

Beyond the hype, Chatbots and AI potential in Healthcare Industry



Year 2030...
How do you
feel today?

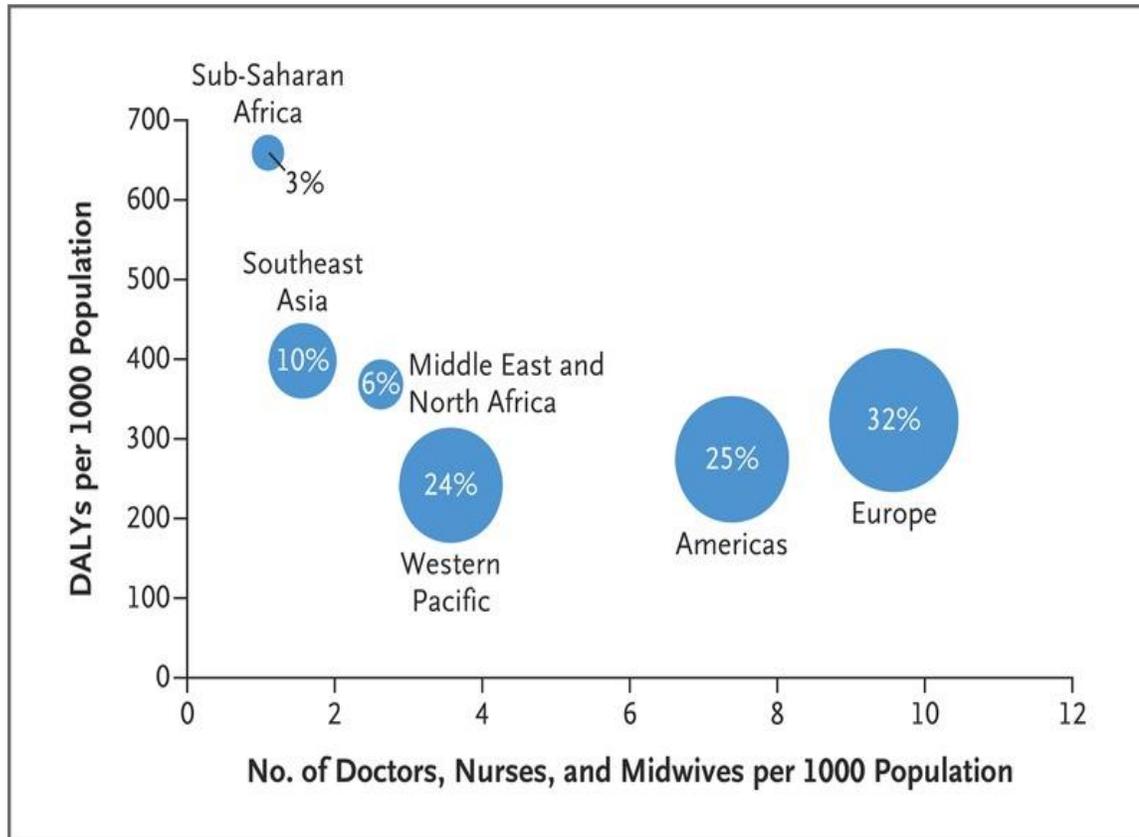
“My Apple health chatbot referred me to the Google Hospital where I got Amazon drugs”



