Health Technologies that have changed the world

> *"In 10 years the electronic medical record will be the minor player, in terms of where a person's health history lives. Most of that information will be kept on the phone or in a secure cloud, and the patient will be highly engaged with collecting, curating and sharing that data. Most doctor visits will be like calling up a YouTube meets virtual human docs and there will also be an aspect of virtual reality."*

Introduction

May it be artificial intelligence, VR/AR, 3D-printing, robotics or nanoscience, technology is shaping and advancing the future of healthcare in front of our eyes at a speeding rate. We have to familiarize ourselves with the latest developments in order to be able to treat patients and their diseases in a much safer and faster way around. The future of healthcare lies in working hand-in-hand with technology and finally, healthcare workers have to embrace emerging healthcare technologies in order to stay relevant in the coming years.

Technology drives healthcare more than any other force, and in the future it will continue to develop in dramatic ways. While we can glimpse and debate the details of future trends in healthcare, we need to be clear about the drivers so we can align with them and actively work to ensure the best outcomes for society as a whole.

Is it really important?

Putting some questions before going to the technologies used in healthcare.

> Are we really afraid that robots will take over the jobs of nurses, doctors and other healthcare professionals in the coming years with advancement of technologies? Are we scared that artificial intelligence will control the world within a couple of years? Do we have started having nightmares about virtual reality addicted kids and adults running around in their non-existent dream world? Are we so frightened to have a genetic test because it might reveal the day of your death?

But, these are all just half-truths, fake news and other imaginary dystopias based on just assumptions. In a more fashionable and broader way: alternative facts about the future of medicine. However, these all have one thing in common: we all human beings have grown the fear about the unknown place called future and what it might bring upon us.

No matter how scary the future might seem at this moment for us, we cannot stop the growth and development of technological; and sooner or later we will understand it happened to give us a more relaxing and comfortable life. Thus, our task at the moment is to face our fears about the future with courage in order to have brain computer interfaces with artificial intelligence to turn technologies with an open mind and to prepare for the augmented reality of the changing world with as much knowledge.

In medicine and healthcare sectors, digital technology could help transform unsustainable healthcare systems into sustainable ones, equalize the relationship between medical professionals and patients, provide cheaper, faster and more effective solutions for diseases – technologies could win the battle for us against cancer, AIDS or Ebola – and could simply lead to healthier individuals living in healthier communities.
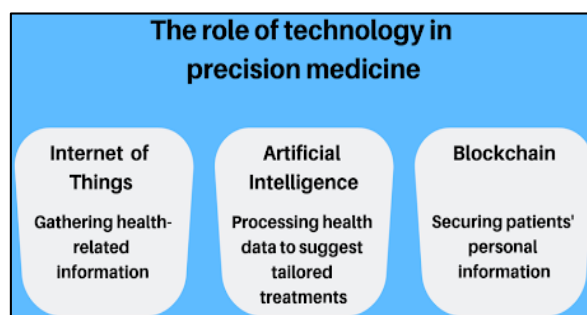
Applications of Technology on healthcare

Healthcare changes dramatically because of technological developments, from anaesthetics and antibiotics to magnetic resonance imaging scanners and radiotherapy. Future technological innovation is going to keep transforming healthcare.

Healthcare is just a market for technology where consumers such as hospitals are happy to pay enormous amounts of money, particularly for prestige equipment, such as PET and MRI scanners and linear accelerators.

To serve as an introductory fact, this article will provide all an outer overview to explore few major domains in which medical technology is reshaping healthcare sectors.

1. Augmented Reality:
   - For most of us, when we entered the world of understanding technology, Pokémon Go was our first experience of augmented reality (AR), wherein a computer digitally enhances real-life environments.
   - Simultaneously, the medical field has been adopted with AR technology as well which blends computer-generated information and information from MRI and CT scans.
   - It has made it possible for doctors to see below the skin and visualise the organs, bones and muscles of patients without having to operate.
   - Augmented reality differs from VR in two respects: users do not lose touch with reality and it puts information into eyesight as fast as possible.

