

# How to Innovate in an Increasingly Connected World

@rzarref

Rafael Ferraz - San Francisco / CA - 2019

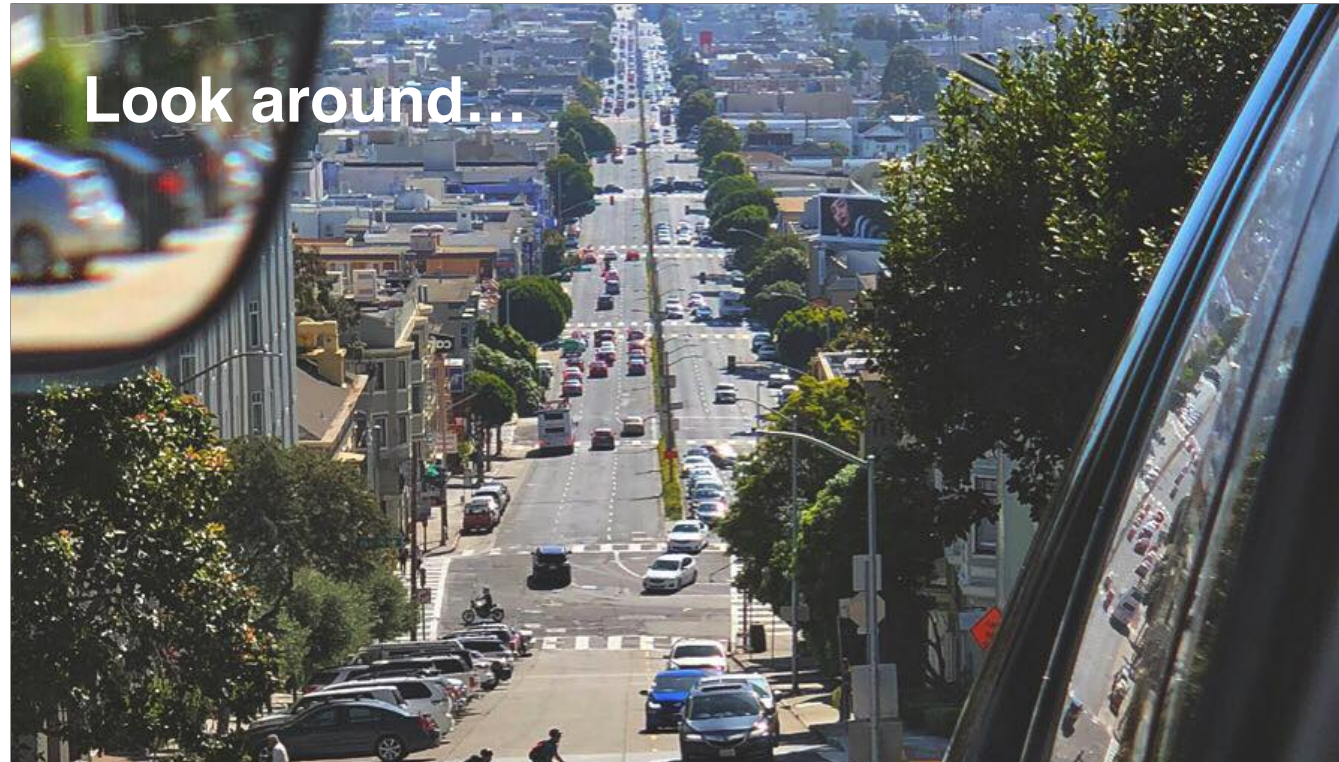


- Head of Product at Oaktech.
- Mentor at THE VAULT San Francisco
- Co-founder at Konker Labs
- E-commerce entrepreneur.