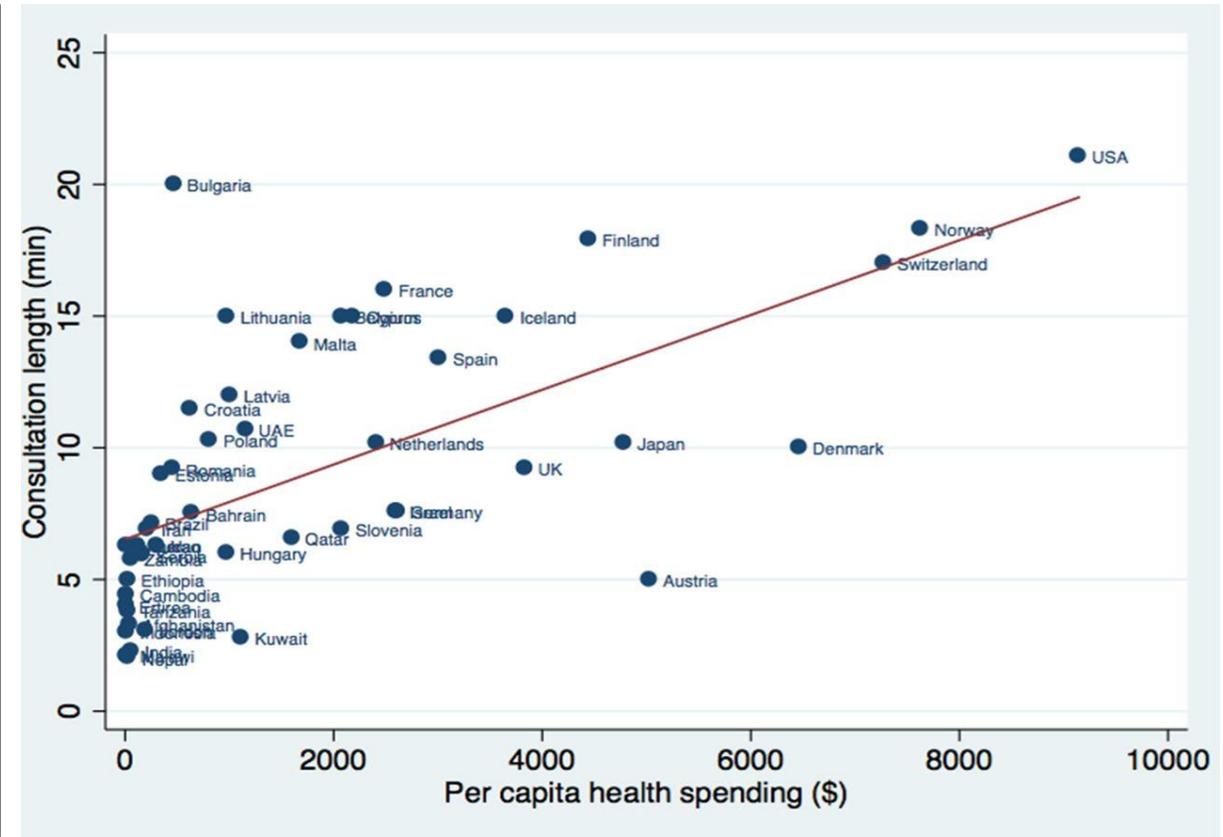
Back to 2018...

Healthcare needs a revolution in the next 5 to 10 years

WHO: Global Health Workforce and Burden of Disease



British Medical Journal – Physician consultation time.



But NLP and Mobile Health are still on the Gartner Hype curve



Media gives hope to growing earth population in the next decades

EDITOR'S PICK | 13,087 views | Jun 29, 2018, 10:01am

This Startup Wants To Replace Your Doctor With A Chatbot



Parmy Olson Forbes Staff

Forbes Digital Covers Contributor Group

AI, robotics and the digital transformation of European business.



Chatbots to save healthcare industry \$3.6B in 2022

Here are some of the healthcare companies already deploying chatbots

Rewriting Life

Your next doctor's appointment might be with an AI

A new wave of chatbots are replacing physicians and providing frontline medical advice—but are they as good as the real thing?

by Douglas Heaven October 16, 2018

THE WALL STREET JOURNAL.

Europe Edition | December 4, 2018 | Print Edition | Video

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THE FUTURE OF EVERYTHING

Meet the Chatbots Providing Mental Health Care

Researchers are working to teach empathy to artificially intelligent messaging tools, with the goal of supplementing human therapists

Are you still there: The Human Side of Healthcare?

“Tools in healthcare must meet our basic technology expectations, informing and connecting, but they must also comfort us in our time of need.”

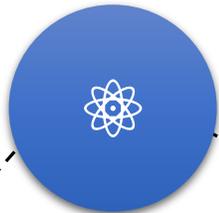


Biggest problems to navigate in healthcare with the help of Chatbots

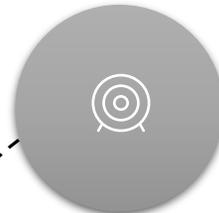
Annual costings of medication non-adherence range from US\$100 to U\$290 billion in the USA and €1.25 billion in Europe



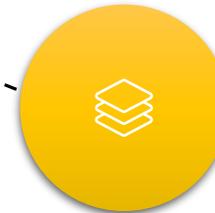
Health assistants



Disease awareness and population screening

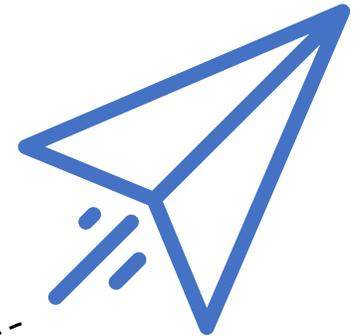


Adherence to treatment.