2. Bionic Eye
   - A visual prosthesis, often referred to as a bionic eye, is an experimental visual device intended to restore functional vision in those suffering from partial or total blindness.
   - Many devices have been developed, usually modelled on the cochlear implant or bionic ear devices, a type of neural prosthesis in use since the mid-1980s.
   - Retinal-based bionic eyes are suitable for patients who have lost their vision due to disorders such as retinitis pigmentosa and age-related macular degeneration.
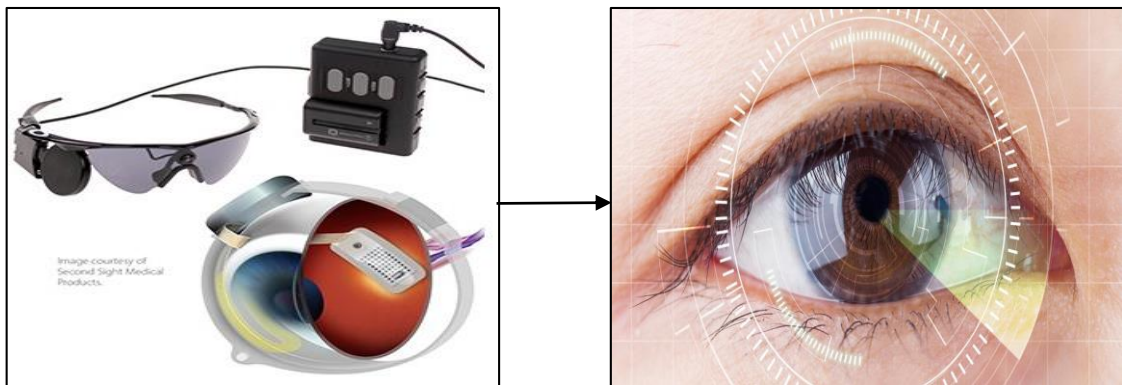

3. The Sedasys
   - The Sedasys can almost be called a robot anaesthesiologist, as it is a computer that is attached to the IV and gives the patient the correct amount of sedatives and monitor's patients' vitals.
   - It also includes an earpiece that wakes up the patient at the correct time if necessary.
   - This machine helps doctors to perform light to moderate sedations without the support of an anaesthesiologist.
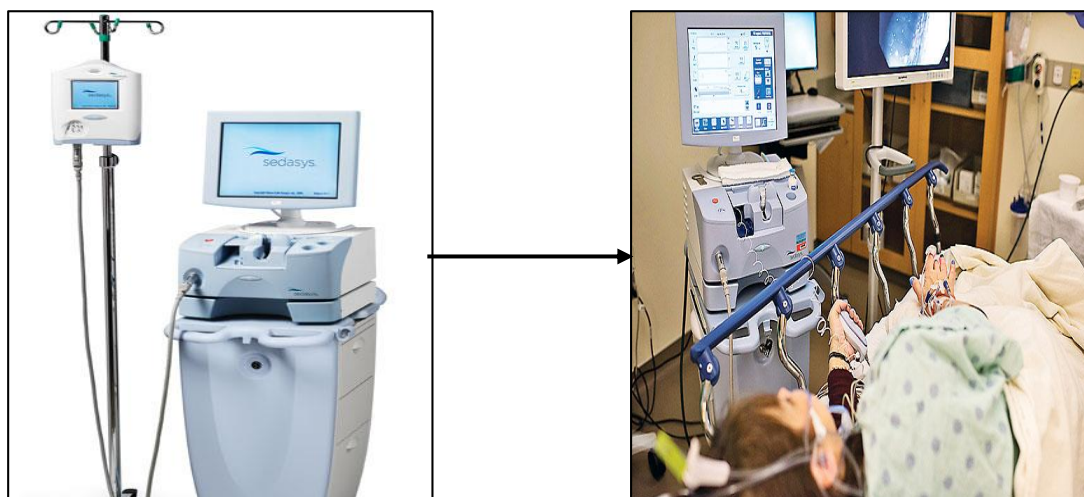
4. Cancer fighting nanoparticles
- We have known for ages that the most prevalent medical fight is the fight against cancer and its long journey.
- And scientists have worked day in and out tirelessly to create sub-microscopic delivery vessels, that are about the ten-thousandth the width of a human hair.
- These particles are injected into a tumour, and the patient is put on an alternating magnetic field which makes the particles agitate and heat up.
- It finally either destroys the cancer cells or makes them more sensitive to other oncology treatments.
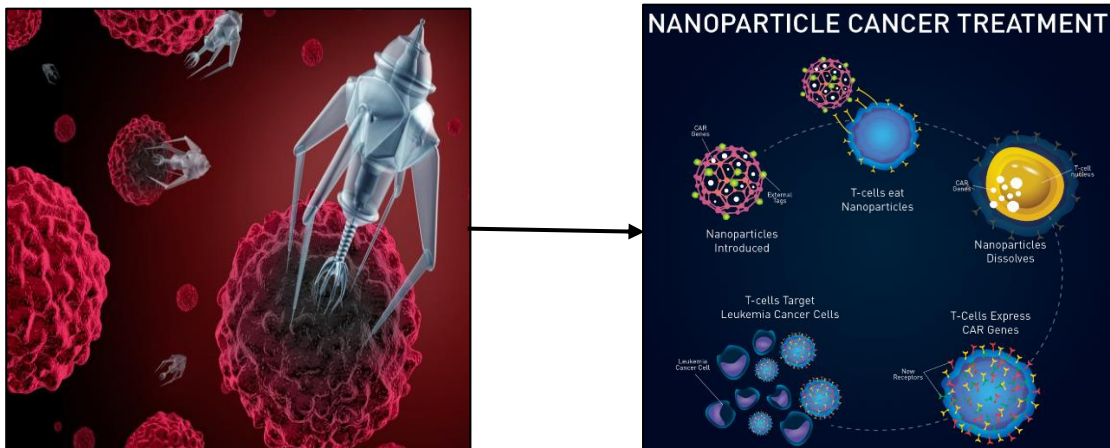
5. Mind controlled wheelchairs

