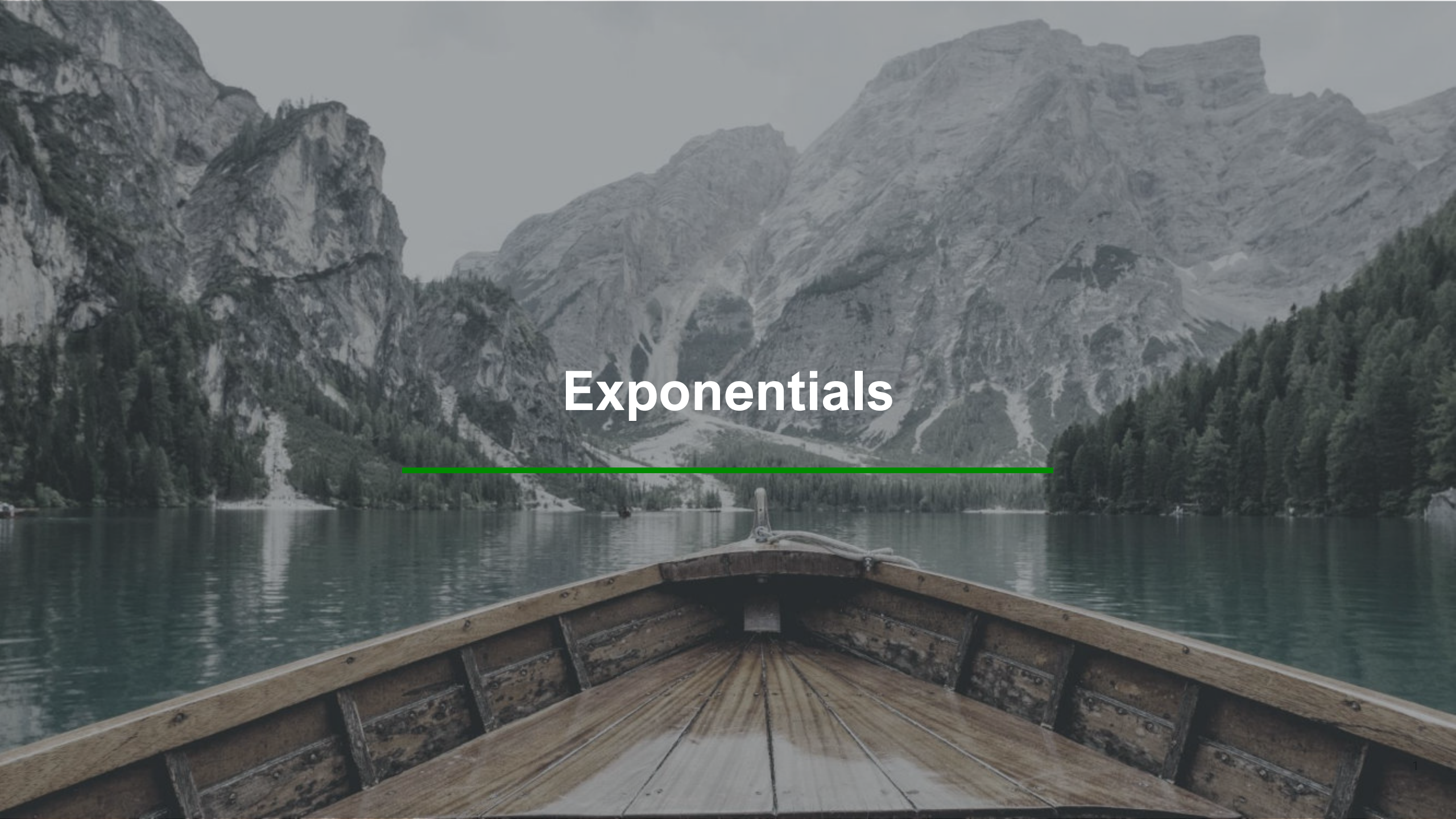


# Exponentials

---







Digital transformation is  
transforming every aspect  
of our lives

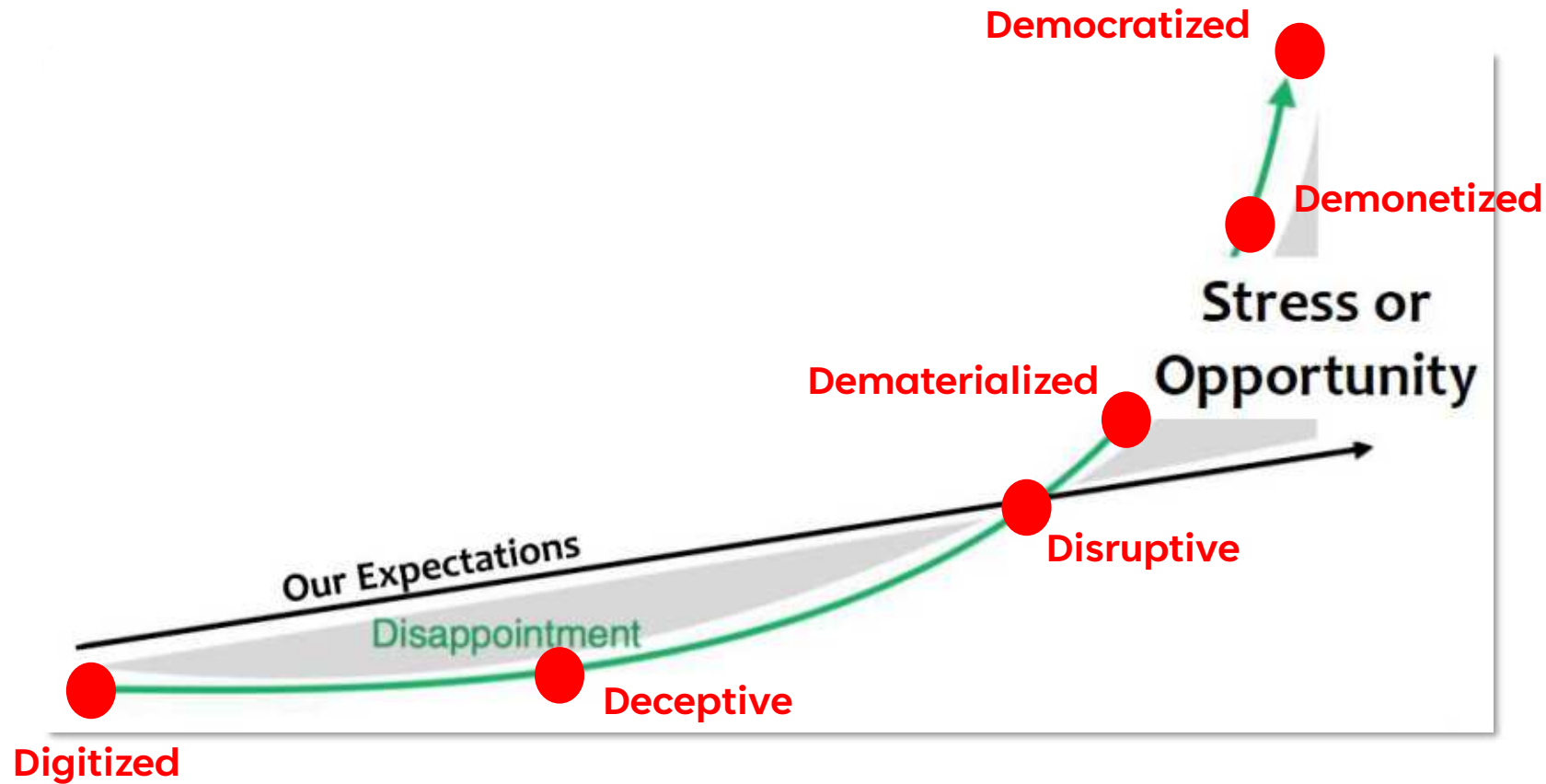






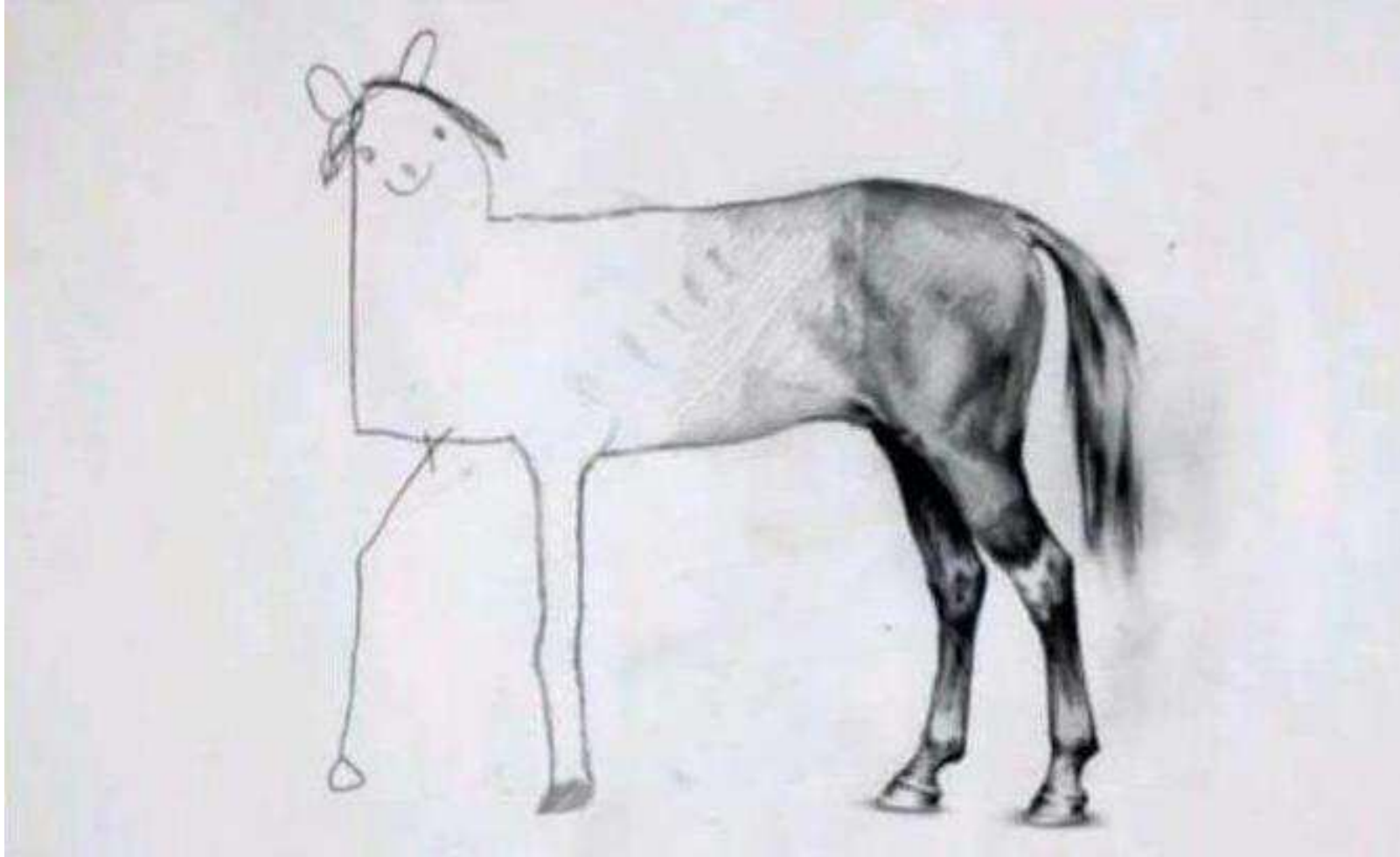
"You cant control the wind, but you can harness the power of the wind to steer your boat in the right direction"

# Understanding exponentials & the doubling effect



**6 D's**  
of Exponential  
framework

Things may change faster than we realize





A close-up, low-angle shot of a green grass blade, possibly a wheat or barley stalk, with a dark, semi-transparent horizontal band across the middle. The band contains the text "COMPUTE POWER & COST" in white, bold, sans-serif capital letters. The background is a soft-focus field of similar green grass blades.

