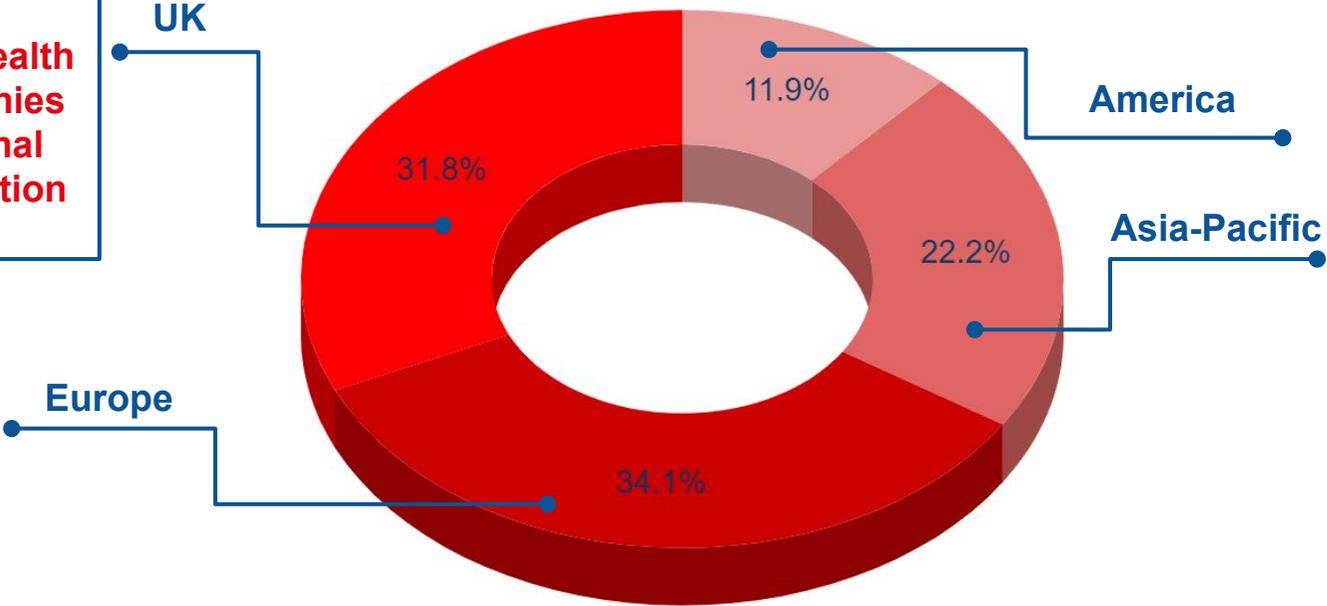
Meanwhile, the number of apps that feature advanced and cutting-edge forms of AI, such as Machine Learning and Deep Learning, is also growing. We see this general trend particularly present in regions where governments have prioritized the development of modern, progressive and cutting-edge AI technologies as a major component of their national agendas and industrial development strategies, such as Asia-Pacific and the UK.

Proportion of mHealth Apps Incorporating Advanced and Standard AI

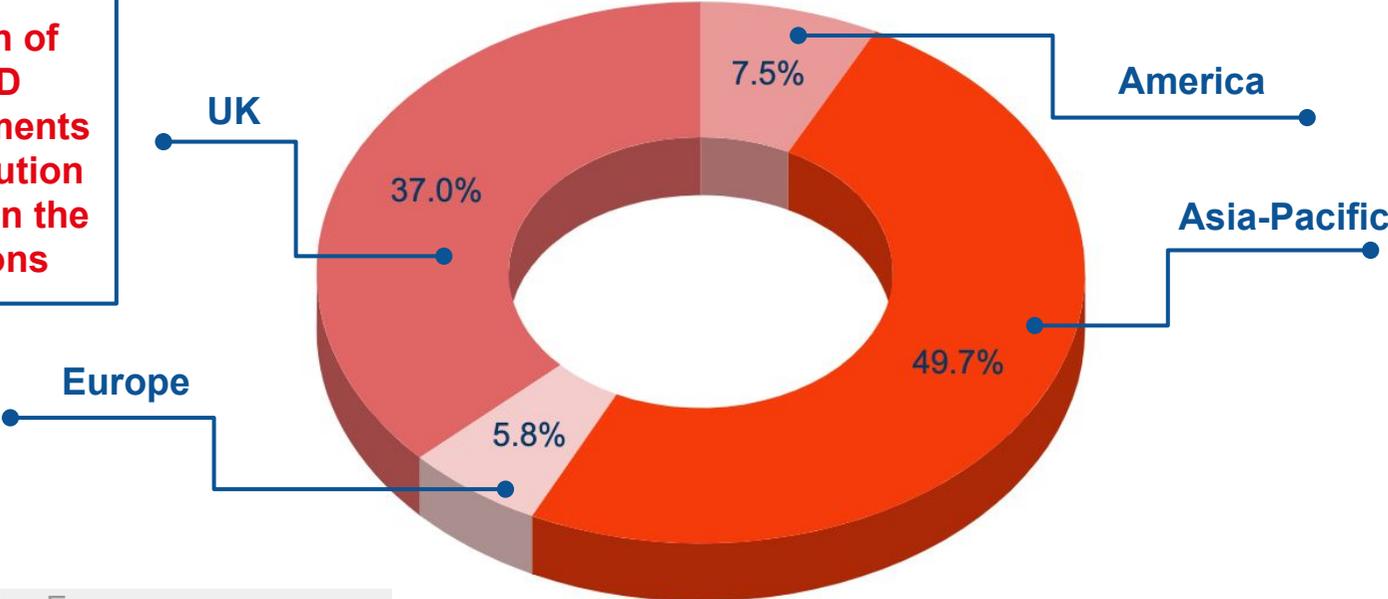


Regional Distribution of mHealth Apps by Quantity and Investment Volume

260 mHealth Companies Regional distribution



5.9bln of USD Investments distribution between the regions



An analysis of the regional distribution of the apps selected for inclusion in the present special case study, and of the volume of investment in the companies behind their development, reveal some interesting trends.

The majority of apps that met the inclusion criteria of the present analysis are made by companies based in the EU and UK, with slightly less from Asia-Pacific, and with North America comprising the region with the least number of included companies. See Methodology (page 3)

Meanwhile, the region with the highest level of investment is Asia-Pacific and the UK, both of which are home to governments that seem to be proactively prioritizing the use of mHealth to decrease the economic burden of health issues upon their national economies, which may be a contributing factor to this interesting observation.

