TECH GIANTS IN HEALTHCARE

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How Google, Amazon, IBM, Apple & Co. Shake The Medical World

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Welcome Message

Since the dawn of the digital health revolution, healthcare has started to depend more on technologies. Companies developing those technologies that are now part of care from smartphones to artificial intelligence, seem to have an increasing role in providing care.

These companies have a huge experience and success in creating technologies that people want to use. However, their experience and knowledge of how healthcare works are, even at best, limited. Still, some of them have started providing care to their employees, while others have had exciting collaborations with health institutions.

In 2022-23, the emergence of generative AI and chatbot technologies has marked by far the most significant milestone in healthcare technology. This period has brought AI - formerly only available to a select few - to the masses. Pioneered by releases such as Open AI's ChatGPT and a myriad of generative AI tools, from text generators to image, video, music generators, a new era of interaction between machines and individuals has been ushered in.

This evolution has sparked an unprecedented level of interest, which is also evident within the healthcare sector. According to our recent survey, a majority of healthcare professionals have begun embracing these innovative tools. Meanwhile, Google developed his own toy, Med-PaLM 2, which is a large language model specifically developed for medical purposes, and which is reported to do exceptionally well. It is already in use in a select group of healthcare institutions.

As we edge towards a future where these tools mature, there is a palpable potential for them to serve as robust allies to healthcare professionals, potentially alleviating workforce shortages. However, for these tools to fully realize their potential, further development is imperative to enable them to comprehend a diverse range of inputs such as text, sound, imagery, gestures, akin to human interaction and understanding. Therefore, at The Medical Futurist, we decided to provide an in-depth analysis about how big tech companies from Apple and Amazon to Google and Microsoft are tackling health-related and medical issues, and how these collaborations transform our healthcare experiences.

We hope you will find it useful!

Kind regards,
Dr. Bertalan Meskó

Tech Giants' March Towards New Healthcare Horizons

If you had asked anyone about Google's, Uber's or Alibaba's involvement in healthcare a decade ago, they would have probably replied with "what involvement?". Even if there were any, they were on a small scale or experimental. Google ventured forth with Google Flu in 2008 but failed miserably. Uber had its first ride requested in 2010, oblivious to the fact that its service would extend to healthcare. Alibaba had no dedicated health branch. In 2023, all of these companies and more have strong footholds in the healthcare industry. With their disruptive approaches, technological prowess and computing power, tech companies can revamp the healthcare landscape while having a share of the industry's cake.

In addition, these companies can influence this market with their strong user base. "I suspect that some of these large businesses who have developed a very close, high trust relationship in other areas, believe this is a moment where they can translate on that trust, deepen those relationships, and deliver new services in alignment with their existing businesses," said Bill Evans, managing director of digital health venture fund Rock Health.

While they aren't stopping their march towards the healthcare horizon, these companies face the inevitable obstacle of privacy and security over the handling of sensitive medical data. Recent years have shown their mishandling of such information, but given their technological expertise, tech giants themselves can propose more robust security measures, without forgoing innovation.

At The Medical Futurist, we think that for the effective cultural transformation required to promote digital health, leading tech companies play a crucial role. With their medical sensors, platforms and services reaching stakeholders on every level of the healthcare landscape, big tech businesses can tilt this sector towards a more patient-focused future..

Their technological expertise and unique reach can democratise access to quality healthcare; empowering patients with means to become more proactive in managing their health; transforming the doctor-patient relationship into a partnership rather than a top-down hierarchy; while assisting medical institutions, clinicians and researchers with cutting-edge technology to refine their craft. Importantly, those companies have to pivot this balance with innovative solutions, while prioritising security and privacy of the medical data by following strict guidelines.

The COVID-19 pandemic highlighted the importance of digital health technologies in handling a public health crisis. Telemedicine, medical robots and artificial intelligence are some of the many examples of disruptive digital health technologies posing as ready-made solutions to better manage such a situation. Leading tech businesses have the technical, financial and intellectual resources to direct development along those lines. Microsoft, Google's Alphabet, Facebook, Apple and Amazon have collectively contributed over $1 billion in alleviating the burden of the disease, and have made separate efforts of their own to contribute to the fight. In a similar way that these businesses can influence the economy, they can influence healthcare and we're experiencing it in real-time. In addition to rebuilding their depreciating public image, these tech businesses are also showcasing how they can improve the medical sector.

This e-book will analyse each major tech company's foray into healthcare. We will see the relevant endeavours from one market player to the other, the challenges they faced and give an indication as to where they might be headed. We will also assess those companies with significant healthcare plans with a Health, Innovation & Tech (HIT) index (explained below).

Additionally, we will discuss the health-related projects that other noteworthy companies herald that deserve attention. While we cannot assess their HIT score due to the smaller scale of their endeavours, their potential is undeniable and worthy of close attention.

We've spent a good amount of time writing about Big Tech and how these companies, Amazon, Google/Alphabet, Microsoft, Apple, IBM and NVIDIA have approached medicine and its trillion-dollar market possibilities. These six companies have the most projects in healthcare, and their presence is not negligible at all: they all have the power and the incentive to transform and help digitise this market.