# COMPUTE POWER & COST

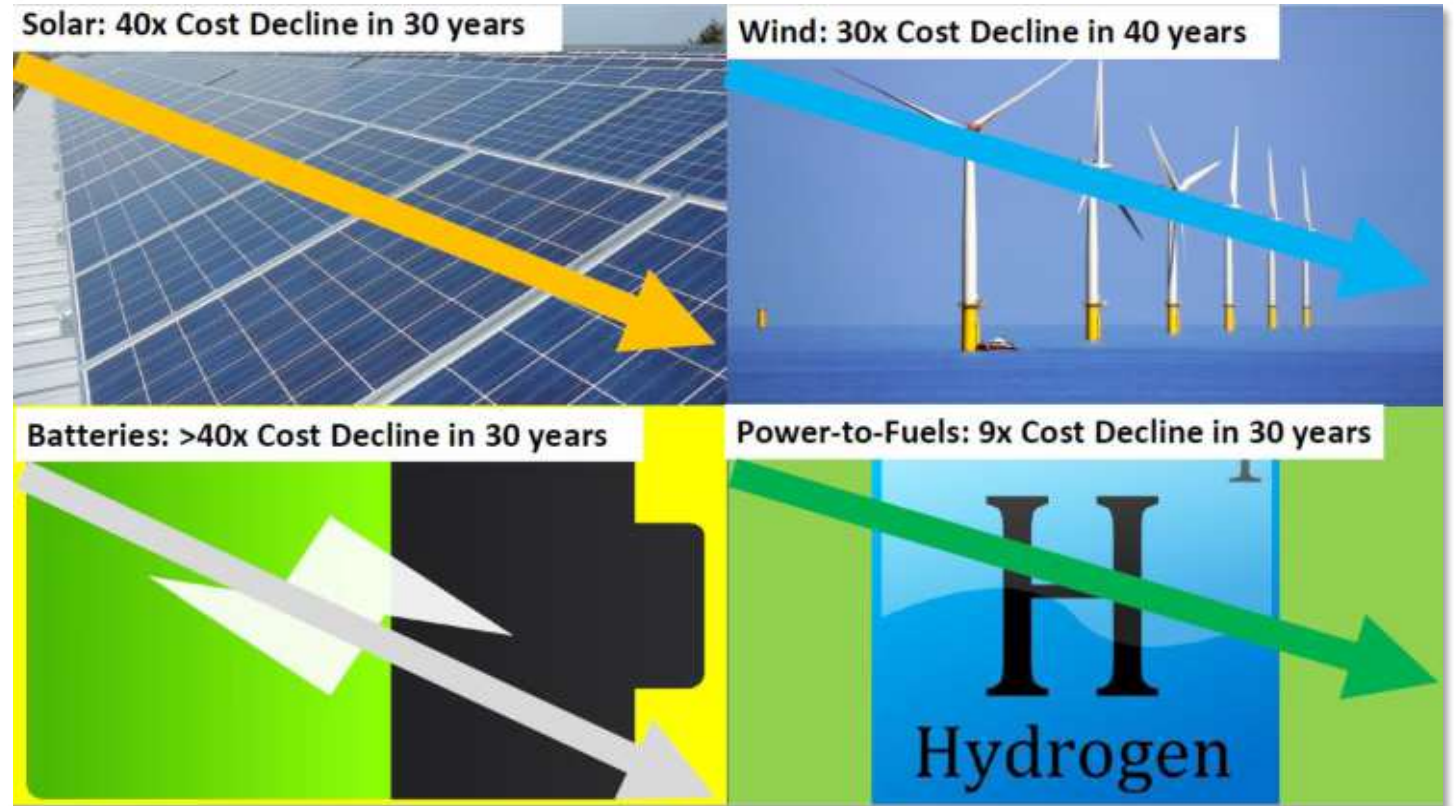


# Moore's law

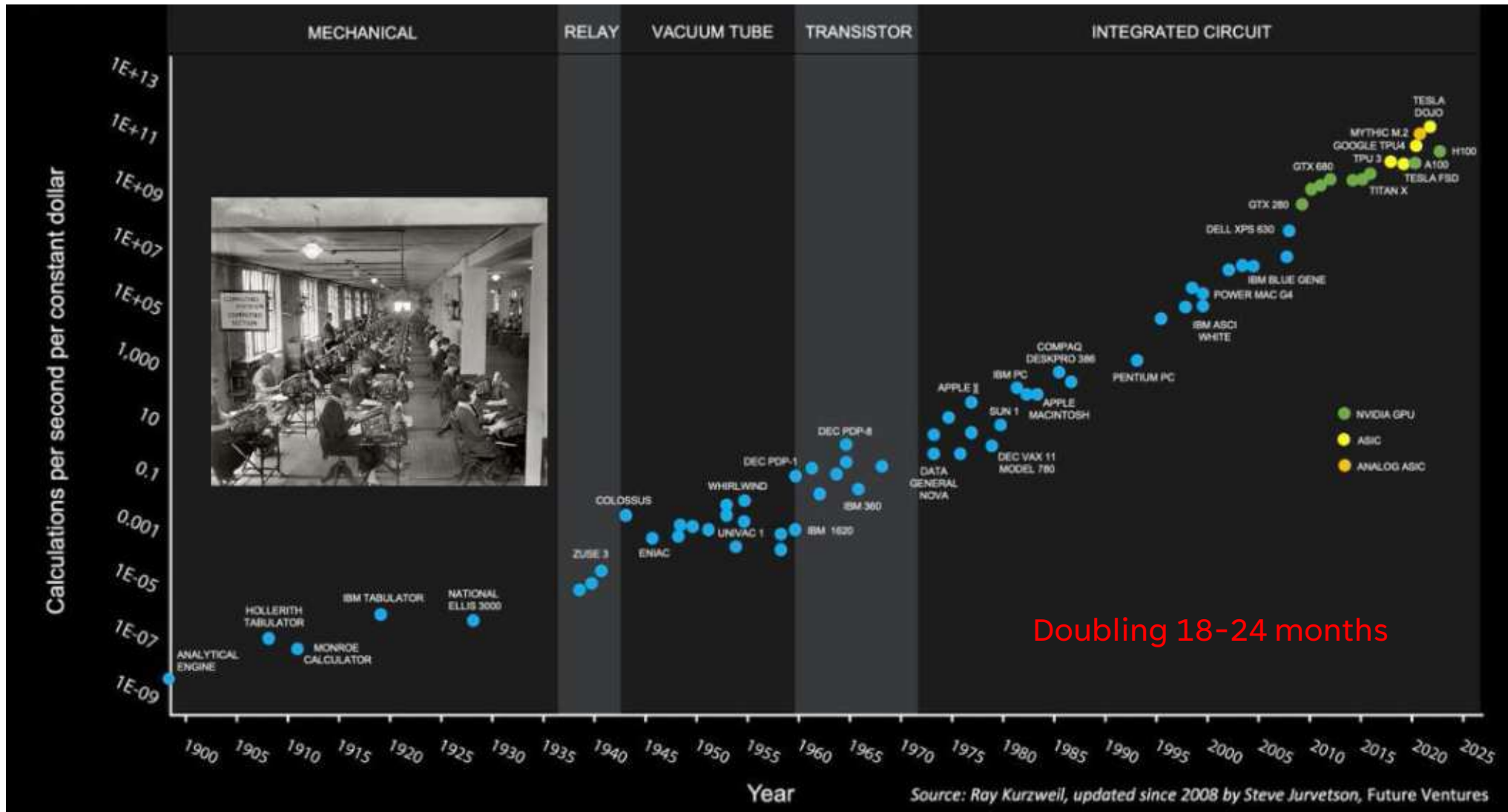
Number of transistors in an integrated circuit (IC)  
doubles about every two year

# Wright's law

As industries scale (doubling effect), they  
innovate to reduce costs  
(some faster than others)