Main Trends in Asia

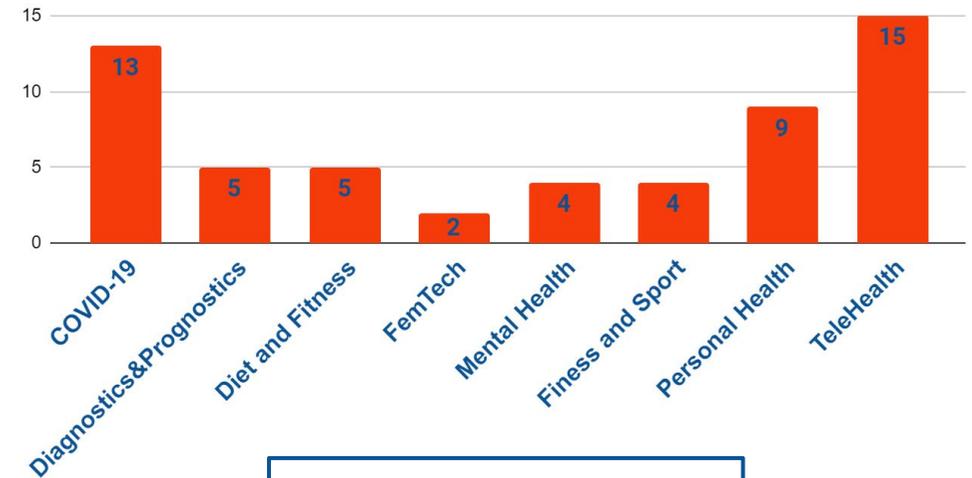
The mHealth industry in Asia is one of the most rapidly growing segments, in line with **high rates of mobile phone and internet penetration** within the geographically broad region, with recent projections indicating that the **mHealth industry will grow** at a CAGR (compound annual growth rate) of **8.7% between now and 2025**.

Like many other regions generally, and Europe in particular, the rapidly growing proportion of individuals aged 60+ seen in Asia is driving the growth of a large number of **mHealth solutions specifically targeted at the elderly**, and given the economic pressure that an ageing population is projected to put upon many countries and territories' national healthcare systems, we can expect this to remain a significant market growth factor in the years to come.

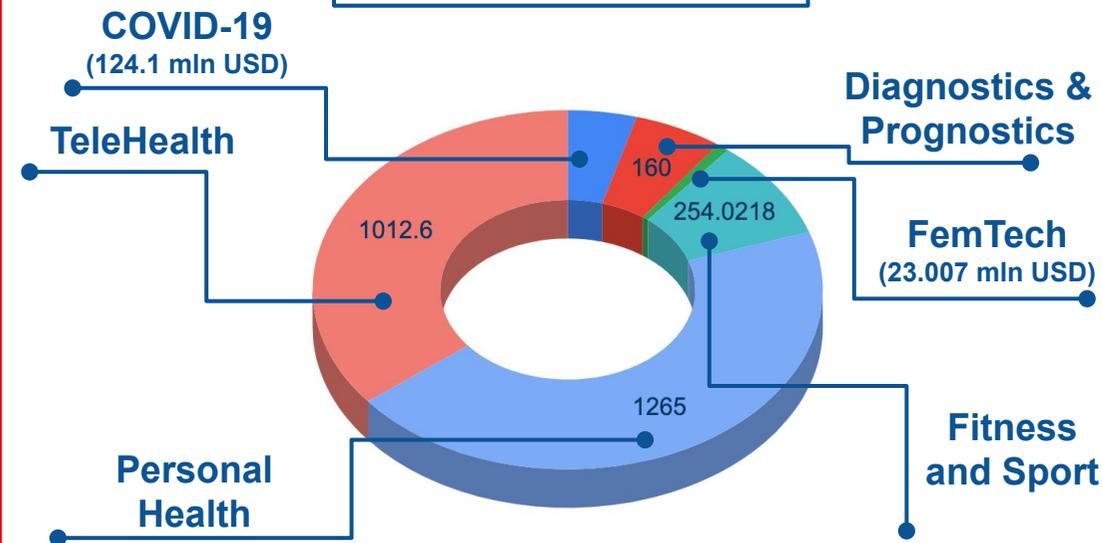
We also see very active participation in the mHealth Industry by some of **Asia's largest Tech corporations**, such as Tencent, which either owns or has made major investments in a significant proportion of the Asia-based mHealth apps included in the present special case study.

- Those including **Ping An Good Doctor, Tencent Trusted Doctor, and WeChat** (which has released a **mandatory COVID-19** contact tracing app, the WeChat Intelligent Healthcare platform, that allows users to book appointments and make payments at hospitals and other medical facilities through WeChat public accounts, and **WeSure**, a medical insurance underwritten by Tencent and insurer **Taikang**).
- Given Tencent's substantial AI resources and IP, it is also not surprising to see several Tencent-associated apps that use either advanced or standard forms of AI.

Number of Companies and Apps per Industry Sector



Investments (in mln USD)



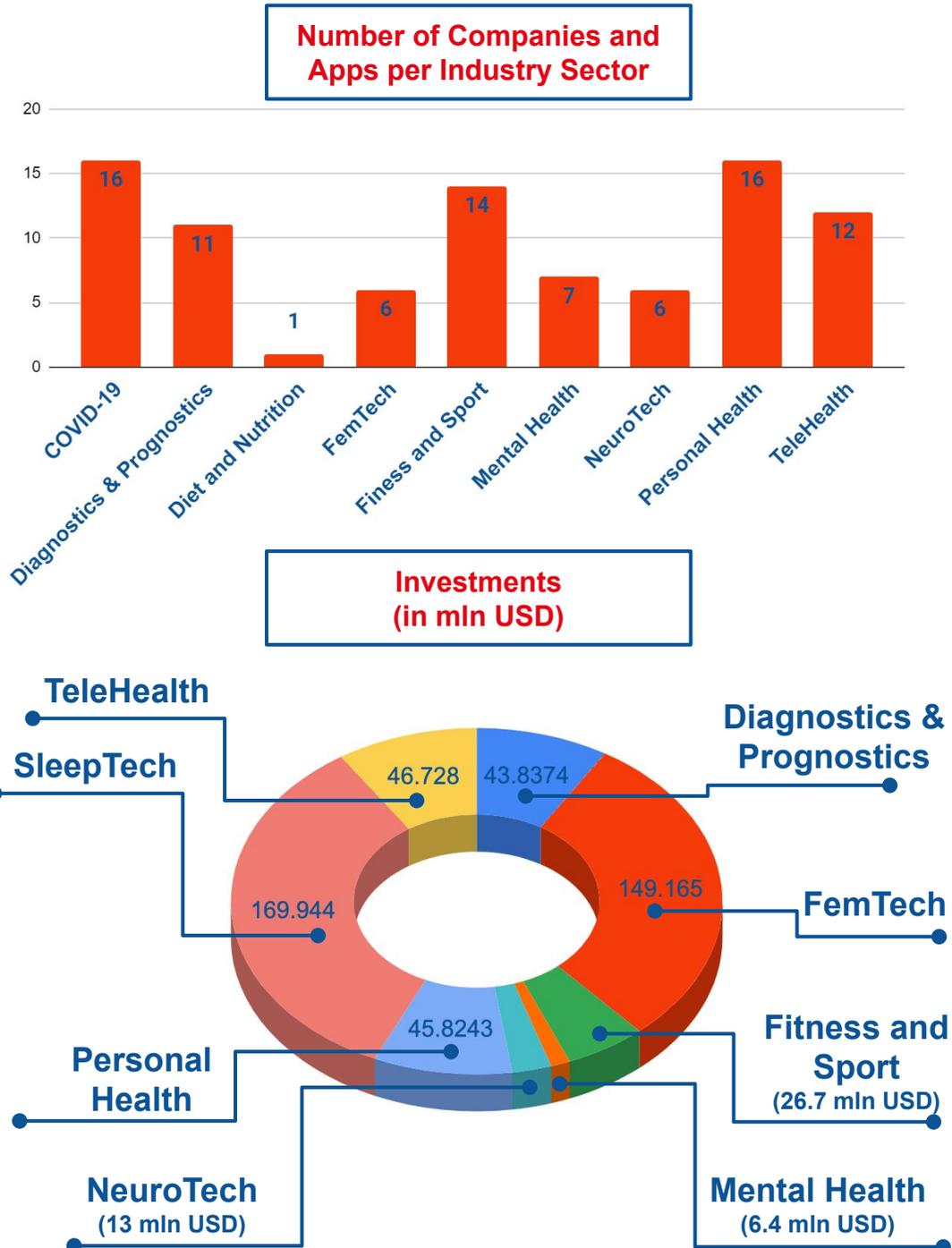
Main trends in EU

From a policy standpoint, many EU governments appear to be **prioritizing the development of their public mHealth resources**, as well as proactively supporting the growth of their private mHealth industries, which is serving to drive regional industry growth.