All the companies discussed in this e-book have made their intentions to leave long-lasting footprints in healthcare clear. We should keep an eye on the developments they make in this sector in the coming years, as we are bound to see the successes and failures of the ongoing projects mentioned, which will inevitably reshape the medical landscape.

The HIT Index

Let's talk a bit about the Health, Innovation & Tech or HIT Index mentioned above. This score-based system we use in this e-book is used to assess the healthcare endeavours of those technology companies with significant plans in this sector. It is based on their practical examples, potentials, as well as chances of failure, each scored on a scale of 5.

Since every company has a unique edge, we also highlight their uniqueness and the reason why we analyse this particular company in this e-book. Broken down at the end of each relevant section, the HIT index scores will give you a better overview of the direction of the company's direction in healthcare. Without further ado, let's explore how tech giants are taking the healthcare industry by storm.

Googling healthcare

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Google has probably never intended to be just another search platform. This got even clearer when, upon introducing Alphabet, Larry Page said that they do not intend to become a conventional company. Well, they aren't indeed. Looking at their actions in healthcare, this is certainly true. But they really do know what people want to know more about. At the time when 7% of Google searches are health-related (that's about a billion a day or 70,000 questions per minute!), the tech giant knows what to do. Invest in healthcare.

The enterprise has a deep interest in researching life science areas where other big tech players do not dare to enter: genomics, longevity or artificial intelligence. Verily Life Sciences, Calico, Google DeepMind, Cloud Life Sciences (formerly known as Google Genomics), Google Fit (shut down March 2019), Google AI (fka. Google Research, which now hosts the team Google Brain - yes, it's complicated) all aim for bringing lasting change to their own area as never seen before. On the other hand, Google also does what all the other companies do – at an accelerated pace. Investment, collaborations, and partnerships weave through the Google/Alphabet universe, while their engineers, researchers, and experts are keen on inventing new solutions and ready to disrupt industries, including healthcare.

The roots of Google Health go pretty deep. In 2006 the company started a personal health information centralization service.

Entering information was voluntary, and once registered, Google Health used the information to provide the user with a merged health record, information on conditions, and possible interactions between drugs, conditions, and allergies. However, the service was stalled four years later because – according to the official reasoning – it did not have the broad impact the developers had hoped for.

Some argued that Google Health was unsuccessful for numerous reasons: it was not social and fun for users, it did not involve healthcare professionals, it was difficult to use, poorly marketed and it was difficult for Google to partner with insurance companies. Yet, the tech giant took a turn and instead of getting into the messy area of health records and patient information, chose other domains, sought collaborations and partnerships and invested heavily in other parts of the healthcare universe.

The Alphabet of Investment

Google, Microsoft and Tencent are responsible for more than 70 percent of the deals made for digital health startups, according to GV / Portfolio. Google is No. 1, with around 150 digital health startups in its portfolio. The company's investments in 2023 too focused on genomics, clinical research, insurance and benefits.

Now named GV, Google Ventures has invested heavily into life sciences and, as they call it, frontier tech. The first one covers everything from care delivery, health IT, devices, diagnostics to therapeutics; all in all, such investments make up about a third of GV's portfolio. And that is really something, taken that the company's other investments include Uber, Slack and Giphy. Frontier tech covers technologies that try to give answers to global challenges and include fields in AI, robotics and hardware, quantum computing, food and agriculture and deep tech.

GV invested in 23andme, the most well-known direct-to-consumer genetic testing company with one of the biggest DNA databases in the world. GV also has stakes in Oscar Health, the New York-based venture disrupting health insurance; TV-persona Dr. Phil's Doctor on Demand, a telehealth company that is helping people talking to physicians from afar,

Flatiron Health, a company building a data platform dedicated to oncology; and Impossible Foods, developing plant-based meats and cheese.

The other arm of Alphabet's investments is a private equity firm through which the Google parent focuses on larger, growth stage technology companies. Some of them are also involved in healthcare technologies.

Patents, partnerships, and collaborations

Alphabet's activity in the healthcare field is amazingly extensive. An Ernst&Young report says that between 2013 and 2017, Alphabet filed 186 patents related to the healthcare field. The company was granted over 2000 patents in 2022 alone, however, they did not disclose how many of these were healthcare-related. In the past years, the company's patent activity primarily focused on DeepMind, the AI company that Google acquired in 2014 and integrated into GoogleHealth in 2019, and Verily Life Sciences (Verily was leading the technology company's COVID-19 efforts, with mixed results).

In May 2015, Google also started collaborating with Levi's to create proper fibretronic materials. And although this undertaking also seems to be a less successful effort from the company's part, the two companies introduced a conductive fabric they turned into a smart jacket. The garment sends data and power without the need for wires. The jacket didn't quite make a stir in the stores and most recently Levi's is more active co-designing with Nintendo. (However, Google believes so much in the touch-sensitive fabric technology called Jacquard, that it had a similar collaboration with luxury brand Yves Saint Laurent – in the strap of a backpack and most recently it started a similar undertaking with Adidas and EA Sports' FIFA Mobile brand. The teaser was out in February 2020 – then COVID hit. Seems like a cursed project, but let's hope for the best.)

There are some privacy issues with Alphabet's cooperation on healthcare data with Ascension. Ascension is one of the US's largest health-care systems, and the collaboration aims to collect and integrate detailed personal health information of millions of people. Regulators