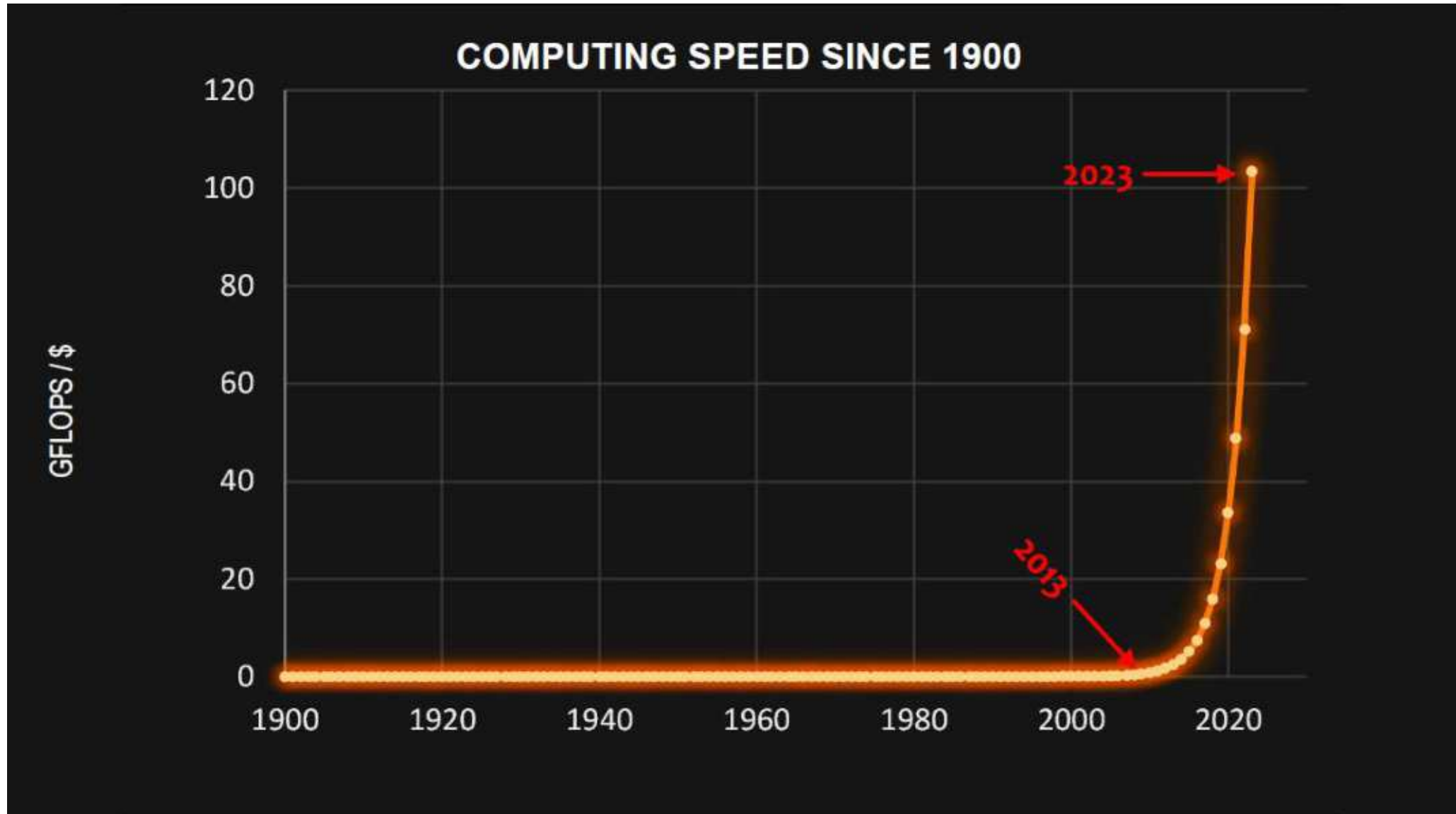


# 125 years of Moore's Law and Wright's Law

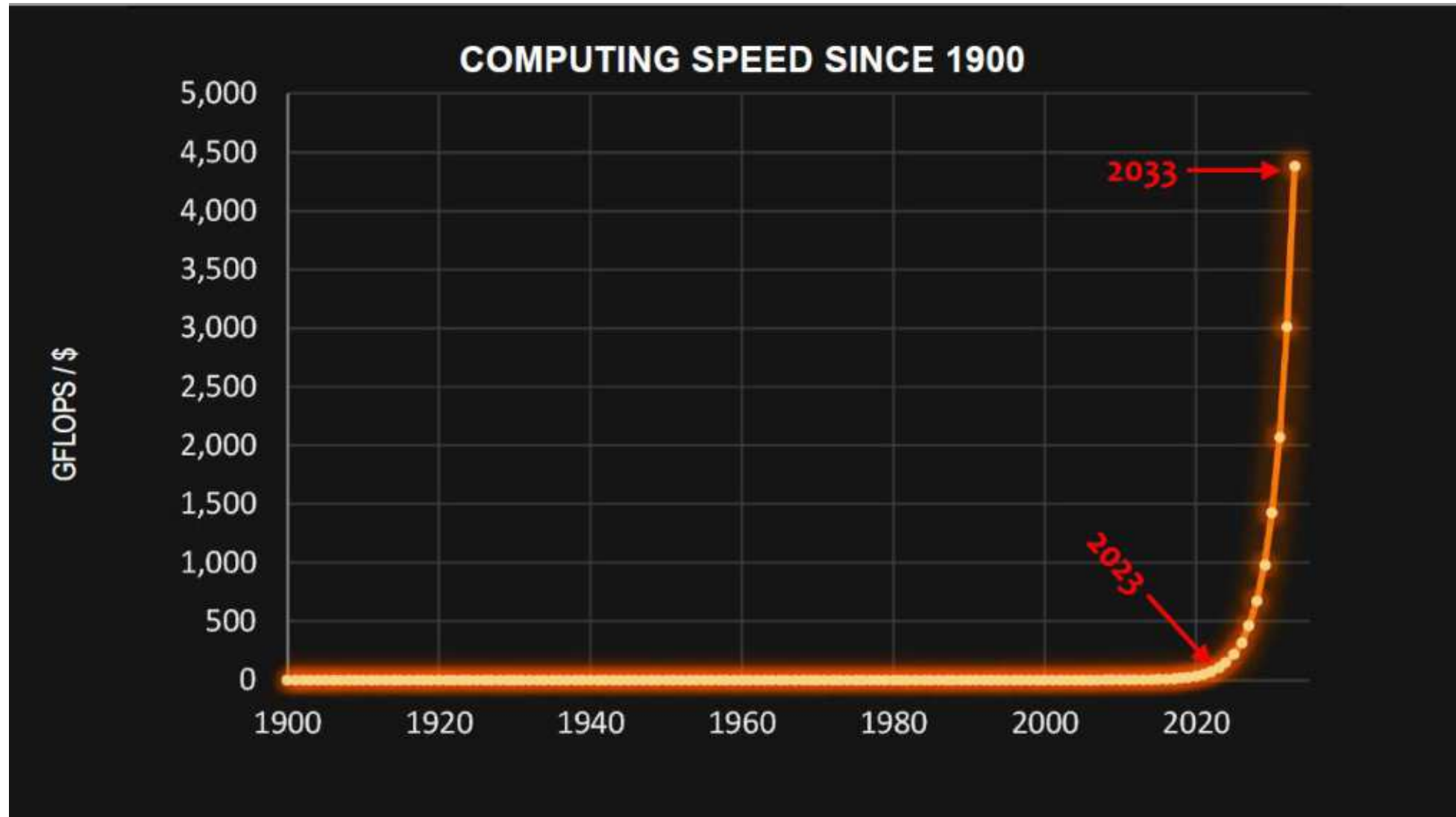




# Computing speed until now...



# Future growth following the exponential growth curve





# Are Quantum Computers really that fast?

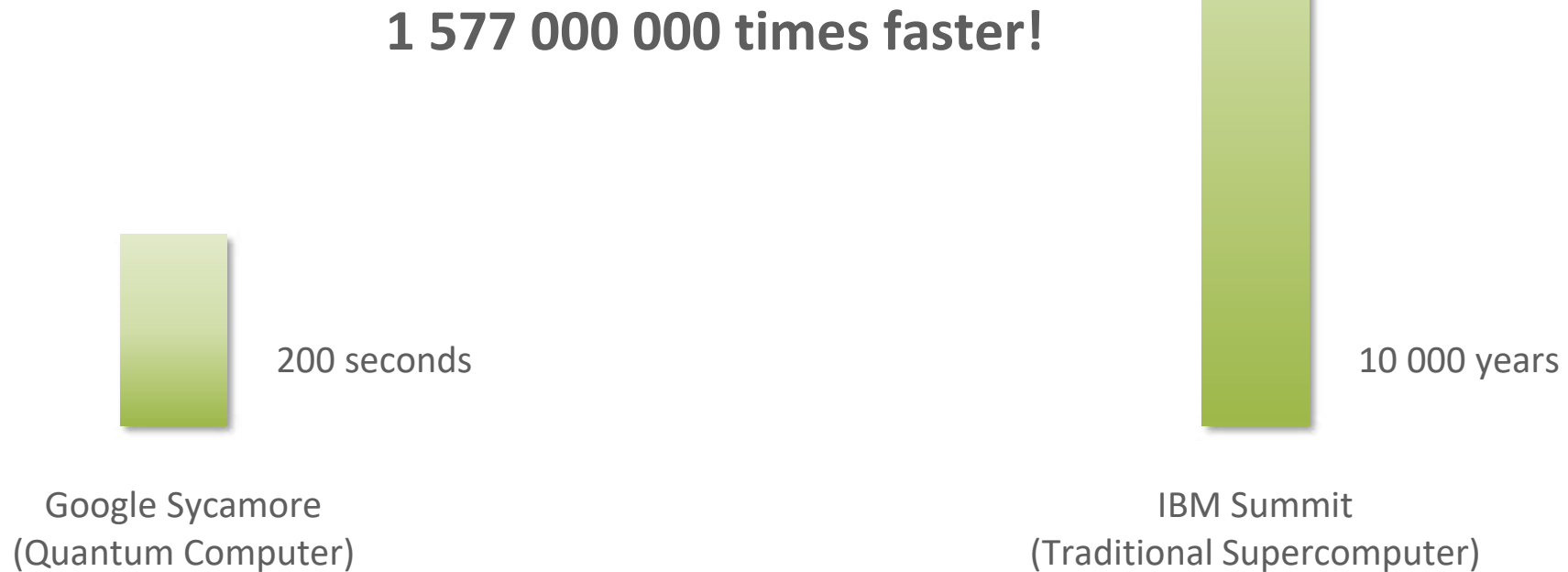


Google Sycamore  
(Quantum Computer)



IBM Summit  
(Traditional Supercomputer)

# Are Quantum Computers really that fa





# This is still experimental.. Right? 2021: Ready for production

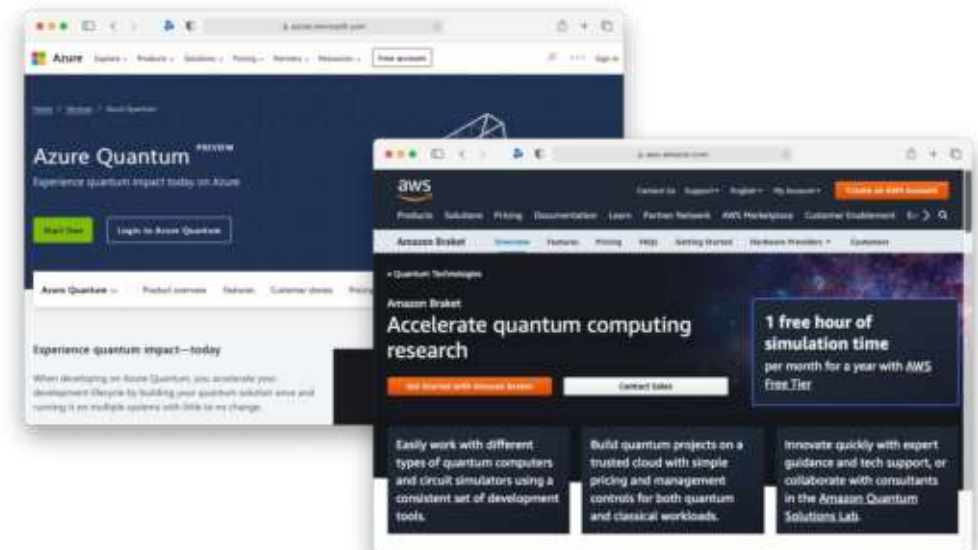
2018: Prototype



Operational temperature: Absolute Zero



Operational temperature: Room-temperature



Quantum-as-a-Service

A close-up, artistic photograph of green grass, possibly wheat or barley, with a dark horizontal band across the middle containing the text "OPEN SOURCE". The grass is vibrant green and shows fine details of its blades and seed heads. The lighting is soft, creating a gentle glow. The text is white, bold, and sans-serif, centered within the dark band.

**OPEN SOURCE**



# It's fundamentally simple

**Then:** "Software is eating the world"

**Now:** "Open Source is eating the world"

Derived Works