Between them these private industries have been prolific in producing a wide selection of mainly tier 4 level mHealth apps, such as the Italian government's **Immuni** (at 1 million plus downloads), 10 times more widely adopted than its closest European competitors, such as the German wearable symptom detector from the **Robert Koch Institute**, and hungary's distance-detecting **VirusRadar**.

One major milestone is the establishment of the mHealth European Hub, a collaboration between the **World Health Organization, Andalusia Regional Ministry of Health** (Spain) and the **International Telecommunication Union** (Switzerland) to support countries in integrating the use of mHealth in national healthcare services.

- Initiated in 2017, the mHealth european Hub project builds on lessons learnt from the "Be He@lthy, Be Mobile" initiative and is funded through the **European Union's Horizon 2020**, under the action "**Establishing EU mHealth Hub including evidence for the integration of mHealth in the healthcare systems**"
- The Hub's formal objectives include establishing the infrastructure necessary for collecting and disseminating **research and experience** relating to the **large-scale implementation of mHealth** programs, and building the capacity for the Hub to be able to support Member States and implementing partners in setting up large-scale mHealth programs nationally and locally.

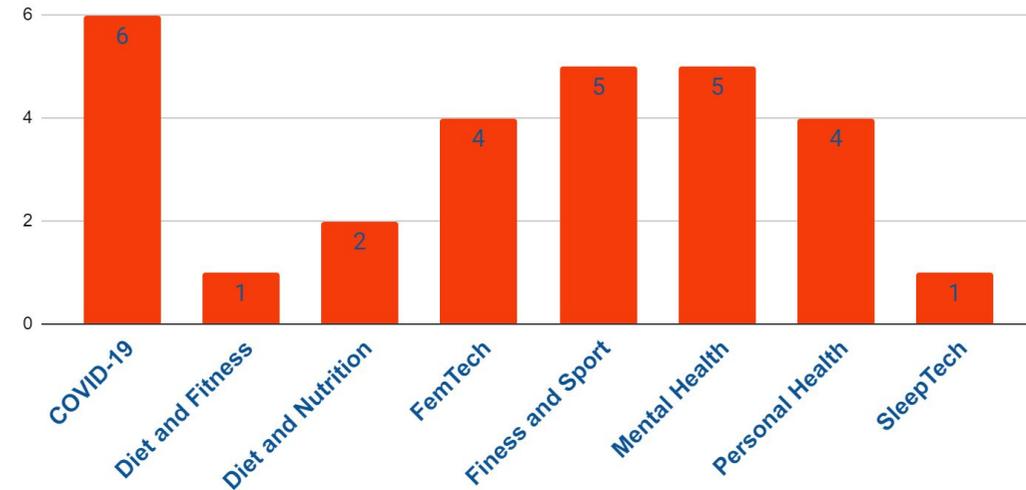


Main Trends in the USA

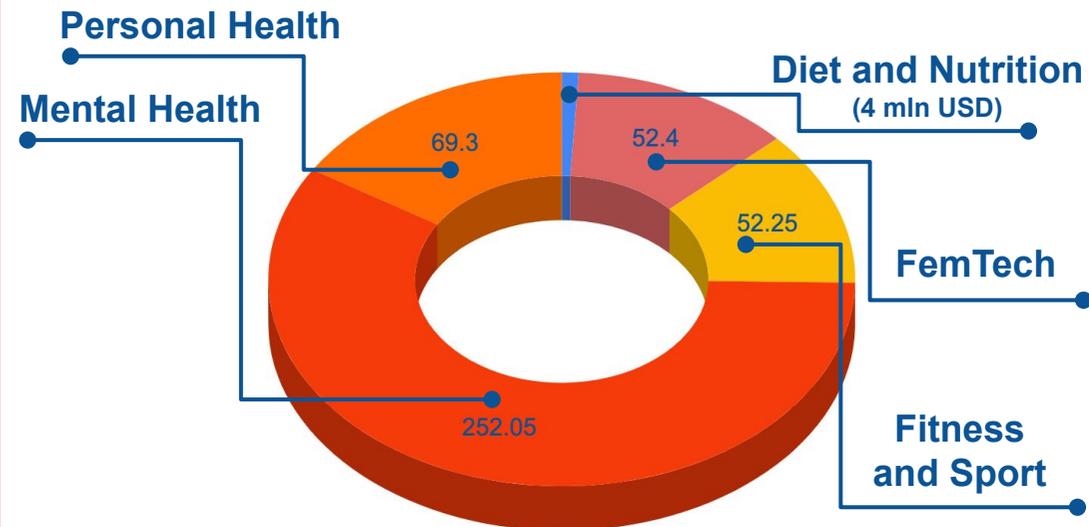
The United States occupies a very large proportion of the global mHealth market in terms of numbers of apps and users and volume of investments. It also takes an especially decentralized approach to hygiene precaution, including mHealth. Whereas some corporate solutions are emerging, e.g. in the form of Google and Apple's joint enterprise **Exposure Notification System**, individual state governments have also seized the initiative, collaborating horizontally e.g. Wyoming, North and South Dakota's joint project: **Care 19** contact tracing app. However, we see a **higher proportion of apps having a low technological sophistication and low range of possible applications**. Many are focused on generic categories like **Fitness and Sport and Diet and Nutrition**). This is despite visible growth in other more recent and emergent mHealth sectors such as COVID-19, FemTech and Mental Health.

- The United States has generally **lower levels of explicit support on the growth of its mHealth ecosystem**, and the use of mHealth apps as a specific tool to reduce the burden of ageing population and non-communicable diseases (NCDs), by the federal government than other countries, like the UK, which seem to be viewing the industry as a highly actionable strategy for reducing major healthcare and economic burdens related to specific medical and 'quality of life' issues in its general population.
- We see a generally **lower degree of advanced mHealth apps from the USA. They use lower standards of AI adoption and lower scope in terms of use-cases** than those in the UK and Asia.
- This is despite the USA being home to some of the largest AI-driven tech corporations in the world, and its very high degree of AI industrialization. Then again the USA appears to be falling behind regions like Asia Pacific in terms of the extent with which mHealth apps are actually incorporating AI in practice.

