

# The Digital Age of Healthcare

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# The Digital Age of Healthcare

**The transformation of digital health has further accelerated in recent months, driven by the limitations on access to healthcare related to COVID-19.**

Since 2005, there have been a number of key regulatory events from the WHO. The key publication for the digital health agenda was that of the eHealth resolutions, which led to the WHO global strategy on digital health 2020-2025. The strategy urges Member States to (further) develop their national eHealth strategy, associated policies and legislation. It includes the [National eHealth strategy toolkit](#)<sup>1</sup> which states the importance of the digital health agenda:

*"The reasons for this are evident: eHealth saves lives, saves money, improves the health of individuals and the population at large; strengthens health systems, promotes equity and social justice, and does much more besides. Its strategic application by governments reflects the latest and best ideas, innovations and ambitions for progress in public and individual health."*

Digital therapeutics in the EU and UK must comply with EU legislation on data protection. This has resulted in quicker expansion in the American and Chinese markets for eHealth services as they do not have to meet the same requirements.

COVID-19 has had a significant impact in changing the general perception of digital health. With limited ability to carry out face to face consultations, HCPs have been left with little option but to turn to eHealth solutions. In turn this has increased the rate of uptake in eHealth.

This current environment, coupled with advances in mobile technology over the last decade, indicate that it is likely we will see the impact of technology in healthcare remain and increase beyond the pandemic.

Aside from the impact COVID-19 has had on digital health, there have been ongoing digitalisation and increased use of mobile technology in healthcare over the past decades. There is also growth in personal data being leveraged to provide personalised treatment and an improved patient experience.

Another feature of the digital transformation of the healthcare space is the entry of tech giants such as Apple, Sony and Amazon, as well as smaller tech companies, such as Pando and Babylon, finding their own niche. The increase in digitalisation also impacts on healthcare education, providing greater accessibility to learning tools for patients and HCPs and encouraging more 'self-management' of chronic diseases.

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This white paper gives an overview of three key eHealth areas, focusing predominantly on the EU and US markets:



## 1. Mobile technology in eHealth

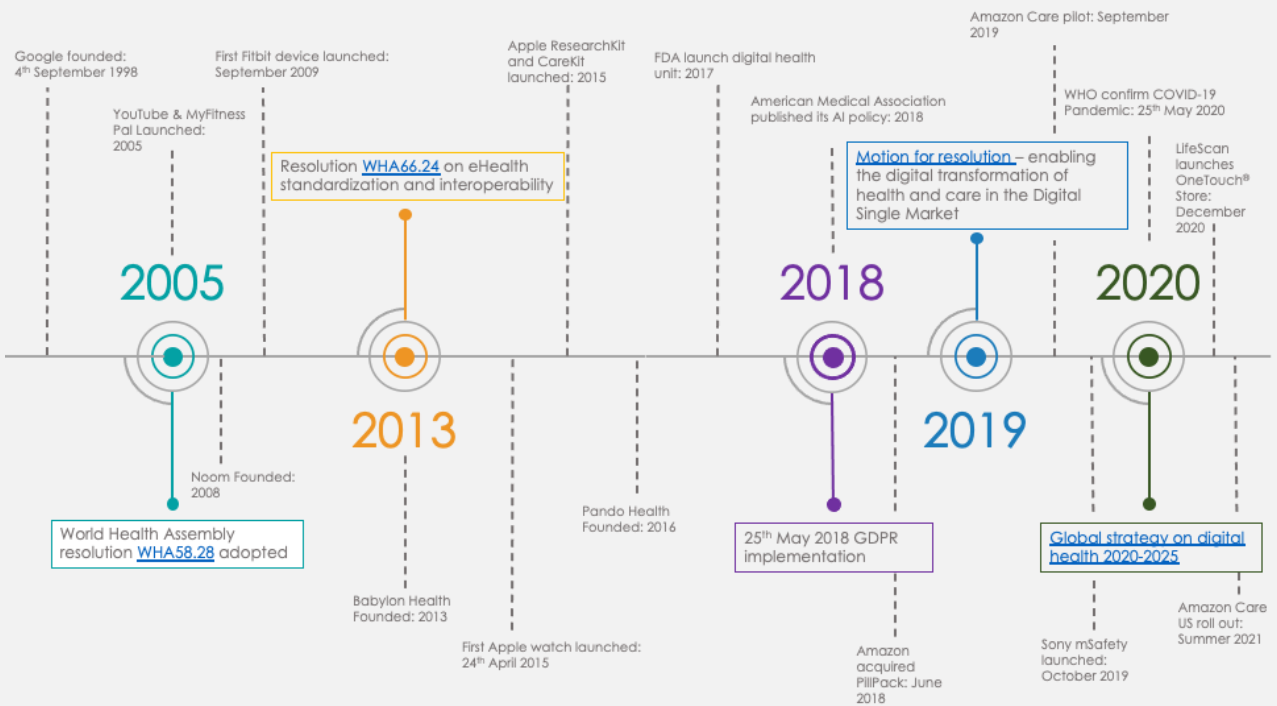


## 2. Use of data in eHealth



## 3. The impact of eHealth on healthcare education

### Key events in the transformation of digital health



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## 1. Mobile Technology in eHealth:

Rapid advances in mobile technology, along with new technology integrations in eHealth services, have enabled many tech giants to move into the market. These include Google, Sony, Apple, IBM, Amazon and Microsoft, offering a variety of tech services from health apps to diagnostic chips. Some of these are presented below in more detail.

### Apple ResearchKit and CareKit



Apple has launched [ResearchKit](#) and [CareKit](#), which are customisable frameworks for research and care.

ResearchKit, rolled out in 2015, enables research studies to be launched through apps, meaning participants can be reached at scale. Some examples of apps built through the research kit include VascTrac – a research study of peripheral artery disease from Stanford University; EpiWatch – a research study for people with epilepsy from John Hopkins Digital; and WebMD Pregnancy – an app to track a baby's growth and development week by week from WebMD.

CareKit enables the development of apps "that can deliver personalized treatment, track daily progress and generate trends over time". This includes frameworks that can gather informed consent, create surveys, conduct active evaluations, build personalised care plans, visualise trends and connect with patients.

### Sony mSafety™ platform



Sony entered the eHealth space with the mSafety™ platform<sup>2</sup> in 2019. This product provides remote monitoring for health and safety services by combining wearable devices with a platform that provides real time updates to services providers. The technology allows the discreet monitoring of people with chronic health conditions such as diabetes, stroke, heart failure and arrhythmia.

#### For Service Providers

- Fully scalable and quick to implement
- Easy fleet management
- Reliable connectivity
- Data can increase proactivity and services innovations

#### For End Users

- Low complexity, purpose-built wearable
- Easy to use
- IoT low-power consumption
- Bright, simple monochrome display
- Data subscription plan and global roaming profile

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## Sony mSafety™ platform (cont'd)

**SONY**

In addition to monitoring chronic health conditions, Sony's mSafety™ platform can also be used in:

- Outdoor sports - allowing rescue services to use GPS and sensors to capture user status and location in an emergency.
- Hazardous workplaces – providing occupational Health & Safety officers with real-time data on the welfare of their employees.

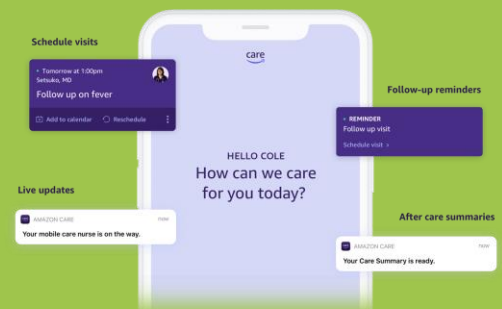
## Amazon Care<sup>7</sup>

**amazon care**

Amazon is another tech giant making a move into the healthcare sector, leveraging its experience in e-commerce and infrastructure in logistics and computing to launch Amazon Care. Amazon began its move into healthcare with the acquisition of PillPack in June 2018<sup>3</sup> and followed with its pilot of Amazon Care in September 2019. Amazon Care appears to have been a success with app reviews of 4.9/5 (iOS<sup>4</sup> and Android<sup>5</sup>). In March 2021 Amazon announced the roll out of Amazon Care services across the US from summer 2021<sup>6</sup>, with Amazon Care virtual services available to all US based employers.

### Amazon Care features include:

- Care Team available for virtual care or question responses 24/7/365 through the app
- Care Team links with doctors, nurse practitioners and registered nurses
- Continuous relationship between patient and clinicians
- COVID-19 assessment and testing\*
- Care co-ordination and referrals
- In-person follow-up care at home when needed\*
- Prescription delivery\*
- Ability to make appointments in advance through the app.  
\*only in select locations



### Amazon Care services currently cover:

- Preventive Care – evidence-based screening, immunisations and illness prevention
- Lifestyle & Wellness – helping to set goals and providing support to realise them
- Ongoing Care – help with ongoing chronic conditions from diagnosis to treatment and providing speciality care resources
- Joint Care – back, neck, knee and shoulder pain advice and help to perfect a working from home set-up with a joint care visit
- Sleep Care – providing personalised assessment of sleep and how to improve rest<sup>7</sup>

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In addition to the entrance of tech giants, the market is seeing an increase in the number of smaller healthcare start-ups that have discovered a niche in this area. Examples of these start-ups include:

## Pando Health<sup>8</sup>



Founded in 2016, Pando Health is a clinical communication platform that acts as a messaging app allowing secure communication for healthcare professionals. It is currently used by over 65,000 users. The platform is fully encrypted, GDPR and NHS compliant.