License Must Be Technology-Neutral

License Must Not Be Specific to a Product

Free Redistribution

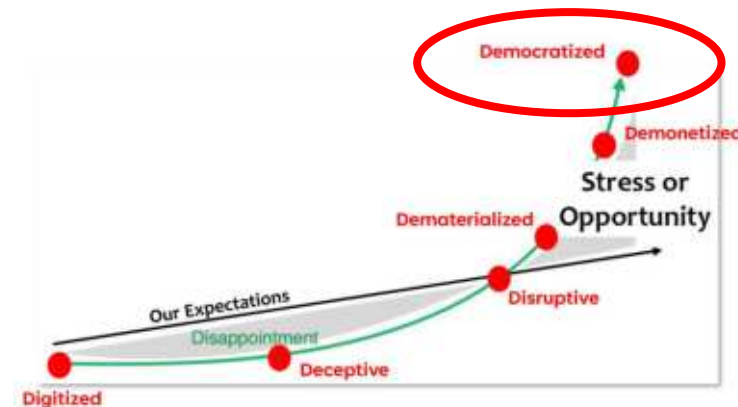
No Discrimination Against Persons or Groups

Source Code

No Discrimination Against Fields of Endeavor

Integrity of The Author's Source Code

License Must Not Restrict Other Software



# Let's look back at the code and communities builds on GitHub 2020

Based data collection range of October 2019 – September 2020



56 M+  
total developers on  
GitHub

72 %  
of Fortune 50 companies  
use GitHub Enterprise

60 M+  
new repositories created  
in the last year

1.9 B+  
contributions added  
in the last year



Google



IBM



CISCO

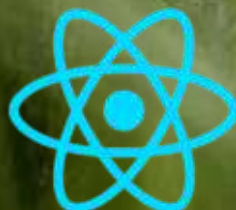
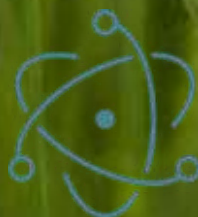
amazon



vmware



EVERYONE DOES IT







## Openness

We believe in Open Source, Open Standards, and Open APIs. Our solutions provide more choices and flexibility by using such open technologies.



## Co-innovation

No single company can keep pace with the power and speed of communities that openly co-innovate. We believe that sharing creates value.