Patient Support Programs (cancer, chronic diseases).

CSource Chatbot—the Informational Support for Those Who Are Faced With Cancer



Current technology can address big part of the problems, but with different focus

Chatbot based on rules

This bot is very limited. It can only respond to very specific commands and conversations are restricted (thematic flows)

This bot is only as smart as it is programmed to be, usually to bound legal and regulatory restrictions.

Pharma/HC vs Startups and Tech

Chatbot using AI

You don't have to be ridiculously specific when you are talking to it. It understands language/intent (NLP) not just commands.

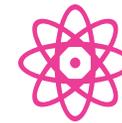
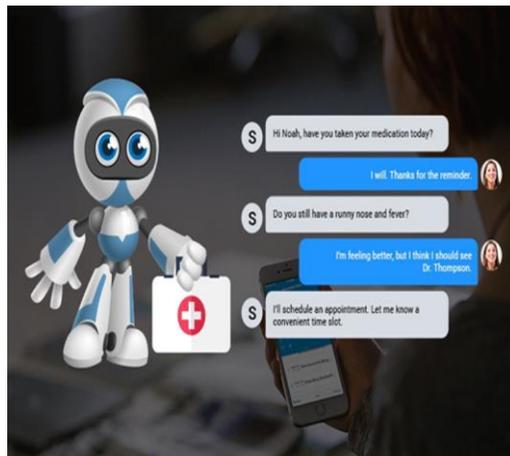
This bot continuously gets smarter as it learns from conversations it has with people.



Treatment adherence



Patient Support Programs (cancer, chronic diseases)



Health assistants



Disease awareness and population screening

What is Natural Language Processing? (NLP)

Communication

1

Humans communicate using Words. **Every time, anywhere and in multiple languages.**

Understanding

3

The human language can often be really confusing by use of ***slang and abbreviations***. A computer needs to break up a sentence and analyse each individual part.

How does this all work?

Think Process

2

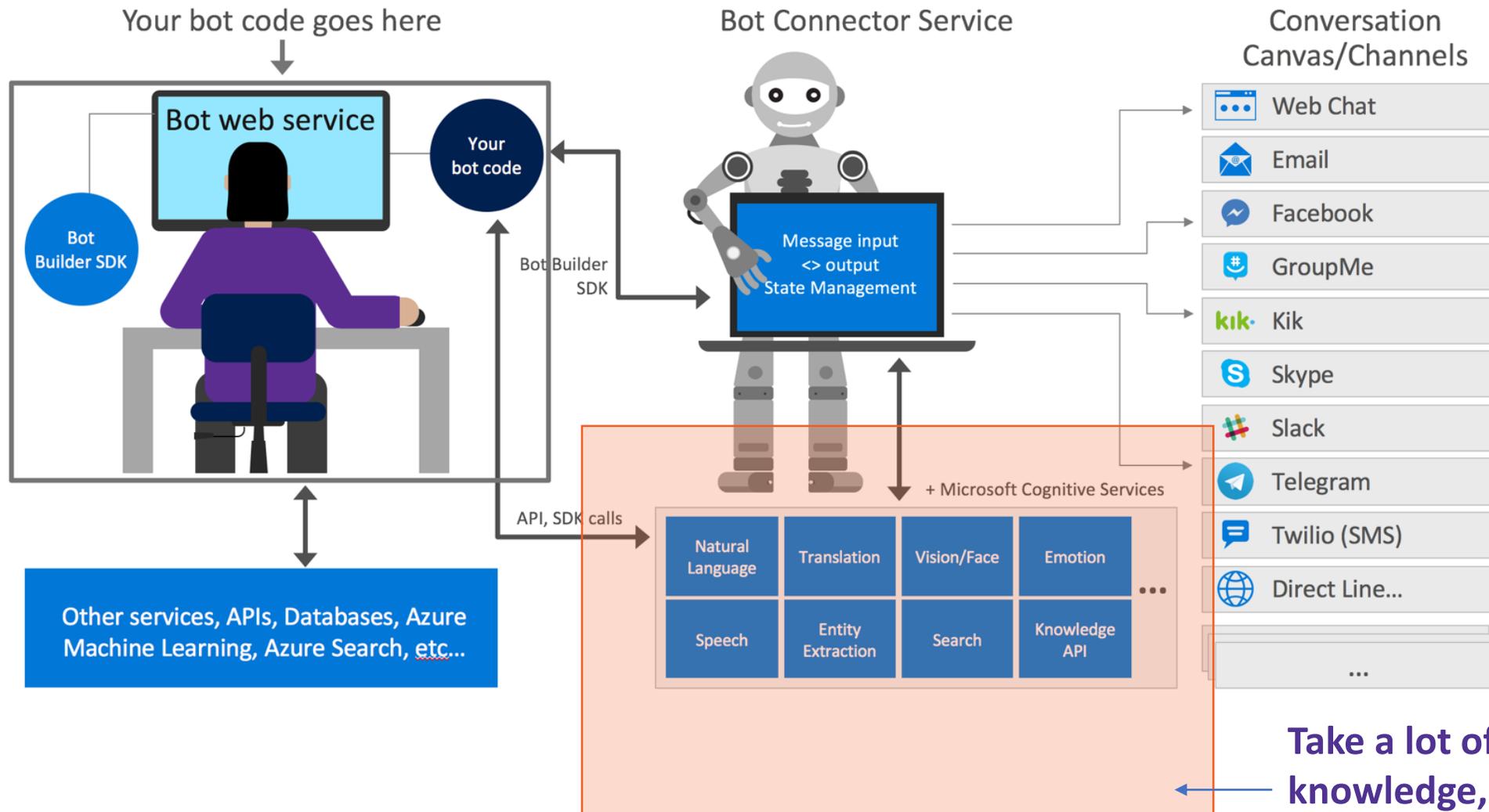
Communication is not everything a computer needs to **simulate thinking process**. We also think in words, dream in words and make decisions in words.