## Babylon Health<sup>9</sup>



The Babylon app combines AI with mobile technology to provide on-demand patient access to doctors via video call as well as an AI-powered chatbot that allows users to ask medical questions 24/7.

The app allows prescriptions to be ordered from the nearest pharmacy and also doubles up as a health monitoring app which can sync to wearable devices. Available in both the UK and US.

In the UK, Babylon GP at Hand works with the NHS to provide free access to NHS GP practices (currently in 7 London clinics and 1 Birmingham clinic), face to face clinics, 24/7/365 mobile support and electronic prescriptions sent to the patients local pharmacy. In the US Babylon has a number of partnerships across insurers, employers and governments to provide access to its services.

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## 2. Use of personal data in eHealth

Advances in wearable technology have seen an associated increase in the use of personal data to tailor healthcare to the individual. Companies such as Fitbit are leveraging health and fitness data collected through its devices to help inform patients' conversations with HCPs. This use of personal data has also seen the advent of companies such as Noom, delivering personalised health and well-being programmes to support weight loss and the 'self-management' of chronic diseases.

### Fitbit™



#### Fitbit Wellness Reports

Fitbit Wellness Reports are a feature of Fitbit Premium. It allows users to access all their health and wellness data in one place, enabling the visualisation of data trends in monthly reports. These reports include sleep, heart rate and weight trends that can be shared with HCPs, personal trainers and nutritionists to inform conversations around treatment/exercise plans<sup>10</sup>.

#### Fitbit Care™

Fitbit also offers Fitbit Care™, a health platform aimed at employers to support employees across the full spectrum of care. It includes:

- **Wearables & Self-Tracking:** activity trackers and smartwatches allow the tracking of health and wellness goals and progress (e.g. activity, sleep, heart rate)
- **Personalised Digital Guidance:** provides guided step-by-step health and wellness programmes with in-app private social groups allowing employee interaction aimed to aid motivation
- **Human Health Coaching & Virtual Care:** 1:1 human health coaching, provides additional motivation and assistance in the prevention and management of chronic conditions

FitCare also leverages the data it collects to provide insights into the population, and aid employers to understand the impact of the programme and optimise their approach<sup>11</sup>

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## Noom<sup>12</sup>



Noom also employs a personalised approach to offer health and well-being programmes supporting weight loss and the prevention and management of chronic conditions, these include:

- Healthy Weight
- Hypertension Prevention
- Diabetes Prevention
- Hypertension Management
- Diabetes Management

The healthy weight programme is the most widely used of all Noom's programmes providing:

- Food logging with a comprehensive database and barcode scanning capability
- >1000 interactive lessons
- 1:1 coaching with personalised goal setting
- Healthy recipes
- Unlimited group support

The Noom app syncs data from other apps to further enhance its personalised approach. The data includes steps, weight, blood pressure and blood glucose data. Compatible apps include Fitbit, Garmin, iHealth, MisFit, Omron, RunKeeper, Qardio, Polar, Withings and Yoo.



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## 3. Impact of eHealth on healthcare education

Improvements in access to technology and availability of information have led to a significant increase in the use of digital tools in healthcare education, giving both healthcare professionals and patients access to a wider range of training and educational opportunities.

### e-Learning

A classic example of e-Learning in practice is Continuing Professional Development (CPD) courses. There are a number of disadvantages that have been associated with traditional face to face CPD courses including difficulty to make time to attend courses, the cost of running the courses and associated travel.

While e-Learning isn't suitable in all cases, it has provided the opportunity for a broader range of courses made available to a larger group of people. There are a number of training providers globally which offer e-Learning courses in this field:

- M&K Update Services – UK healthcare training provider offering short courses for professionals in the healthcare sector in the UK
- Institute for Healthcare Improvement (IHI) – US not-for-profit healthcare improvement company providing a variety of training courses for HCPs across the US and globally
- Escala – An online course provider covering topics such as blood transfusion, end of life care, fire safety, information governance, medical devices and resuscitation
- Future Learn – a completely online learning platform that provides access to world class universities and industry experts globally across a broad range of topics including healthcare and medicine. With certain courses providing professional accreditation

### Patient Education

In addition to the increase in accessibility to online resources for CPD, there has been a rise in patient awareness and online patient education, especially in support for patients with chronic conditions such as type 2 diabetes and cardiovascular disease.