**@rzarref**

Looking for the  
future

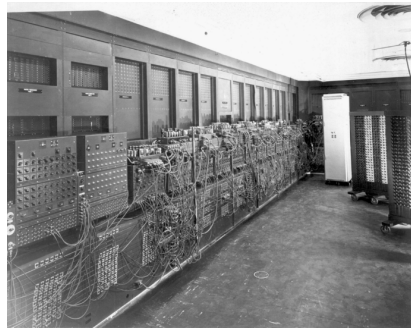






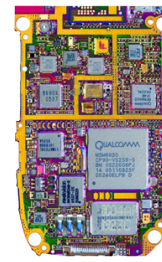
1

Our computers continue to get smaller and more powerful



1946

X



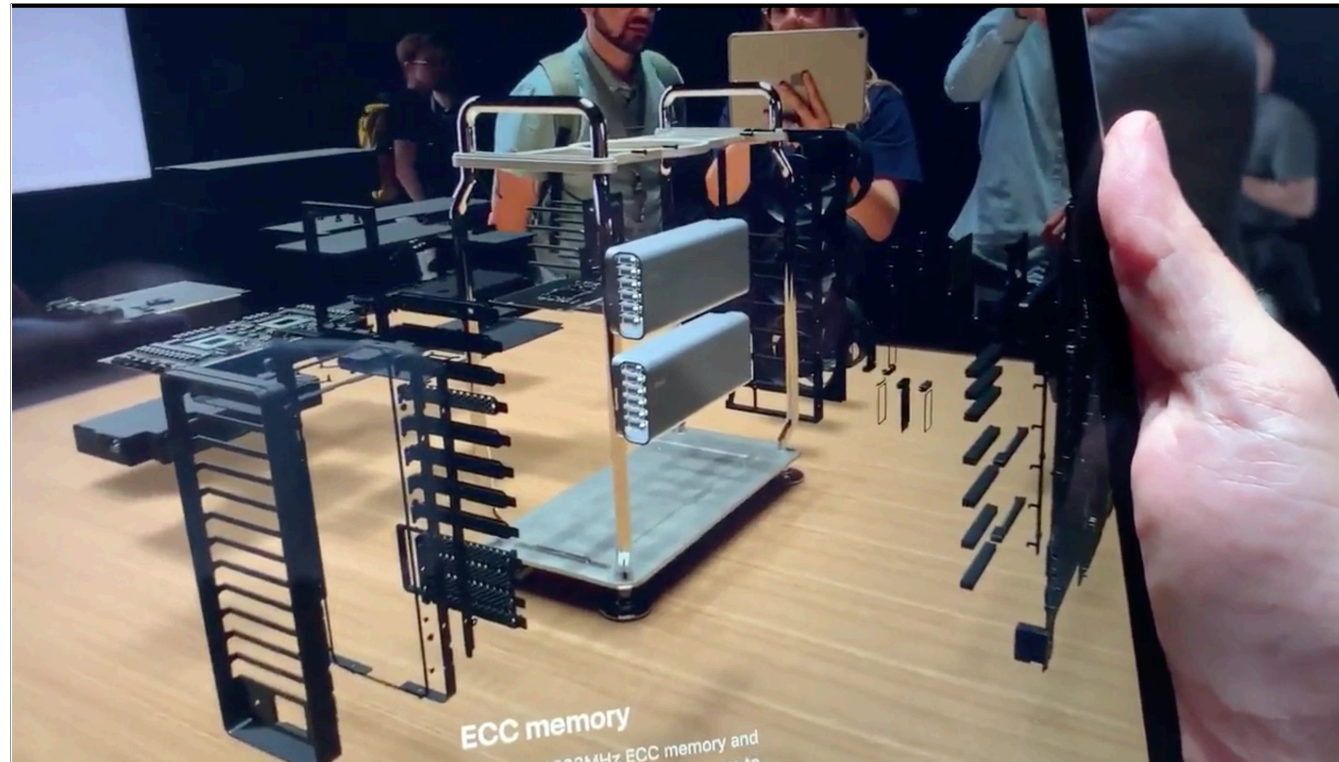
2007

**17.000x** cheaper  
**40.000.000x** smaller  
**400.000x** less energy  
**120.000x** lighter

and....