Number of Companies and Apps per Industry Sector



Investments (in mln USD)



Main Trends in the UK

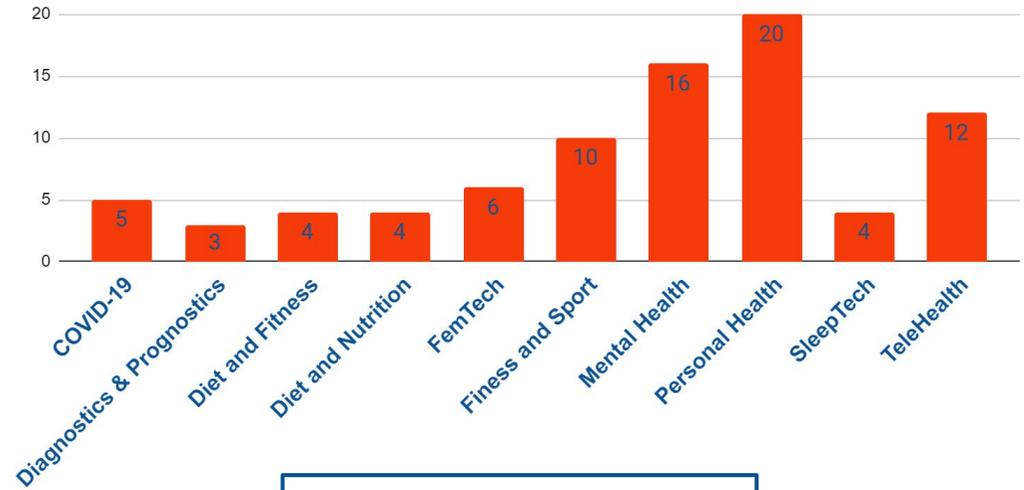
The UK National Health Service has in recent years taken an active stance on supporting increased access to health resources for its citizens. In 2017, after four years of debate on how to effectively analyze new mHealth apps, the NHS (and NHS Digital in particular) launched its [library of mHealth Apps](#) in 2017, and a [guide for mHealth apps](#), allowing **NHS-approved reviewers to assess potential mobile health apps available to UK citizens, and develop, commission or approve them** for inclusion on the platform if they comply with **government safety and effectiveness standards**. The most downloaded of these approved may be the **COVID symptom tracker**, at approx. 1 million downloads. The NHS offers its own flagship app, the **NHS App**, which serves as a general informational portal and download center. **Babylon Health** provides personalized health assessments, treatment advice, and face-to-face appointments, and **Zoe** (co-founded by Tim Spector of King's College London) offers personalized dietary programs for better gut health, increased energy, a reduction in hunger between meals, weight loss. Given the UK government's high-level prioritization of AI public and private sector resource development, and its acknowledgement of AI as an Industrial Strategy Grand Challenge, we can expect in the coming years:

- an increase in the technological sophistication of mHealth apps
- an increase in the number of mHealth apps which incorporate advanced AI techniques and technologies

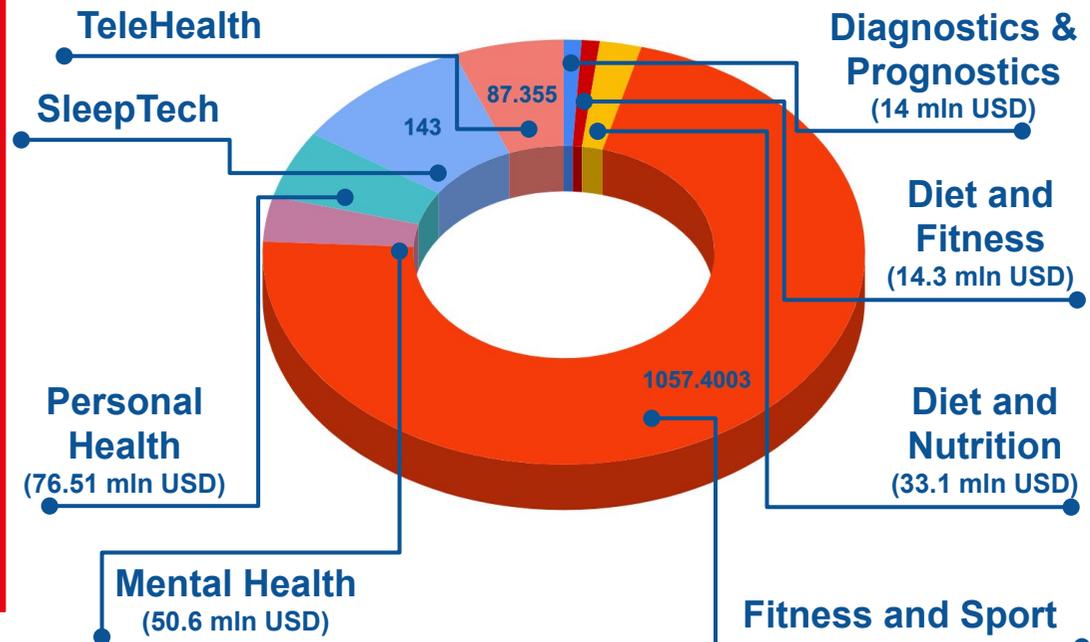
We also see **rapid growth in the subsectors of TeleHealth and Personal Health** focused on providing **remote care and monitoring for the elderly**. This is sensible given the degree with which the UK government has prioritized the issue of ageing population, marking it out as one of their four Industrial Strategy Grand Challenges.

- We expect the overall proportion of UK mHealth apps focused on the elderly to increase in the coming years as well.

Number of Companies and Apps per Industry Sector



Investments (in mln USD)



How COVID-19 is Reshaping the Possibilities of mHealth

As nations and citizens all over the world continue to grapple with the issues presented by the global COVID-19 pandemic, we see a number of important trends in mHealth emerging as a result, including the fact that societies and individuals are becoming increasingly digital at an accelerated rate, by necessity. This change can be felt across many aspects of life including:

- How we manage our health (prevention, care and cure)
- How we 'go to' work
- How children do homework
- How we shop
- How we communicate with our loved ones

But Artificial Intelligence, a major driver of growth in mHealth sophistication and functionality, has not been as influential as we first thought it would be, not due to raw technological capacity, but because the adoption has not been fit for purpose. This fact was demonstrated during COVID-19 where we experienced problems in our systems for:

- Innovation (from R&D to use)
- Socio-economy and way of life (from practices in handling food to how we live, play and socialise digitally)
- Procurement supply-chains (getting the medical supply at the right places fast enough)
- Data governance (how data are obtained, shared and used).

They are all areas related to a fit for purpose adoption of AI. But AI, and its combination with other technologies as Blockchain, represents not only an urgently needed tool for fighting the COVID-19 pandemic, but also for unleashing trade, investment, and securing the economy.

Two Evidence Meetings held in 2020 by the UK All-Party Parliamentary Groups for AI (APPG AI) and Blockchain (APPG Blockchain) revealed several key areas where Blockchain and AI (respectively) can make an impact on the current COVID-19 pandemic, including:

- **Understanding** the virus & **accelerating** medical research on drugs and treatments
- **Detecting & diagnosing** the virus & **predicting** its evolution
- **Assisting in preventing** or **slowing the virus' spread** through surveillance & contact tracing
- Responding to the health crisis through **personalised information and learning**
- **Monitoring** recovery & **improving** early warning tools.