In type 2 diabetes treatment there has been a considerable drive in diabetes patient education for self-management. There are a number of approaches; one popular method is an interactive patient app that uses the patient's blood glucose data to provide personalised insights into their diabetes management plan, alongside educational material.

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## Patient Education (Cont'd)

Examples include Glucose Buddy and Diabetes Tracked by MyNetDiary. Some diabetes companies have gone one step further than this to provide a completely integrated solution which combines all the key elements of eHealth, leveraging data to offer a personalised healthcare experience and include the appropriate educational resources and HCP support.

### LifeScan - OneTouch Reveal



One such diabetes management app is the OneTouch Reveal from LifeScan. It is free for patients to use and links to the OneTouch blood glucose meters.

Launched in the USA, the app allows patients to track blood glucose readings over time, provides notifications about recurring patterns thereby aiding patients when to take action, and compiles data into 14, 30 and 90 day summaries that patients can share with their HCP. The app also integrates with the Apple Health app, allowing patients to track steps, weight, and heart rate alongside their blood glucose data. Recently LifeScan has partnered with Cecelia Health to offer live, personalised coaching from Cecelia Health's Certified Diabetes Care and Education Specialists. This is through the OneTouch Reveal app and Truepill™ which embeds an eCommerce platform into the OneTouch Reveal app. Both these partnerships led to the launch of the OneTouch® Store with subscription offerings:

- OneTouch Subscribe: product-only subscription, consumers get a OneTouch Verio Reflect® meter or OneTouch Verio Flex® meter, OneTouch® Delica® Plus lancing device, 100 OneTouch® Delica® Plus lancets, and ongoing shipments of 90 test strips per month with 100 lancets every three months, delivered to their home by LifeScan partner, Truepill
- OneTouch Coach: coaching-only subscription allows one-on-one access to a OneTouch Coach through the OneTouch Reveal mobile app. Subscribers can initiate a text chat with an expert diabetes clinician from LifeScan partner Cecelia Health, who can answer questions related to diabetes management and blood glucose readings
- OneTouch Subscribe + Coach offers subscribers home delivery and coaching from Cecelia Health to help educate and empower them to more effectively manage their diabetes to improve their quality of life

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## Concluding Remarks

It is clear that there has been an exponential increase in the need for and uptake of eHealth strategies globally. The recent COVID-19 pandemic has accelerated the implementation of many eHealth strategies and technologies. Whilst the many advantages of the implementation of various technologies in healthcare are manifest, areas of concern remain around the protection of personal data and the potential to create further isolation for some individuals. Many regulatory bodies have identified these risks and resultant standards and policies have been put in place in order to safeguard individuals through the implementation of eHealth.

**Given the advances that have already been seen in the field, this is an exciting space to watch, with many more cutting edge developments to come.**

For more information, please contact us at [info@dig-worldwide.com](mailto:info@dig-worldwide.com) or call Beth Elliott or Tony Nagle from Dig Worldwide on +44 (0) 1304 806 988.

<sup>1</sup> WHO National E-Health Strategy Toolkit, 2012

<sup>2</sup> <https://www.sonynetwork.com/en/msafety/health/>

<sup>3</sup> <https://www.businesswire.com/news/home/20180628005614/en/Amazon-to-Acquire-PillPack>

<sup>4</sup> <https://apps.apple.com/us/app/amazon-care/id1471711299>

<sup>5</sup> [https://play.google.com/store/apps/details?id=com.amazon.phseven.prod&hl=en\\_US](https://play.google.com/store/apps/details?id=com.amazon.phseven.prod&hl=en_US)

<sup>6</sup> <https://www.aboutamazon.com/news/workplace/amazon-care-to-launch-across-u-s-this-summer-offering-millions-of-individuals-and-families-immediate-access-to-high-quality-medical-care-and-advice-24-hours-a-day-365-days-a-year>

<sup>7</sup> <https://amazon.care/>

<sup>8</sup> <https://hellopando.com/>

<sup>9</sup> <https://www.babylonhealth.com/>

<sup>10</sup> <https://blog.fitbit.com/fitbit-premium-wellness-report/>

<sup>11</sup> [https://healthsolutions.fitbit.com/vwp-content/uploads/89116-FB\\_CareCoreBrochure\\_0618pm.R2-PROOF.pdf](https://healthsolutions.fitbit.com/vwp-content/uploads/89116-FB_CareCoreBrochure_0618pm.R2-PROOF.pdf)

<sup>12</sup> <https://web.noom.com/business/>