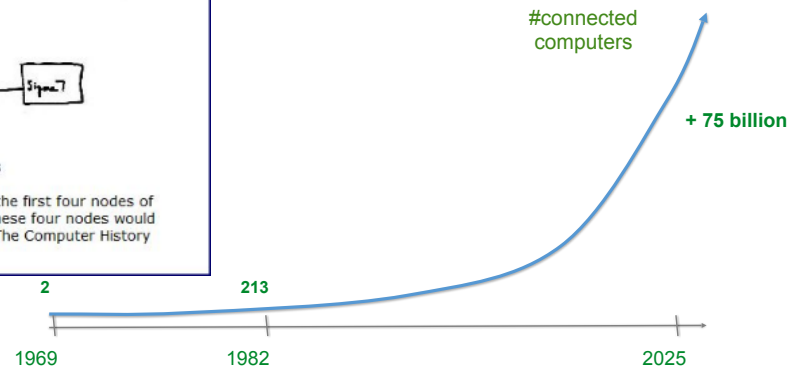
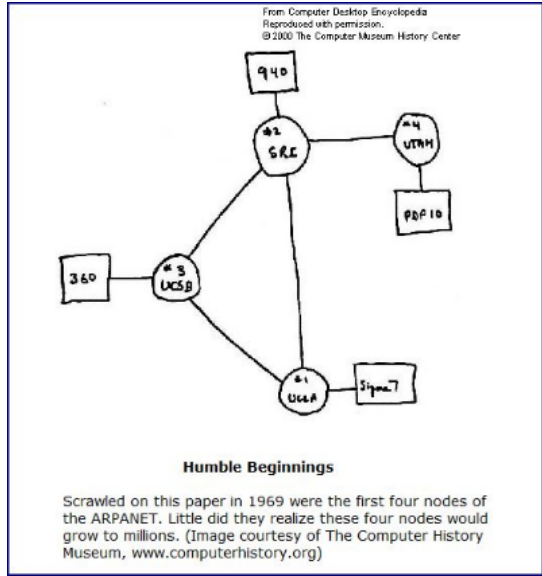
**1.300x** more  
**powerful**