As AI is only as good as the data, any advancement of above would need new solutions in the data sphere:

- The **creation of a cross-border infrastructure** that enables international and interdisciplinary collaboration on data information and epidemiological research.
- The need for rules, behavioural norms and regulations to **ensure the fair and responsible use of behavioural data**, and the **trust of the public** that we will use their data fairly and anonymously is paramount.
- An **Independent Oversight Body**, responsible for the fair and ethical application of any data-driven public health measures. Represented by multiple disciplines and vulnerable groups, it would oversee the quality and governance of data and ensure that data-driven measures in the event of another pandemic would serve the public good.

How COVID-19 is Reshaping the Possibilities of mHealth

Evidence Report
APPG BLOCKCHAIN
UK Parliament

HOW CAN BLOCKCHAIN HELP IN THE TIME OF COVID-19?
NATIONAL SECURITY

Blockchain applications - regulation, policy & strategy

APPG
ALL-PARTY PARLIAMENTS GROUP ON BLOCKCHAIN

BLOCKCHAIN

BIG INNOVATION CENTRE

EVIDENCE MEETING
BLOCKCHAIN APPLICATIONS
REGULATION, POLICY AND STRATEGY
NATIONAL SECURITY AND DEFENCE:
HOW CAN BLOCKCHAIN HELP IN THE TIME OF COVID-19?
8 APRIL 5:30 - 6:45 PM LONDON-TIME (ONLINE)

EVIDENCE GIVERS FROM LEFT TO RIGHT:

- **Taru Rivas**, Estonian MP & Former Prime Minister, Estonian Parliament
- **Angel Martín**, Spanish representative in the Policy and Technical Groups, European Blockchain Partnership, Ministry of Economic Affairs & Digital Transformation
- **Andrew Tabin**, Managing Director EMEA, Evernym Inc
- **Don Tapscott**, Chairman and co-Founder, Blockchain Research Institute
- **Geoffrey Goodell**, Senior Research Associate, UCL Centre of Excellence on Blockchain Technologies
- **Marta Plekaraka-Geater**, Director of Ecosystem, Hyperledger
- **Jonathan Levi**, Founder, HACERA & Unbound Network (Mipasa)

APPG
ALL-PARTY PARLIAMENTS GROUP ON ARTIFICIAL INTELLIGENCE

APPG

BIG INNOVATION CENTRE

Public Health
How Can AI Help in the Fight Against COVID-19?
MONDAY 6TH APRIL 2020 5:30 PM GMT ONLINE

APPG
All Party Parliamentary Group on Artificial Intelligence

EVIDENCE MEETING
PUBLIC HEALTH: HOW CAN AI HELP IN THE FIGHT AGAINST COVID-19?
MONDAY 6TH APRIL 2020 5:30 PM GMT ONLINE

EVIDENCE GIVERS FROM LEFT TO RIGHT:

- **Prof Tim Spector**, Professor of Genetic Epidemiology, King's College London
- **Chris Harbron**, Expert Statistician, (MCO) Biostatistics function, Roche
- **Prof Shannon Vallor**, Baillie Gifford Chair, Futures Institute, University of Edinburgh
- **Dr Richard Dybowski**, AI Researcher, St John's College, University of Cambridge
- **James Kingston**, Deputy Director, HarLab
- **Adam Riccoboni**, CEO, Critical Future

VIDEO and Report:
APPG on Blockchain Evidence Meeting:
How Can Blockchain Help in the Time of COVID-19?
NATIONAL SECURITY

VIDEO and Report
APPG on AI Evidence Meeting:
How Can AI Help in the Fight against COVID-19?
PUBLIC HEALTH

How COVID-19 is Reshaping the Possibilities of mHealth

If, however, the aforementioned solutions were to be implemented, this would generate a new set of ethical pitfalls and concerns:

- **Sharing of health data.** e.g. In 2017 an agreement between the London-based machine learning firm, the Farr Institute of Health Informatics Research and the Royal Free London NHS Foundation Trust, was ruled unlawful by the Information Commissioner's Office. Protected health information typically include: birth dates, death dates, treatment dates, admission dates, and discharge dates, telephone numbers, fax numbers, addresses, social Security numbers, medical record numbers, photographs and any comparable images, and biometric identifiers, including finger, retinal, and voiceprints.
- **Health data security.** E.g. NHS Digital has had to provide accredited training to IT and security professionals across health and care to build local capability in security best-practices. Healthcare data security is a strictly regulated area in the US and Europe and there are strict requirements regarding who (a person or entity) is covered, what information is protected, and what must be done to ensure appropriate protection of healthcare patient information.
- **Data accountability and accreditation oversight.** Which individuals or organizations are accountable and answerable for the act of making data open? Accountability can help build trust with individuals and may help mitigate enforcement action.

Why now?

Various historical and technological developments have conspired to make the current year a moment of unique opportunity for the mHealth revolution to take root.

These include:

Constraints felt by the healthcare systems of developing nations which stimulate mHealth uptake:

- High population growth.
- A high burden of disease prevalence.
- Small healthcare workforces.
- Large numbers of rural inhabitants.
- Limited financial resources to support healthcare infrastructure and health information systems.

Constraints felt by the healthcare systems in many developed economies, which impacted the government's attitude towards mHealth:

- Fast growth in incident of population with COVID-19.
- A high burden of COVID-19 disease prevalence.
- Limited hospital capacity and healthcare workforces to tackle the pandemic.
- Large cities with high people concentration (easy to spread the COVID-19).
- Inadequate healthcare infrastructure and governmental health information systems to deal with the spread of COVID-19.

How COVID-19 is Reshaping the Possibilities of mHealth

And the rapid rise in **mobile phone penetration** in both developing and developed countries, including:

- Mobile penetration to a large segment of the healthcare workforce and the population (all ages and income groups), including in rural areas.
- Increasing internet availability across the same segments of the population.

The final ingredient, and current stumbling block, is political will, and a dedicated government commitment to proactively supporting the development and dissemination of mHealth tools and solutions to the point of becoming issues of pressing national concern, and the inclusion of mHealth as a definitive component of government healthcare strategies.

A 2019 independent report on behalf of the Secretary of State for Health and Social Care February 2019 stated that the UK has the potential to become a world leader in healthcare technologies which will impact the roles and functions of healthcare staff over the next two decades. Developments in genomics, artificial intelligence, digital medicine and robotics are likely to change the roles and functions of clinical staff in all professions over the next two decades to ensure safer, more productive, more effective and more personal care for patients.

Only a lack of strategic coordination prevents the UK from taking its rightful place as world leader. For example, at the height of lockdown, a COVID-19 contact-tracing app was presented to the public as their greatest hope of freedom. Such an app, developed and approved for use by the UK government, would safely and securely track those with whom you came into close proximity, and automatically alert you if any of them became infected with COVID-19 so you could get tested, or self-isolate.

And yet, despite the UK's clear strengths as an international hub for the industrialization of AI and data science, and despite the very well-developed scope of the nation's mHealth industry, the app's launch in the UK was delayed by system crashes and false starts.

This highlights the need for a **more coordinated and harmonized strategic effort to utilize existing approaches, tools and solutions** in order to implement an effective solution to COVID-19 contact tracing in the UK. The mHealth Innovation Eye report demonstrated in this analysis the readiness of the mHealth app industry.

mHealth has the potential to be used as a major tool not only for combatting COVID-19, but also for improving access to healthcare while reducing economic pressures of non-communicable diseases (NCDs) and ageing, and should become a de facto component of progressive governments' national healthcare strategies.