## Trust

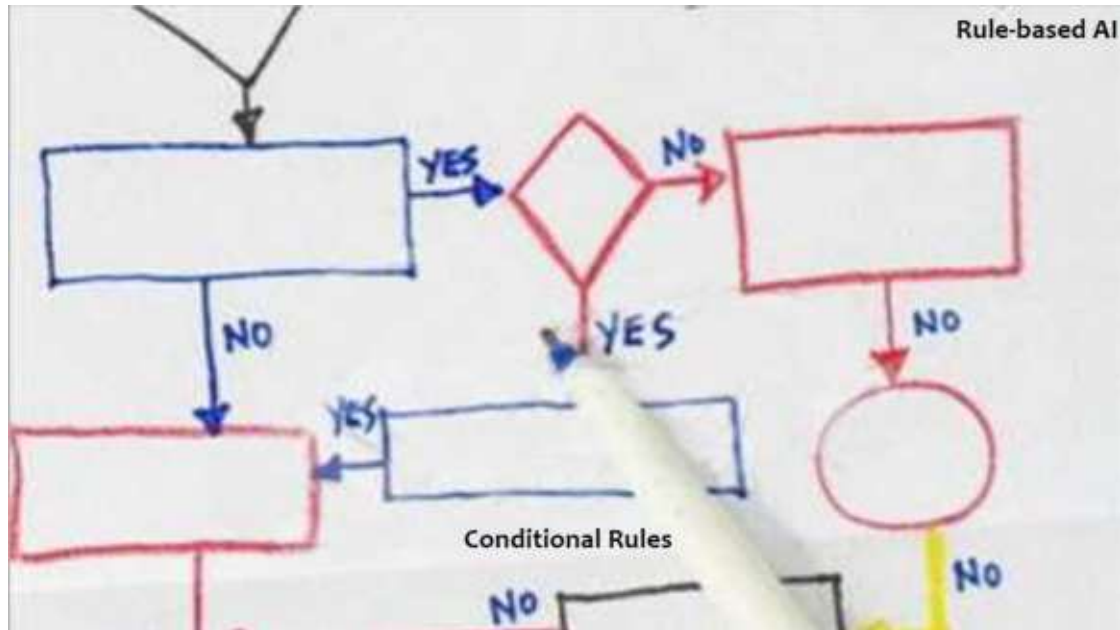
Open Source software requires qualities such as security, data protection, and accessibility to be able to be used in enterprise scenarios.





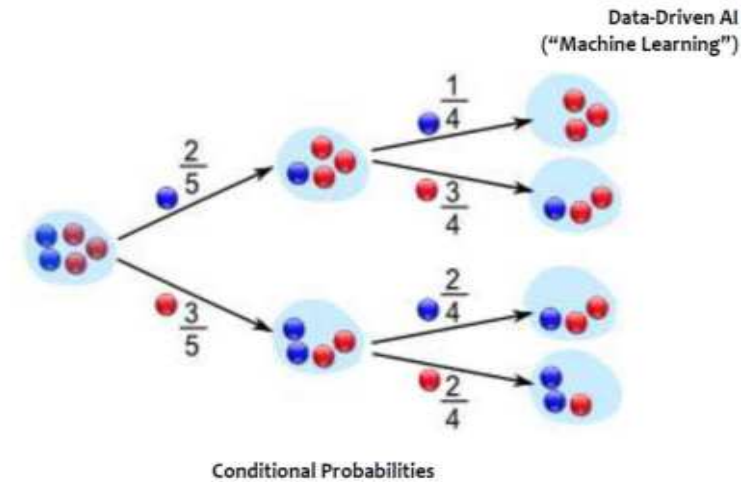
# ARTIFICIAL INTELLIGENCE

# Rule based AI vs Data driven AI “machine learning”



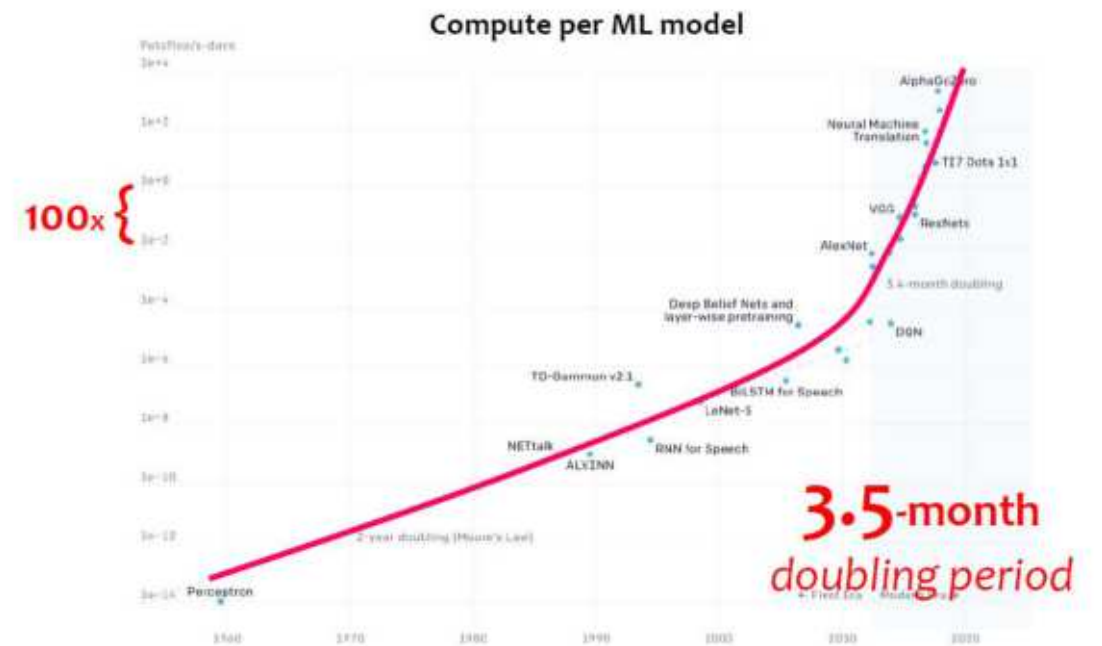
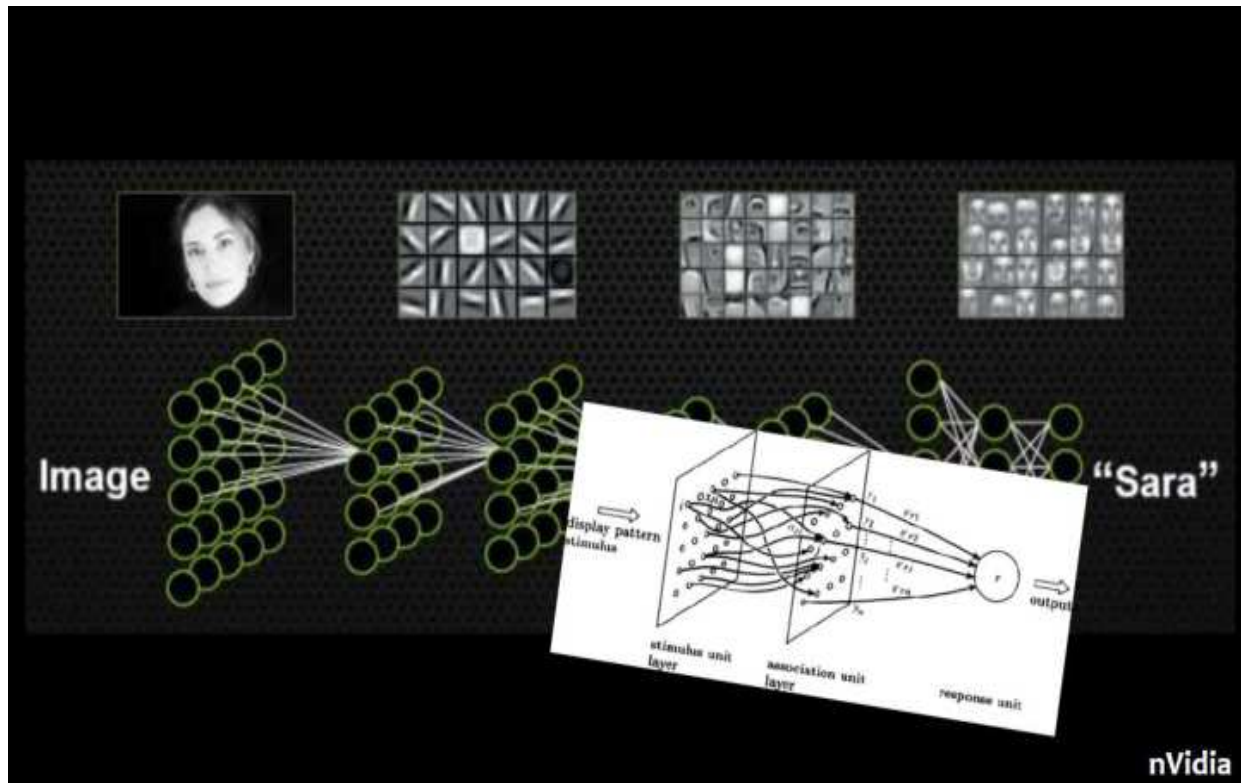
X		
O		
X	X	O
O	O	X
		X
O		
X	O	O