- Moore's law

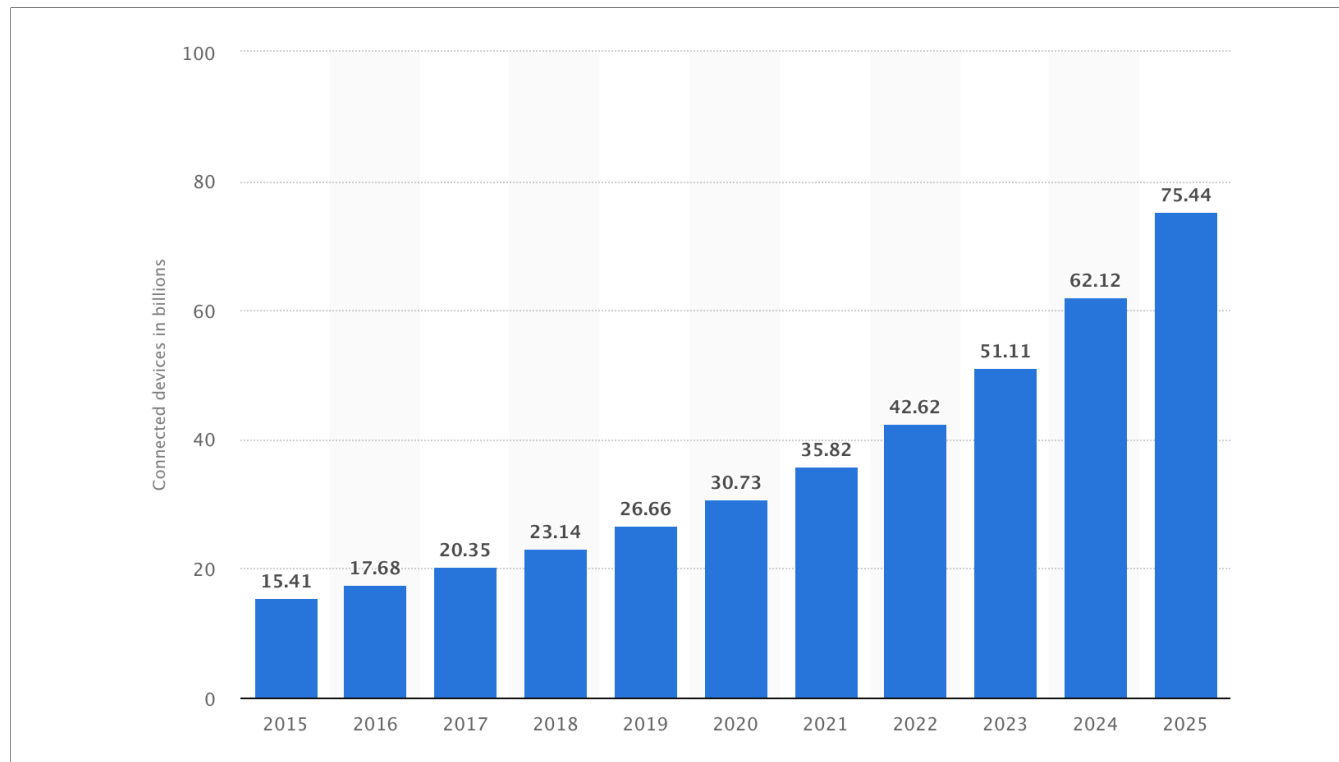


**2** Internet is embracing everything

- Everything is going into the internet

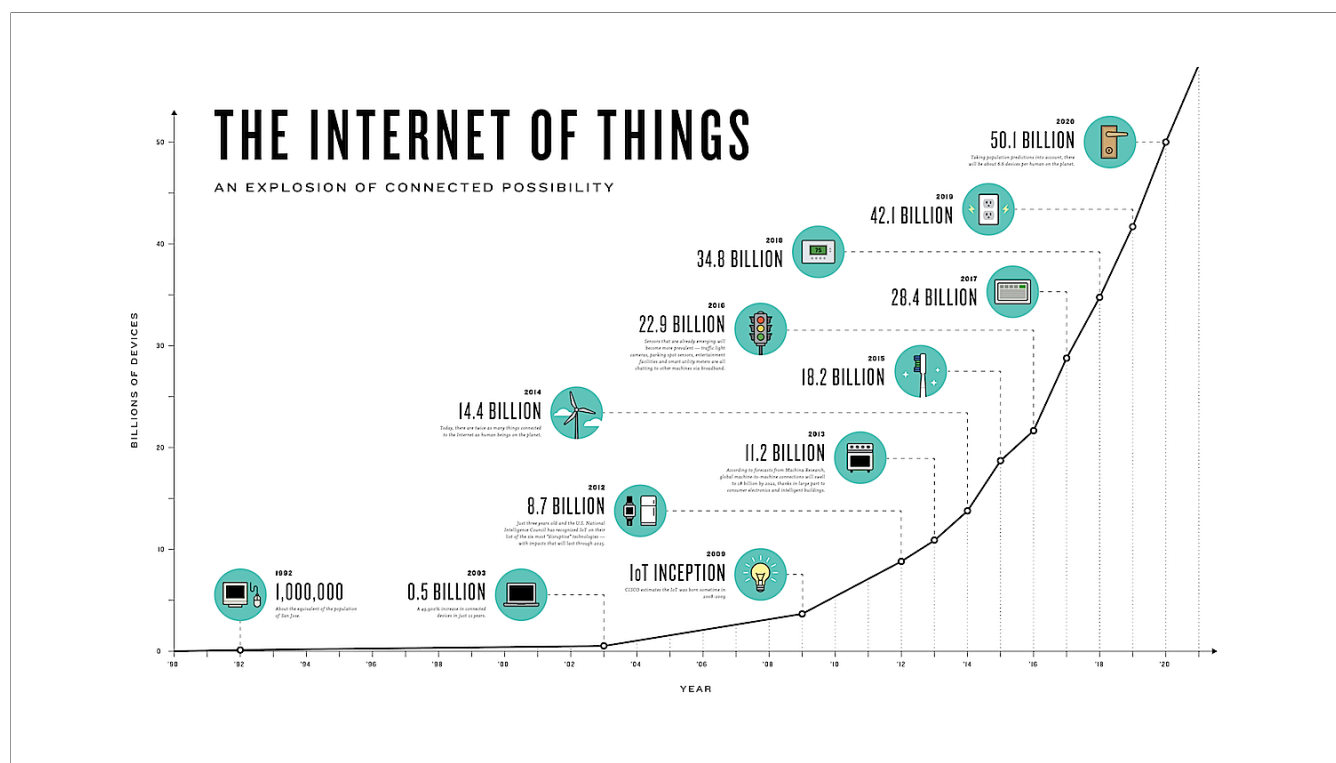