The next decade presents an opportunity to address data governance and cyber security concerns, agree on ethical frameworks, and develop NHS staff/organisations to implement genomics and digital technologies in the workplace. The complexity of data governance requirements should not be a reason for inaction.

COVID-19 mHealth Applications

Application	Description	Sector	Number of Installs	Technology Advance Ranking	Website	Region
Exposure Notifications System 	Google and Apple jointly created the Exposure Notifications System out of a shared sense of responsibility to help governments and the global community fight this pandemic through contact tracing.	COVID-19 Contact Tracing	N/A	Tier 4	www.google.com	US
Aarogya Setu  <small>संभ्रमण एक सुरक्षित स्वस्थ भविष्य</small>	Aarogya Setu app developed by Indian Ministry of Electronics and IT to notify users if they have crossed paths with someone who has been diagnosed positive for COVID-19.	COVID-19 Symptom Tracking	100M+	Tier 4	www.mygov.in	India
WeChat 	WeChat is a Chinese multi-purpose messaging, social media and mobile payment app developed by Tencent, with over 1 billion active users. The app coordinated with the Chinese government in the release of a mandatory COVID-19 contact tracing component of its main app and ecosystem.	COVID-19 Contact Tracing	100M+	Tier 4	www.wechat.com	China
CDC COVID-19 Screening Tool  <small>CENTERS FOR DISEASE CONTROL AND PREVENTION</small>	The COVID-19 Screening Tool was developed by the Centers for Disease Control and Prevention (CDC) in partnership with The White House and FEMA to facilitate COVID-19 contact tracing within the USA.	COVID-19 Contact Tracing	1M+	Tier 4	www.cdc.gov	USA
Tawakkalna 	Tawakkalna (Covid-19 KSA) is an app approved by the Saudi Ministry of Health to prevent the spread of coronavirus, and was developed by the National Information Center. The app provides instant and live information about the number of coronavirus infections in the Kingdom, and helps in the early detection of possible infections once users show coronavirus symptoms.	COVID-19 Contact Tracing	1M+	Tier 3	www.play.google.com	Saudi Arabia

COVID-19 mHealth Applications

Application	Description	Sector	Number of Installs	Technology Advance Ranking	Website	Region
Immuni 	Immuni is the official exposure notification app of the Italian government, developed by the Extraordinary Commissioner for the COVID-19 Emergency, in collaboration with the Ministry of Health and the Ministry for Innovation Technology and Digitalization. Based on the user's history of exposure to potentially contagious users, it makes recommendations about what to do next.	COVID-19 Contact Tracing	1M+	Tier 4	www.salute.gov.it	Italy
Covid Symptom Tracker 	Covid Symptom Tracker was designed by doctors and scientists to slow down the spread of Covid-19 and identify at risk cases as soon as possible. The app instructs users to take a one-minute test to self-report their symptoms on a daily basis.	COVID-19 Contact Tracing	4M+	Tier 4	www.covid19.joinzoe.com	UK
Pedulilindungi  <small>Pedulilindungi</small>	The Pedulilindungi app enables users to compile data related to the spread of COVID-19 in their communities and help boost the Indonesian government's efforts to track confirmed and suspected cases of COVID-19.	COVID-19 Contact Tracing	1M+	Tier 3	www.pedulilindungi.id	Indonesia
COVIDSafe 	COVIDSafe securely records when user have been in close contact with other users of the app, allowing Australian State and Territory health officials to contact users if they have been in close contact with someone who has tested positive for the virus. Bluetooth signals are used to determine when users are near another COVIDSafe user.	COVID-19 Contact Tracing	1M+	Tier 4	www.covidsafe.gov.au	Australia
COVA  <small>Corona Virus Alert</small>	COVA Punjab (Corona Virus Alert) App has been developed by Government of Punjab to provide citizens with preventive care information and other government advisories.	COVID-19 Symptom Tracking	1M+	Tier 4	www.punjab.gov.in	India

COVID-19 mHealth Applications

Application	Description	Sector	Number of Installs	Technology Advance Ranking	Website	Region
MaMagen 	Launched by the Health Ministry of Israel, the HaMagen app uses contact tracing to contain the spread of COVID-19. The app allows users to know if in the past 15 days they were close to anyone who has been diagnosed with the virus.	COVID-19 Contact Tracing	1M+	Tier 4	www.govextra.gov.il	Israel
TraceTogether 	TraceTogether app developed by Government Technology Agency, supports Singapore's efforts to fight the spread of COVID-19 through community-driven contact tracing.	COVID-19 Contact Tracing	1M+	Tier 4	www.tracetgether.gov.sg	Singapore
NHS Apps 	The NHS App and NHS COVID-19 App let users remain up to date on information and guidance on the current COVID-19 pandemic, and facilitate contact tracing, alerting users if they have been in contact with COVID-19 positive UK-based individuals who have also downloaded the app.	Information and Guidance App	1M+	Tier 4	www.nhs.uk	UK
		Contact Tracing App	5M+	Tier 4	www.covid19.nhs.uk	UK
Aplikacja Kwarantanna 	Aplikacja Kwarantanna domowa is a COVID-19 contact tracing app developed and released by the Polish government.	COVID-19 Contact Tracing	100,000+	Tier 4	www.gov.pl	Poland
COVID-19 	COVID-19 is a free application developed by the Advanced International Joint Stock Company (AIC Group) and Electronic Health Administration - Ministry of Health, Vietnam, to facilitate COVID-19 symptom tracking.	COVID-19 Symptom Tracking	100,000+	Tier 4	www.ehealth.gov.vn	Vietnam

COVID-19 mHealth Applications

Application	Description	Sector	Number of Installs	Technology Advance Ranking	Website	Region
Self-Check App 	Self-Check app made by Ministry of Health and Welfare of Korea. When entering Korea, People with A visas (Diplomat (A-1), People should install the Self-Check Mobile App and record their daily health status on the app for 14 days after arrival in Korea.	COVID-19 Contact Tracing	100,000+	Tier 4	www.apple.com	South Korea
HowWeFeel 	HowWeFeel is a global community fighting COVID-19. How we Feel was developed by support of Pinterest. This app allows to make a Self-Report of symptoms daily and this data helps scientists and doctors track and fight the virus.	COVID-19 Contact Tracing	100,000+	Tier 4	www.howwefeel.org.ru	US
New Zealand COVID Tracer 	NZ COVID Tracer is the New Zealand Ministry of Health's official contact tracing mobile app.	COVID-19 Contact Tracing	100,000+	Tier 4	www.tracing.covid19.govt	New Zealand
Robert Koch Institute app 	Corona data donation app from the Robert Koch Institute connects to health-tracking wearables (e.g. a smartwatch or fitness bracelet) to detect flu-like symptoms, and to relay this information in combination with location data to German authorities.	COVID-19 Contact Tracing	100,000+	Tier 4	www.corona-datenspende	Germany
Stopp Corona 	The intent of the Stopp Corona-App is to help interrupt the chain of infection of the Coronavirus as fast as possible. It uses an anonymous contact diary which logs personal encounters using a "digital handshake".	COVID-19 Contact Tracing	100,000+	Tier 4	www.mhealth-hub.org	Austria