23%	62%	91%
O	X	X
12%	O	25%

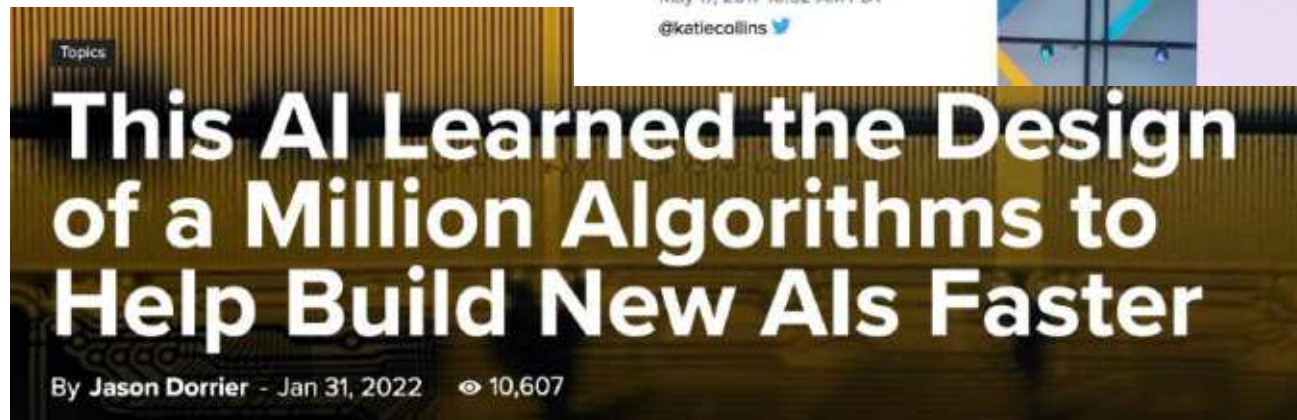




# Deep learning and doubling period



# Impact of Cloud



REVIEWS

NEWS

VIDEO

HOW TO

SMART HOME

CARS

DEALS

DOWNLOAD

## It's happening: Google's AI is building more AIs

We've reached AI inception, but Google CEO Sundar Pichai still wants to "go deeper."

Sci-Tech



by Katie Collins

May 17, 2017 10:52 AM PDT

@katiecollins





# An artificial intelligence model invents 40,000 chemical weapons in just 6 hours

The model was built to search for helpful drugs.



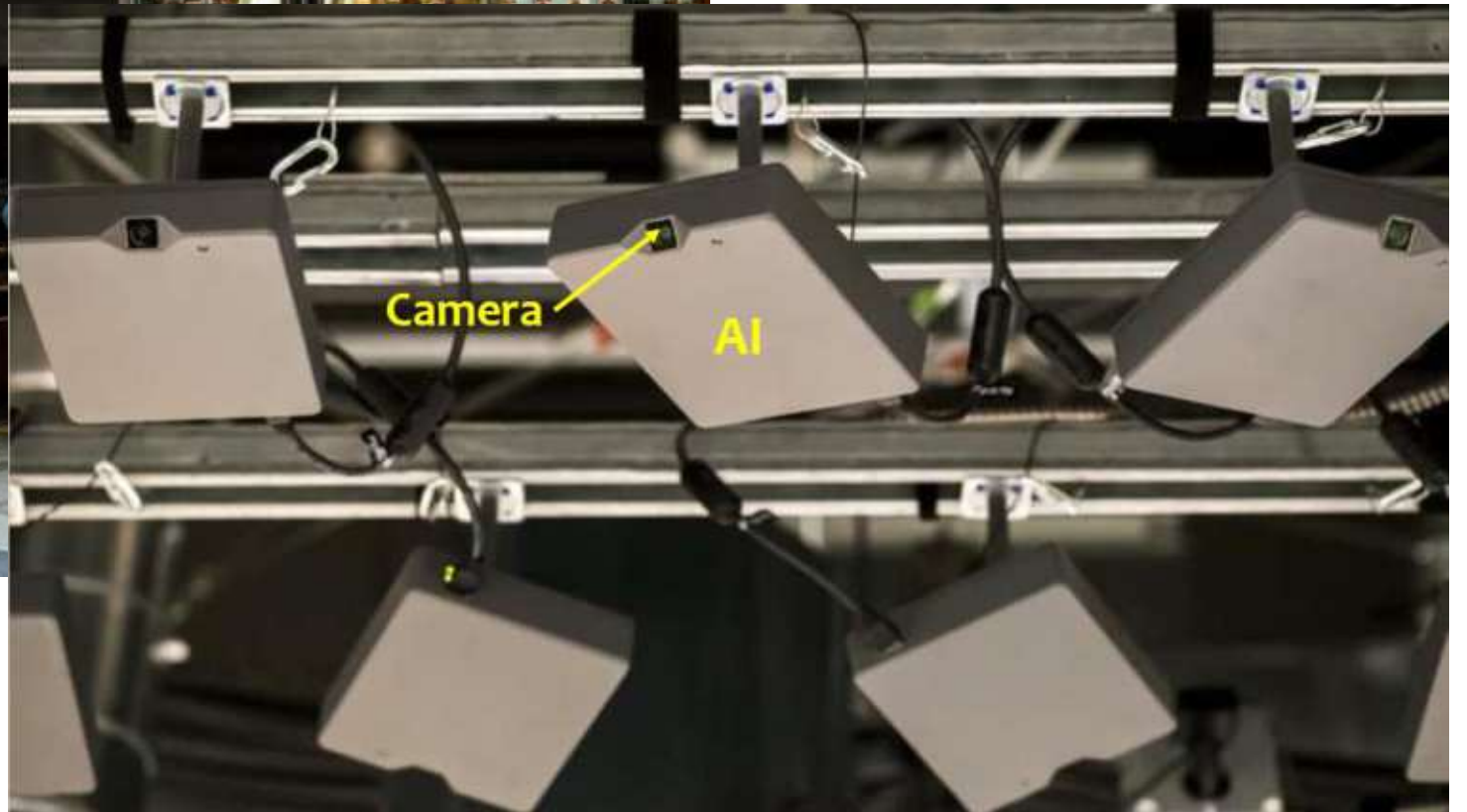


The background of the image is a close-up, blurred photograph of green grass or reeds, creating a sense of motion and depth. The blades are long and thin, with some showing signs of being cut or broken. The colors range from vibrant green to a slightly darker, muted green, with some highlights where the light catches the blades.