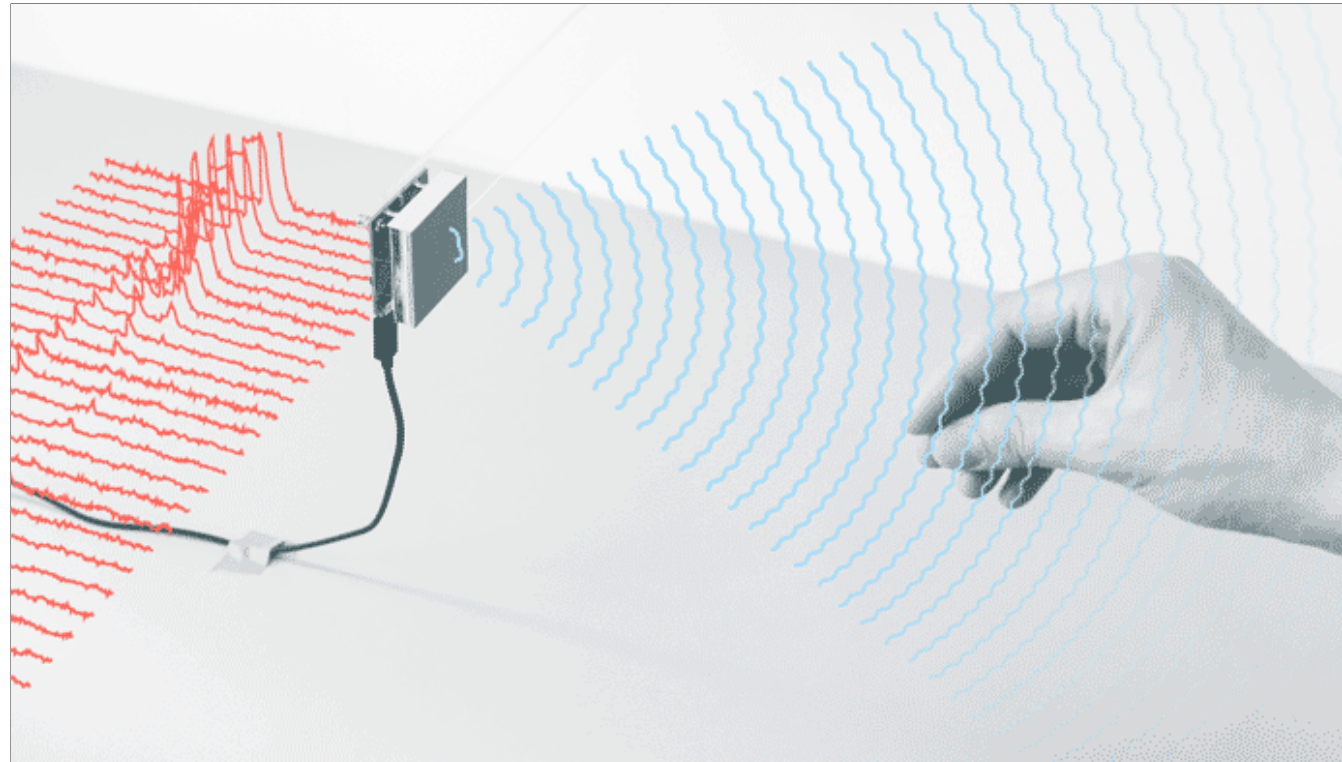


- Total devices connected between 2015 and 2025

And it's not just cell phones  
and connected computers...