COVID-19 mHealth Applications

Application	Description	Sector	Number of Installs	Technology Advance Ranking	Website	Region
Canda Covid19 	Canada COVID-19 is designed for you to stay informed about COVID-19 in Canada and determine what actions and next steps you should take.	COVID-19 Knowledge and Guidance	100,000+	Tier 4	www.play.google.com	Canada
National Health Information Center 	National Health Information Center - Saudi Health Council has developed its own Corona interactive map application that allows users to track all coronavirus cases in the world with statistics and charts and the ability to talk to BashairBot to answer questions about COVID-19.	COVID-19 Contact Tracing	100,000+	Tier 2	www.coronamap.sa	Saudi Arabia
Government of Karnataka app 	This App is for showing the locations of COVID-19 affected patients and their movement history of 14 days.	COVID-19 Contact Tracing	100,000+	Tier 4	www.karnataka.gov.in	India
Care19 	Care19 is the official COVID-19 app for the states of Wyoming, South Dakota and North Dakota. It can be used with reduced functionality in other US states.	COVID-19 Contact Tracing	50,000+	Tier 4	www.care19.app	US
Goa app 	The Test Yourself Goa app is developed by Goa Ministry of Health in collaboration with Innovaccer. It states that users can self-diagnose COVID-19 symptoms after downloading the app.	COVID-19 Symptom Tracking	50,000+	Tier 4	www.innovaccer.com	India

COVID-19 mHealth Applications

Application	Description	Sector	Number of Installs	Technology Advance Ranking	Website	Region
SM-COVID-19 	SM-COVID-19 is a COVID-19 contact tracing app developed by SoftMining. Sm-Covid-19 allows users to maintain a "Contact Index", which is a numerical estimate with values from 0 to 100 that grows and decreases based on the number (and type) of contacts detected in the last 24 hours.	COVID-19 Contact Tracing	50,000+	Tier 3	www.smcovid19.org	Italy
C-19 	The Ranking C-19 app is an official contact tracing app released by the Icelandic Government to help mitigate the Covid-19 pandemic in Iceland.	COVID-19 Contact Tracing	50,000+	Tier 4	www.covid.is	Iceland
BC COVID-19 Support 	BC COVID-19 Support is designed for him or her to stay informed about COVID-19 in BC and determine what actions and next steps to take.	COVID-19 Knowledge and Guidance	10,000+	Tier 4	www.play.google.com	Canada
VirusRadar 	VirusRadar is a mobile application designed to protect users and stop the coronavirus, which measures and records the relative distance between mobile devices that have been in close proximity for a long time and running the application using Bluetooth technology.	COVID-19 Contact Tracing	10,000+	Tier 4	www.play.google.com	Hungary
Healthy Together 	Healthy Together was developed in partnership with the State of Utah to stop the spread of COVID-19, help residents get access to testing services, support public health officials contact tracing efforts, get information about how to stay safe in your area, and help the world community safely re-open the economy sooner.	COVID-19 Knowledge and Guidance	10,000+	Tier 4	www.healthytogether.io	US

COVID-19 mHealth Applications

Application	Description	Sector	Number of Installs	Technology Advance Ranking	Website	Region
 <p>NOVID</p>	NOVID app developed by Expii anonymously and reliably traces user exposure to COVID-19 to keep communities healthy.	COVID-19 Contact Tracing	10,000+	Tier 3	www.novid.org	USA
 <p>Contact Tracer</p>	Contact Tracer developed by SoftTree is a Digital Contact Tracing and Alerting app.	COVID-19 Contact Tracing	10,000+	Tier 4	www.contacttracer.ru	Russia
 <p>PathCheck</p>	PathCheck (formerly COVID Safe Paths) can privately save the places you visit and store them on your phone.	COVID-19 Contact Tracing	10,000+	Tier 4	www.covidsafepaths.org	UK
 <p>PrivateTracer</p>	PrivateTracer, is a contact tracing app designed to fight against the spread of COVID-19.	COVID-19 Contact Tracing	10,000+	Tier 3	www.privatetracer.org	The Netherlands
 <p>WHO Academy COVID19 app</p>	The WHO Academy has created an app that delivers a wide range of COVID-19 knowledge resources developed by WHO directly to their mobile phones and tablets.	COVID-19 Knowledge and Guidance	10 000+	Tier 4	www.who.int	Switzerland

COVID-19 mHealth Applications

Application	Description	Sector	Number of Installs	Technology Advance Ranking	Website	Region
<p>trecovid19</p> 	The app helps users to find answers from official and certified sources (e.g. measures provided in Trentino, contact numbers, questions).	COVID-19 Knowledge and Guidance	1 000+	Tier 4	www.trentinosalute	Italy
<p>Coronavirus Australia</p> 	The Coronavirus Australia app is sourced from Australia's leading health organisations and has undergone a quality assurance process so people can know it is safe, appropriate and relevant for Australians.	COVID-19 Contact Tracing	N/A	Tier 4	www.health.gov	Australia
<p>Contact-Confirming Application</p> 	COVID-19 Contact-Confirming Application is a COVID-19 contact tracing app developed by COVID-19 Radar Japan.	COVID-19 Contact Tracing	N/A	Tier 4	covid-19radar.japan.studio.de	Japan
<p>Corona Help UK</p> 	Corona Help UK is a website based, anonymous chatbot. It asks user questions about his/her experience with coronavirus (COVID-19), including symptoms, staying at home, self-isolating.	COVID-19 Contact Tracing	N/A	Tier 2	www.corona-help.uk	UK
<p>CoEpi app</p> 	CoEpi app is building a privacy-first system for anonymous Bluetooth proximity-based exposure alerting based on voluntary symptom sharing.	COVID-19 Contact Tracing	N/A	Tier 4	www.coepi.org	US

COVID-19 mHealth Applications

Application	Description	Sector	Number of Installs	Technology Advance Ranking	Website	Region
Covidtracker.ch 	<p>The coronavirus COVID-19 was spreading rapidly throughout Europe. In order to contain the disease, suspected cases must be identified as early as possible. This is the purpose of this campaign. Whether person is sick or healthy, infected or not, his data can help save lives. By filling out the form in app, user is helping to overcome this crisis.</p>	COVID-19 Contact Tracing	N/A	Tier 4	www.covidtracker.ch	Switzerland
Lazio Doctor 	<p>The Lazio Region offers the Lazio Doctor platform to consult useful information related to the COVID-19 emergency and to connect patients with health professionals.</p>	COVID-19 Knowledge and Guidance	N/A	Tier 4	www.salutelazio.it	Italy
Covid Watch 	<p>Covid Watch offers COVID-19 exposure alert notifications to protect communities and organizations. This app augments the work of public health officials and helps communal life return to normal.</p>	COVID-19 Contact Tracing	N/A	Tier 4	www.covid-watch.org	US

Main Findings

Market Growth Being Driven by Smartphone Penetration

Generally speaking, the global mHealth market is seeing steady growth in numbers of users, active companies, levels of investment and an increasing diversification of practical applications and solutions, driven in part by increasing mobile phone penetration and use rates, and ongoing growth in internet connectivity around the world, and with recent estimates projecting the global market to reach 57.57 billion USD by 2026, with a CAGR of 29.1% between 2019 and 2026.