Learning

4

Where a computer can be superior, is at **storing what he learned** when he understood a sentence right. He can learn from his success and understand more similar sentences

Chatbot architecture example – make your bot smarter and human like



Take a lot of time, money knowledge, patience and as well risk appetite.

Taking healthcare from clinics to Facebook – Messenger

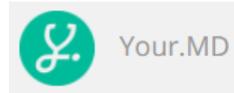
SENSELY



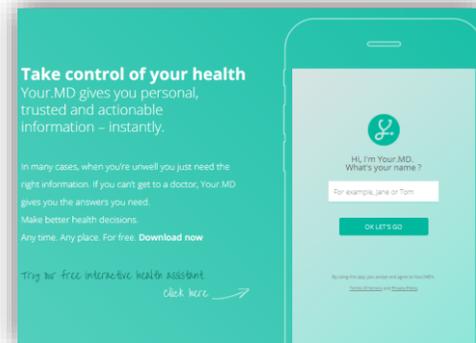
- **Virtual nurse** that engages discharged patients to follow up with treatment plans and adherence



Your.MD



- **Personal health care assistant** to answer your health related questions



Medwhat



- **Medical assistant** to answer questions related to medicines side effects, usage and more



HealthTap



- **Instant**, free answers from 100,000 U.S. doctors from HealthTap – right from Facebook Messenger.



PROS

CONS

Addresses real needs

It is a fact that good quality healthcare information is not easy to find



01

Fills in the gap

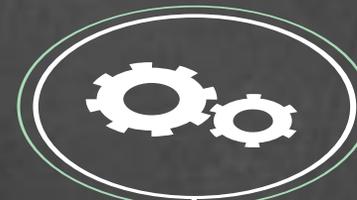
Doctors do not have enough time as needed per patient



02

Not easy to scale globally

Different regulations per country and only for developed markets



03

04

Can deliver savings to HC spent

Unless are used operational improvement, savings from disease prevention and complications avoidance are hard to quantify



05



Highly regulated industry

Applicable for specific purpose and carries a lot of risk

06

Low return on investment

Resistance to pay for extra service and benefits not visible immediately



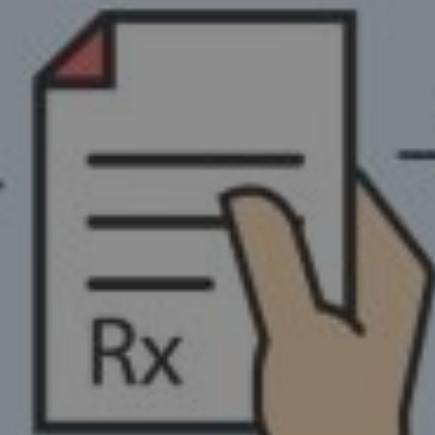
An industry revolution, but who is contributing?

-  Big Tech Companies
-  Pharma Industry
-  Start ups
-  Hospital and Clinic chains



The way we do healthcare today will be totally disrupted in the next decade, due to Chatbots and AI

Questions?



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