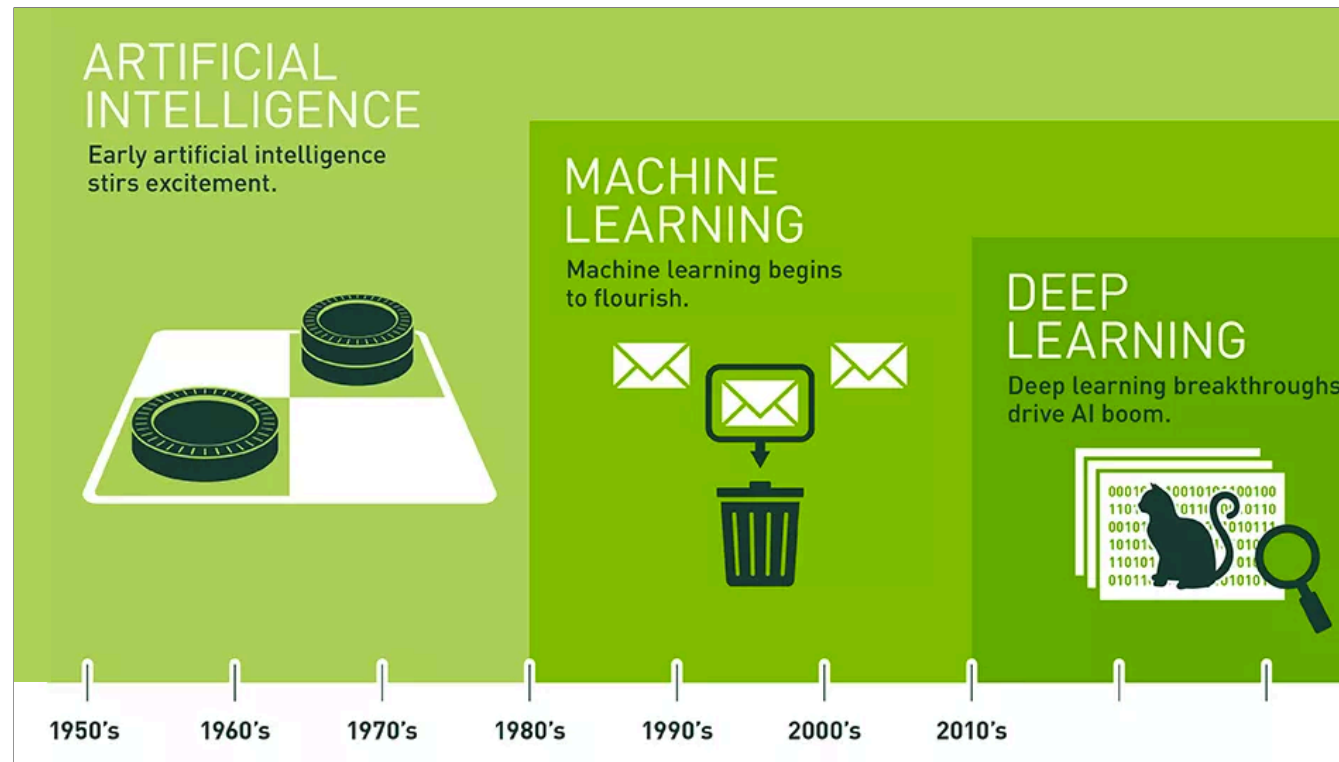
- The industry has been doing IoT for years. What's the difference? Autonomous life between devices. That's where IoT starts to get interesting.



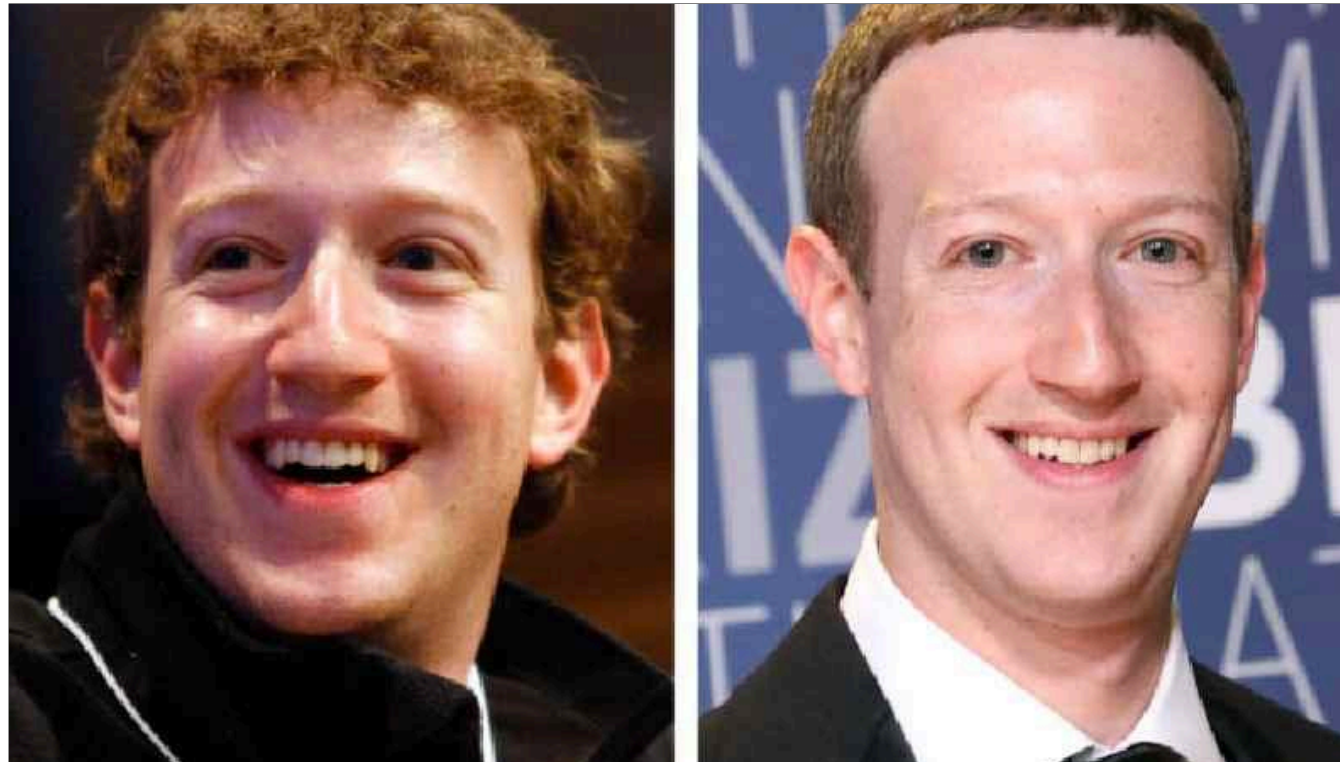
- Project Soli (radar-sensing): Google plots radar detection technology makes any object intelligent.