- Researchers have developed a wheelchair that works in tandem with a cap that is inserted on the patient's head, over the motor cortex of the brain.
- It monitors the electrodes so that if the patient thinks simple commands such as 'go left' or moving towards specific objects that the patients wants to go.
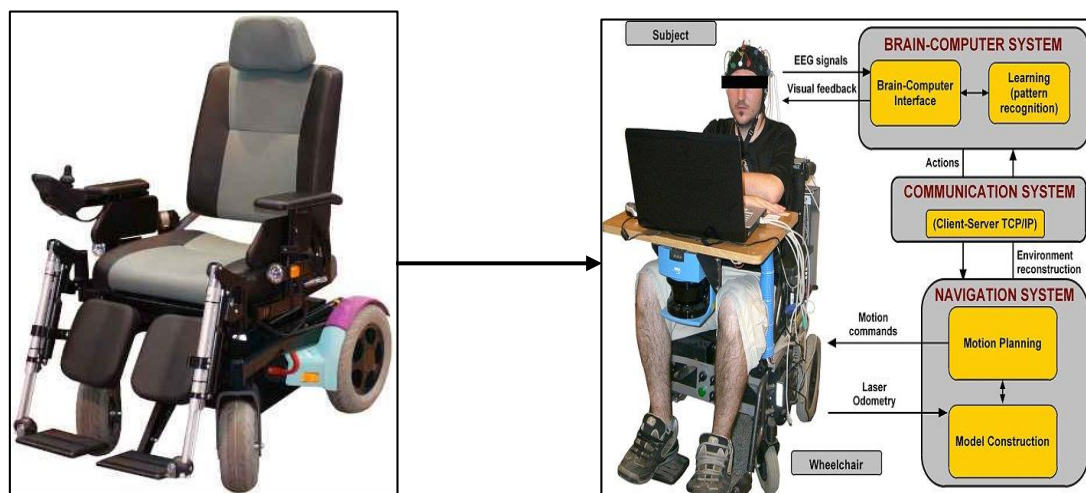
6. Implementation of Software

- The development of specific software programs means that, for example, the World Health Organization has been able to classify illnesses, their causes and symptoms into a massive database that encompasses more than 14,000 individual codes for diseases.
- This resource allows medical professionals and researchers to track, retrieve and utilize valuable data in the fight to control disease and provide better healthcare outcomes in general.
- Software also plays a pivotal role in tracking procedures and using billing methods that not only reduce paperwork levels, but also allow practitioners to use this data to improve quality of care towards the patients and all around efficiency for a faster recovery.


