Watson Health™

Watson Health

What do they sell?

Awesomeness Begins here!

Response 1

One-Liner Answer

IBM Watson Health is an AI empowered SaaS, selling Healthcare Consulting products to Governments, Hospitals and Research facilities to revamp/optimize their existing healthcare solutions in a partner-based business model.

Detailed Summary

Watson Health's main goal is to digitize healthcare while also providing AI-based smart suggestions to aid in the decision making process for Governments, Doctors and Researchers.

Use cases include, but are not limited to -

- Medical Imaging(using Convolution Neural Networks) to identify visual patterns which a Doctor may have not actually initially detected.
- Patient-centric disease detection pattern-recognition (clustering Machine Learning models) and cost-estimation of treatment (Linear Regressive Models).
- Governments can use Population-based vulnerability analysis to pre-determine future illnesses, their probability and impact.
- Governments can address fraud claims, reduce wastage of medications, vaccines, other equipment and channel them before they expire.
- Patient engagement, Connected ecosystem, Hospital ranking services for Hospitals.

The Business Part

IBM, being a core tech company is only creating the tech and infusing it with AI. It is not taking responsibility of selling its products through - sales, marketing, reaching out to Hospitals, Governments and Research centers. It has a **Partner business model.** IBM promises training, support, certifications for IBM Watson Partners.

A Partner can choose to –

- **Build** – Other tech companies who want to leverage the boilerplate IBM solutions and build out their own innovative products, services out of it and generate revenue.
- **Service** – Consulting Companies leverage IBM solutions to build extended industry-specific solutions for IBM Watson's clients, essentially serving them with IBM solutions.
- **Sell** – For companies doing simple tweaks and reselling IBM solutions.

Response 2

Summary

Watson Health services clients in life sciences, government health and human services sector and more with information technology systems based on IBM Watson core artificial intelligence platform.

The Watson Health IT systems help health care providers, pharmaceutical research organizations and medical device companies analyze high volumes of patient and healthcare data that has been acquired over the years from companies like Truven (one of the largest databases in the nation; ~ 300 million covered individuals). The algorithms and systems are meant to optimize patient care and support clinical trials by combining patient health data points with all-encompassing healthcare data and treatment options, e.g., hospital beds, pharmaceutical options, etc. to provide optimal treatment recommendations.

Additionally, IBM Clinical Development provides unified technology from start up to submission to support clinical trials.

Response 3 Part 1

Background

It all started with IBM's AI-Watson usurping the reigning Jeopardy champions back in 2006. This was significant because an AI was now able to interact and understand cryptic clues and respond to questions that were essentially in unstructured format-plain English. What this demonstrated was that AI was capable of "understanding" a question, refer vast amounts of data to obtain information, hypothesize, evaluate and then arrive at the most appropriate answer.

We live in a world where 90% of the information we use is less than two years old and 80% of that data is unstructured. In 2010 the National Library of Medicine catalogued 700,000 new articles. That's just from the National Library of Medicine - we haven't accounted for libraries and publications around the world and the vast repository of medical guidelines and protocols that keeps expanding and updating every year. We haven't been leveraging that vast expanse of unstructured data to make decisions. As humans we are limited with the amount of data we're able to consume and process at a point in time. This limitation leads to certain kinds of human behaviors that consistently contributes to decision error. Per the science of decision errors, humans are prone to the below in addition to others:

1. Flaw of availability - We overvalue and overestimate the impact of things that we can remember and we undervalue and underestimate the prevalence of the events we hear nothing about.
2. Self-reinforcing perception bias- where we seek out that which supports our original thought.

AI can help reduce the above two human decision errors.

Response 3 Part 2

IBM Watson Health

For IBM, Watson winning a game of Jeopardy was simply a proof of concept on its potential to solve real world business problems, in this case healthcare. There's a tremendous amount of information that is collected every day on the care of hundreds of millions of people. However, there is currently no way to connect that information, to link it to an individual across all the domains in which they get care, and then to develop a holistic picture of who they are, disease profile and the best treatments for their situation at the lowest possible cost. Healthcare is a three trillion dollar busines and one of the biggest parts of our economy that has legacy technology infrastructure. IBM Watson Health leverages the power of AI to deliver better and customized patient care based on evidence based data. Consider this scenario:

1. A patient schedules a visit with his physician to discuss some symptoms
2. The doctor orders additional tests (if required) to investigate further.
3. The lab reports come back and the doctor is now in the analysis and hypothesis phase.
4. At this point the doctor takes the assistance of Watson. A pre-requisite here is the physician practice has Watson installed as part of the practice health systems.
5. The physician simply states the question either in verbal or written as an English sentence to Watson
6. Watson accesses the patient record and interprets the question in several different ways
7. It comes back with ideas based on patient data and vast volume of literature. It comes up with an intentional list of several answers.
8. It runs each answer through the apparatus of a hypothesis and verifies against vast amounts of data and a cohort of patients with similar attributes or conditions
9. It then presents ideas with levels of confidence. It can also tell you what may be missing for a specific treatment plan so the physician may order that test and re-evaluate
10. The physician can now make an informed decision based on the ideas presented by Watson discuss treatment plans with the patient.
11. The patient may indicate certain preferences which may require a different approach. In which case the physician provides that update to Watson and it goes back and analyzes with the new data point and comes back with revised list of ideas and confidence level.
12. The physician and patient agree on a treatment plan and Watson sends out the details to Insurance for authorization

In the above scenario the doctor is getting all of that data, across so many different physicians, crunched down into a very digestible format and recommendation that could then lead to the best treatment for that patient. For this to work Watson needs copious amounts of data. IBM acquired few companies such as Truven, Phytel, Explorys and Merge. Truven had the biggest insurance database in the nation with 300 million covered lives, Explorys provided a clinical data set of actual electronic health records kept by health systems representing about 50 million or so patients, Phytel added on top of that, and Merge had a huge imaging database. They had all this data and the idea was: Expose Watson to that, and it finds patterns that physicians and anyone else can't possibly find when looking at that data, given all the variables in it. IBM licenses data and Watson's capabilities to their customers.

Response 3 Part 3

Here's a snapshot of some of their product offerings:

1. Micromedex-A wide range of clinical databases, including information about drugs, toxicology, diseases, acute care, and alternative medicine.
2. ICD- Clinical Trial Management platform for Pharmaceutical, medical devices and contract research organizations
3. Phytel- Phytel's technology collects data on patients. It then uses evidence-based chronic and preventive care protocols to identify and notify patients due for care, track their compliance, measure quality of care, and measure financial results for clinics using the technology.
4. Merge- is used to handle and process medical images at more than 7,500 healthcare sites. Merge's technology is used in radiology, cardiology, orthopedics, eye care and other healthcare specialties. With images added to Watson, the system should be able to see more patterns and help radiologists interpret results, cross reference medical images with lab results, genetic testing and other data.