- AI (1956) has been part of our imaginations and boiled in research labs since a handful of computer scientists met around the term at the Dartmouth Conferences.
- AI - Early / Machine learning begins to flourish / Deep learning advances give AI a boost.
- AI: reproduction of human intelligence ("General AI" and "Narrow AI") ML: An Approach to Achieving Artificial Intelligence - it is the practice of using algorithms to analyze data, learn from it and then make a determination or prediction about something in the world.
- DP: Technique to Implement Machine Learning. (Approach - Neural networks: Inspired by our understanding of the biology of our brains). GPU's made it possible.
- Graphics Processing Unit: graphics rendering in real-time.



- Facebook 10 years challenge



- Is it still possible to innovate? What will happen from now on?

What will happens on a planet,  
where...?

**The computational power is  
unlimited**

in tiny devices





There is internet  
everywhere and for free

**All things will be  
connected**



We will acquire  
superpowers

We will feel all things





we will control all things remotely



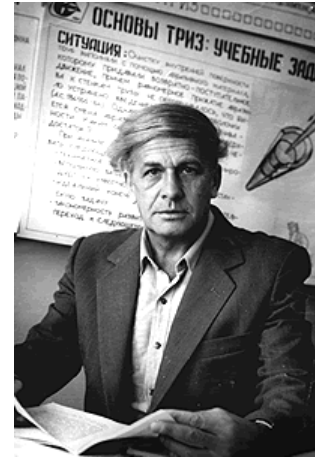


we will self regenerate

How can we innovate in this new world?



**"We innovate  
when solving  
contradictions."**



**Genrich Altshuller (1926-1998)**

- TRIZ - Theory of Inventive Problem Solving

1

Don't be  
afraid of  
contradictions



## Case study!

In big cities, people need to take a taxi, and the demand is higher than the offer:

1. Waiting time, inconvenience.
2. High cost.

## Contradiction

I need to increase the supply of this type of  
transportation in the city

**BUT**

The costs must be lower than current costs





Zappos.com



STITCH FIX

**2** From manual to self-sufficient



- The car was much more than a faster horse.
- Tomorrow's autonomous vehicles will be much more than autonomous cars.

3

Keep your focus on  
the final ideal  
result!



- The ideal final result (abbreviated IFR) is an implementation-free description of the situation after the problem has been resolved. It focuses on the customer's needs or functions, not the current process or equipment.
- A basic principle of TRIZ is that systems evolve towards greater ideality, where ideality is defined as increasing benefits, decreasing costs, decreasing damage.
- The extreme result of this evolution is the best ideal end result for the customer.

4

## You should forget the objects!

Think about the functions they play!