Scope of mHealth Use Cases Increasing

We are also seeing an increasing shift from narrowly-focused apps towards ones with a broader scope of use-cases, and a growing prioritization of preventive approaches to health. Several sectors that previously occupied smaller proportions of the overall mHealth market are also growing rapidly, such as Mental Health apps, likely due to growing levels of public awareness of the impact and importance of anxiety, depression and overall social and psychological wellness.

Democratization of AI Making mHealth Apps More Functional

The number of mHealth apps incorporating AI technologies (including advanced techniques such as Deep Learning and Machine Learning), data science techniques and user-specific data analysis in order to provide personalized recommendations is increasing, spurred by the increasing democratization of AI techniques and technologies, which are increasing in capability and functionality, and decreasing in cost, making them available to a wider range of mHealth companies and developers.

Population Ageing Driving Need for mHealth Solutions

One factor that appears to be driving overall industry growth in recent years is the increasing need for and adoption of mHealth solutions targeted towards maintaining the health, functionality, mental wellbeing and quality of life in the elderly, as the overall size of many developed nations ageing populations continue to increase, placing pressure on the economic sustainability of national healthcare and social welfare systems. One of the fastest growing age-focused segments is mHealth solutions that allow for remote patient monitoring, TeleHealth and CareTech for the elderly.

COVID-19 is a Major Driver for mHealth Growth

Meanwhile, one of the biggest and most recent factors driving market growth and diversification is the ongoing COVID-19 health crisis. This is serving both to increase the number of COVID-19 symptom tracking and contact tracing apps, as well as to drive overall industry growth more broadly, as individuals continue to pay increasing attention to their overall health in general, while also avoiding physical interaction and unnecessary visits to healthcare providers.

Biodefense Will Shape mHealth Industry for Years to Come

We can expect the mHealth industry to continue feeling the effects of the current coronavirus pandemic for many years to come, given general growth in the perceived importance of general health and wellness, as well as protection from potential future pandemics and biodefense threats, combined with the rapidly growing interest in health-related sectors by the global investment community.

Major Conclusions

mHealth Industry Seeing Steady Growth and Diversification

Overall, the size of the mHealth sector, the range and diversity of its constituent sectors and practical applications, and the level of technological sophistication offered by its apps, have grown tremendously in recent years, driven in tandem by increasing mobile phone penetration (the proportion of the global population with access to mobile phones generally and smartphones in particular) and internet availability.

Societal mHealth Endpoints and Drivers Also Increasing

These positive growth factors also appear to be working synergistically with a number of negative growth factors that increase the need for novel approaches to healthcare delivery and personal health optimization, including:

- rising healthcare costs,
- decreasing healthcare affordability, and
- economic disparities around access to healthcare resources and services, as well as the ongoing rise in the prevalence of NCDs and population ageing in developed nations.
- pandemics are increasing in number and intensity, and driving demand for mHealth

mHealth Technological Sophistication Steadily Rising

These factors, combined with the overall rise in mHealth app technological sophistication, are converging to establish a self-perpetuating mechanism driving overall industry growth and diversification. The use of AI in mHealth is growing rapidly, with a still small but steadily increasing proportion of mHealth apps incorporating AI technologies and techniques, data science and personalized analysis of user data in order to deliver tailored recommendations, due to the increasing sophistication and functionality of AI generally, as well as its decreasing cost and growing availability to SMEs.

mHealth Precision and Personalization Increasing

In turn, this appears to be driving an overall increase in the level of user personalization, and the precision of user-specific data monitoring, analysis and tailored recommendations offered by mHealth apps. As the capacity to collect and analyze larger volumes of user data rises, the breadth and depth of insights that can be extracted from AI-driven analysis of such data also increases. Meanwhile, the number of apps that feature advanced and cutting-edge forms of AI, such as Machine Learning and Deep Learning, is also growing. We see this general trend particularly present in countries where governments have prioritized investment in cutting-edge AI technologies and companies as a major component of their industrial strategies, such as the UK. These countries have yet to extend their strategies as far as directing these resources effectively for the advancement of mHealth.

More Work Needed on Governmental Coordination

Pandemics continue to drive demand for mHealth, as technologies available to help mHealth apps address health challenges continues to increase in both sophistication and ability, and the overall potential impact that the mHealth industry can have on issues of pressing national and economic concern continues to rise. Amidst these growth factors, we see a clear trend of several countries (such as the UK) developing a very robust mHealth industry ecosystem of companies, investors and technologies at their disposal, but failing to utilize these resources to their fullest extent to help address population health challenges of substantial national concern, due to a lack of efficient cross-sector collaboration and synergetic coordination, management and execution on a government level.

About Innovation Eye

[Innovation Eye](#) was jointly founded in March 2019 by Big Innovation Centre and Deep Knowledge Analytics to provide sophisticated market analytics, industry intelligence, comparative industry classification frameworks and benchmarking case studies.



**INNOVATION
EYE**

About Big Innovation Centre

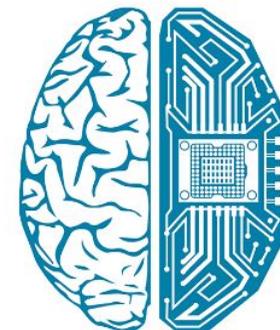
[Big Innovation Centre](#) is an award-winning Think Tank and innovation-communications consultancy, established in 2011. Specialised in digital transformation and future proofing corporate businesses models, they are the appointed secretariat for the UK All-Party Parliamentary Group on Artificial Intelligence (APPG AI) and Blockchain (APPG Blockchain). Big Innovation Centre's network is one of the most sophisticated and high-level networks in the world of technology and innovation. To become a Member, go to their website.



**BIG
INNOVATION
CENTRE**

About Deep Knowledge Analytics

[Deep Knowledge Analytics](#) is a DeepTech focused agency producing advanced analytics on DeepTech and frontier-technology industries using sophisticated multi-dimensional frameworks and algorithmic methods that combine hundreds of specially-designed and specifically-weighted metrics and parameters to deliver sophisticated market intelligence, pragmatic forecasting and tangible industry benchmarking.

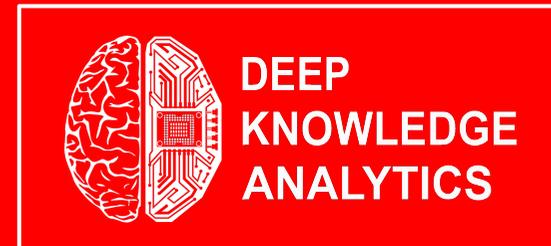


**DEEP
KNOWLEDGE
ANALYTICS**



E-mail: info@innovationeye.com

Website: www.innovationeye.com



Innovation Eye Disclaimer

“Global mHealth Industry Landscape Overview 2020” is produced by Deep Knowledge Analytics and Big Innovation Centre and powered by Innovation Eye. It presents a birds-eye overview of the fast growing Global mobile Health (mHealth) ecosystem underpinning the apps on our mobiles phones and wearable technology. 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 mHealth apps or to participate in any particular trading strategy in any jurisdiction.

While the information herein is believed to be reliable, the report's authors make no representation as to the accuracy or completeness of its constituent materials, information and data.