7. Google's Deepmind AI
   - More recently, Google's DeepMind created an A.I. for breast cancer analysis.
   - The algorithm outperformed all human radiologists on pre-selected data sets to identify breast cancer, on average by 11.5%.
   - These are only two of the many examples of companies using A.I. to advance healthcare from designing new drugs to disrupting medical imaging to mining medical records.
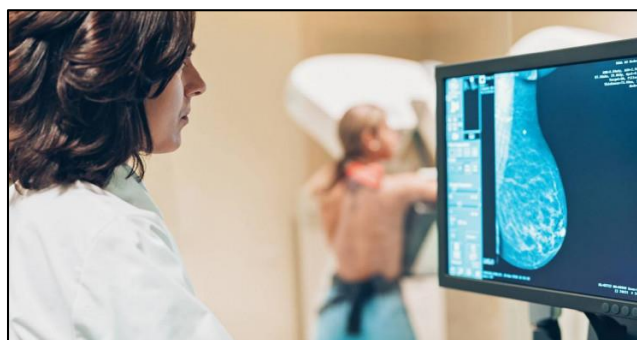
8. Healthcare trackers, wearables and sensors
   - As the future of medicine and healthcare is closely connected to the empowerment of patients as well as individuals taking care of their own health through technologies, we cannot leave out health trackers, wearables and sensors from technology contribution.
   - They are great devices to get to know more about ourselves and retake control over our own lives.
   - The beauty of these new tech-fuelled devices is that they really make patients the point-of-care.
   - With the ability to monitor one's health at home and share the results remotely with their physician, these devices empower people to take control of their health and make more informed decisions.

Wearable Technology
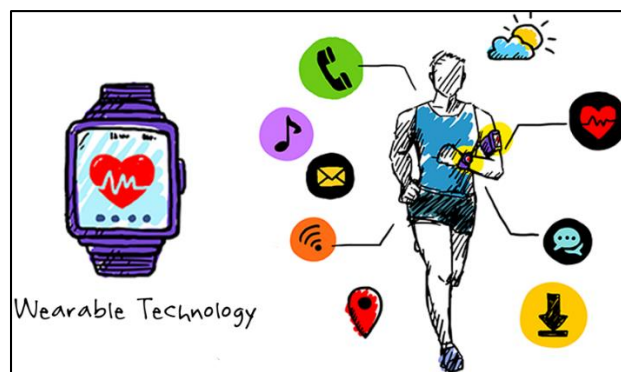
Are there any disadvantages of Electronic Health Records?

Yes, there are few disadvantages of implementing technology in healthcare but they are very few in number. Just giving a draft on it.

- Theoretically, shifting to EHRs should change everything for the better. Unfortunately, there are some kinks that still need to be ironed out. Rather than a records system that works fluidly, many networks lack interconnectivity, which means that many don't have the ability to communicate between one another. Sometimes, this lack of communication can put patients' health in danger.
- In 2015, hackers stole records for almost 80 million Anthem customers and employees, the second-largest health insurance company in the US. Only names and addresses were stolen, (no details of illnesses or treatments were exposed), but if this can occur to an insurance giant such as Anthem, it raises questions about how safe patient records really are in your local clinic.

The Future of Healthcare Technology

The future of healthcare includes technology that seamlessly combines data on a patient's medical history, real-time health, insurance coverage, and financial information all to support provider decision-making, improve patient health, and reduce costs.

We are truly living in revolutionary times for healthcare and special thanks to the advent of digital health. Our mission is to spread the knowledge and developments in healthcare which will usher the real era of the art of medicine.

It results the best when Technology and humans hand-in-hand because it aims for a better healthcare and responsible service towards patients. I honestly believe that this is the only way forward. Technology can only aid and improve our lives if we stand on its shoulder and if we are always (at least) two steps ahead of it. And, finally if we adhere to this rule, the cooperation between people and technology could result in amazing achievements.