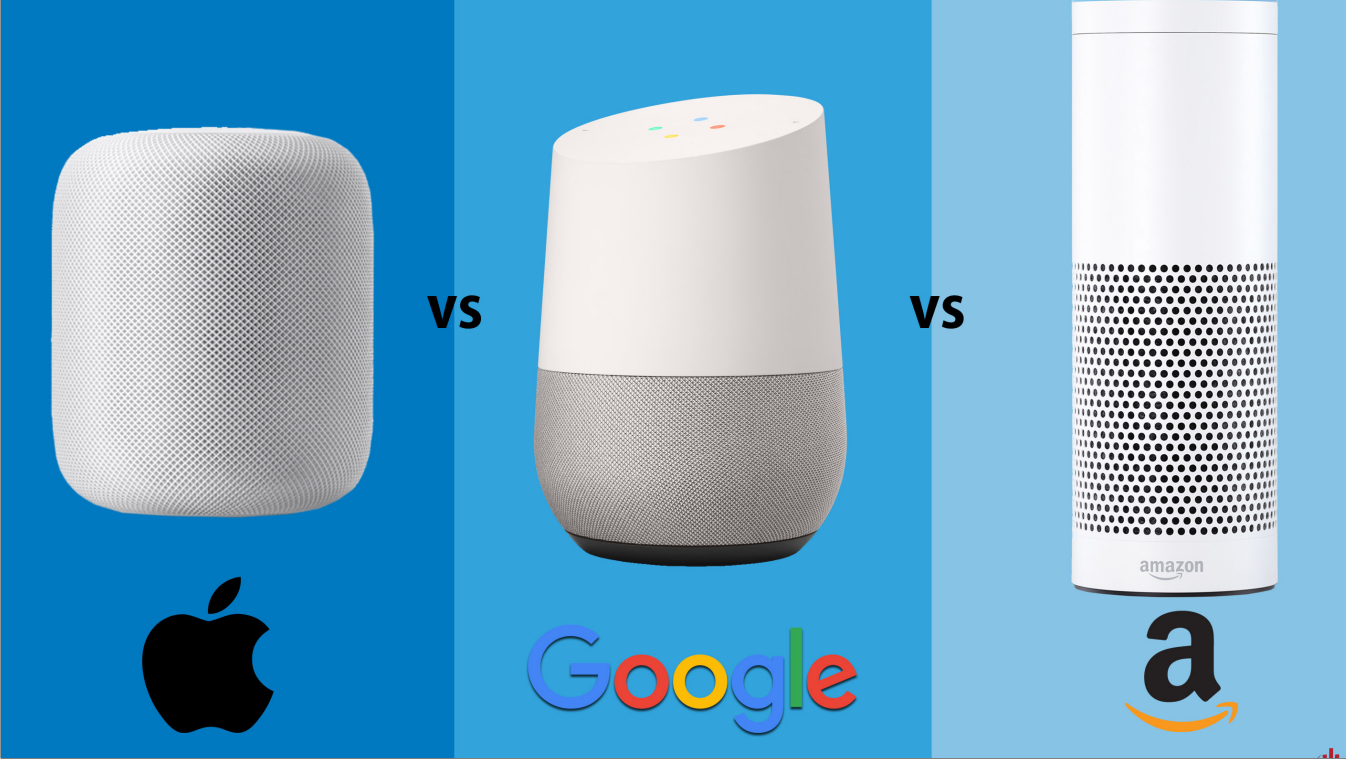


4

## You should forget the objects!

Think about the functions they play!







5

You need to split your  
tasks into smaller pieces



- Look at the big picture; make sure you understand what the final product should look like.
- Examine the parts of the task. Find out step-by-step what you need to do, because it will not happen through magic.
- Think about the logical order of completing the pieces. What should you do first, second, third, etc.?
- Create a timeline to complete your tasks. Having a deadline will make you more focused on each task.

6



Do the opposite of  
what you've been  
doing

“The next Bill Gates will not start an operating system.  
The next Larry Page won’t start a search engine.  
The next Mark Zuckerberg won’t start a social network company.”

**Peter Thiel**, Founders Fund

- 1 Don't be afraid of contradictions
- 2 Approach from manual to self-sufficient
- 3 Keep your focus on the ideal result!
- 4 You should forget the objects!
- 5 You need to split your tasks into smaller pieces
- 6 Do the opposite of what you've been doing

**THE FUTURE IS  
ALREADY HERE  
— IT'S JUST NOT  
VERY EVENLY  
DISTRIBUTED.**

**-WILLIAM GIBSON**

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