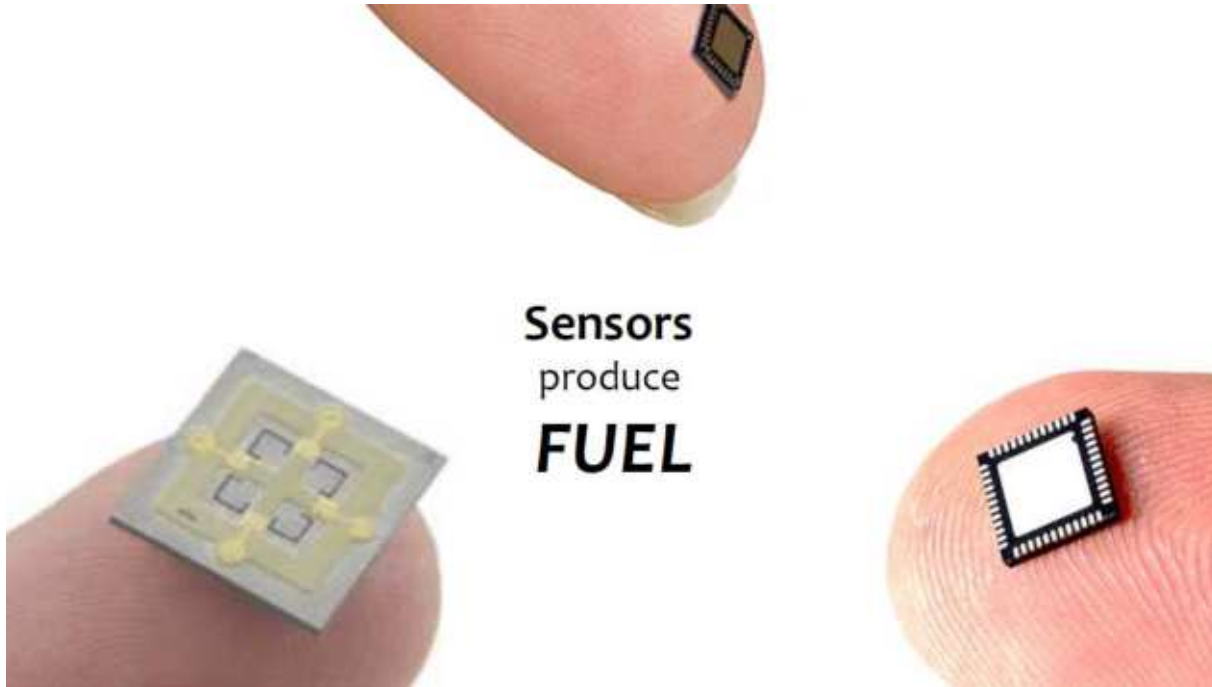
**DATA IS THE ASSET**



# Data collection



# Data collection



# facebook



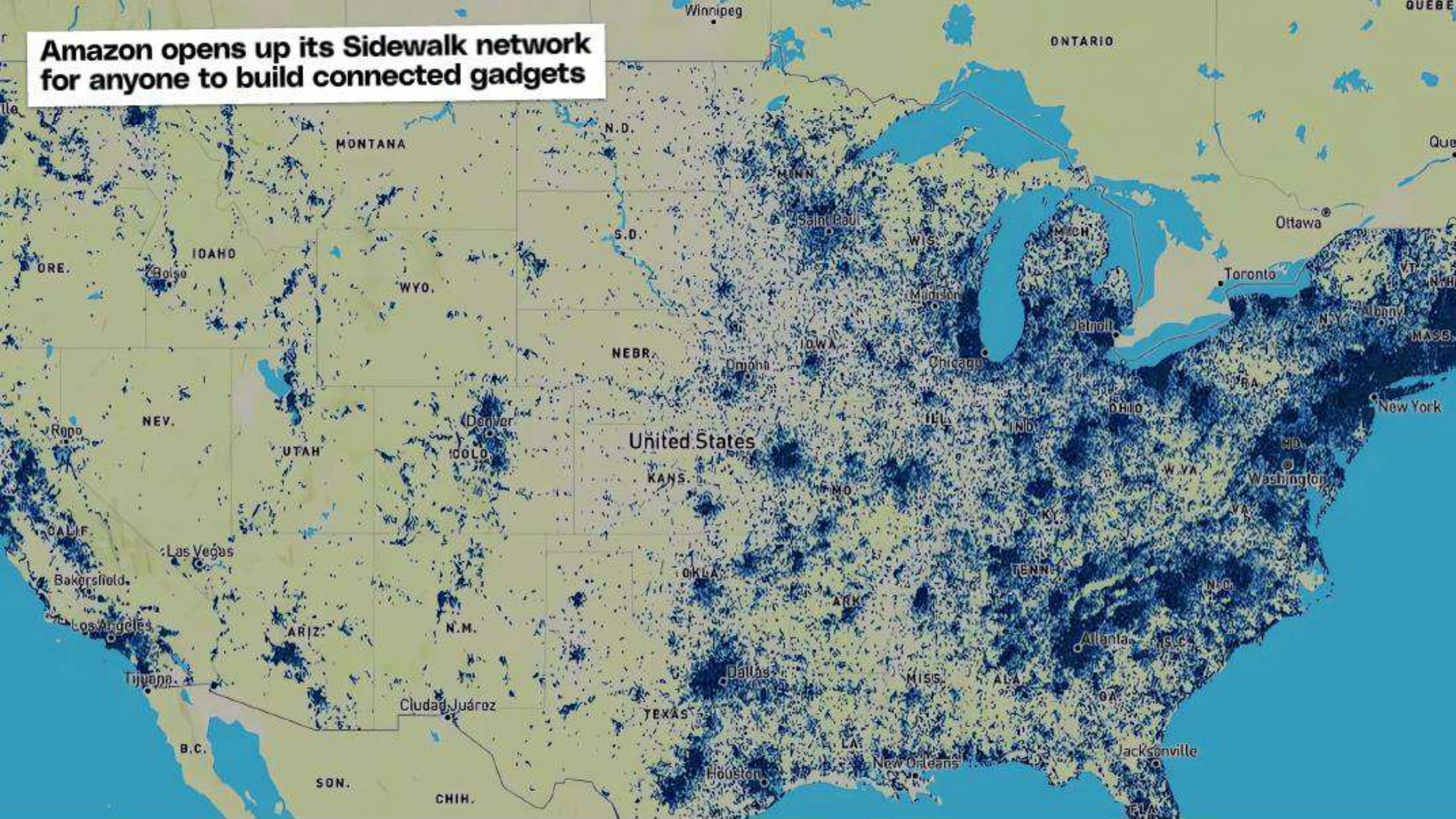
**Tesla is collecting insane amount of data from its Full Self-Driving test fleet**

Fred Lambert | Oct 24 2020 - 3:09 pm PT | 0 Comments



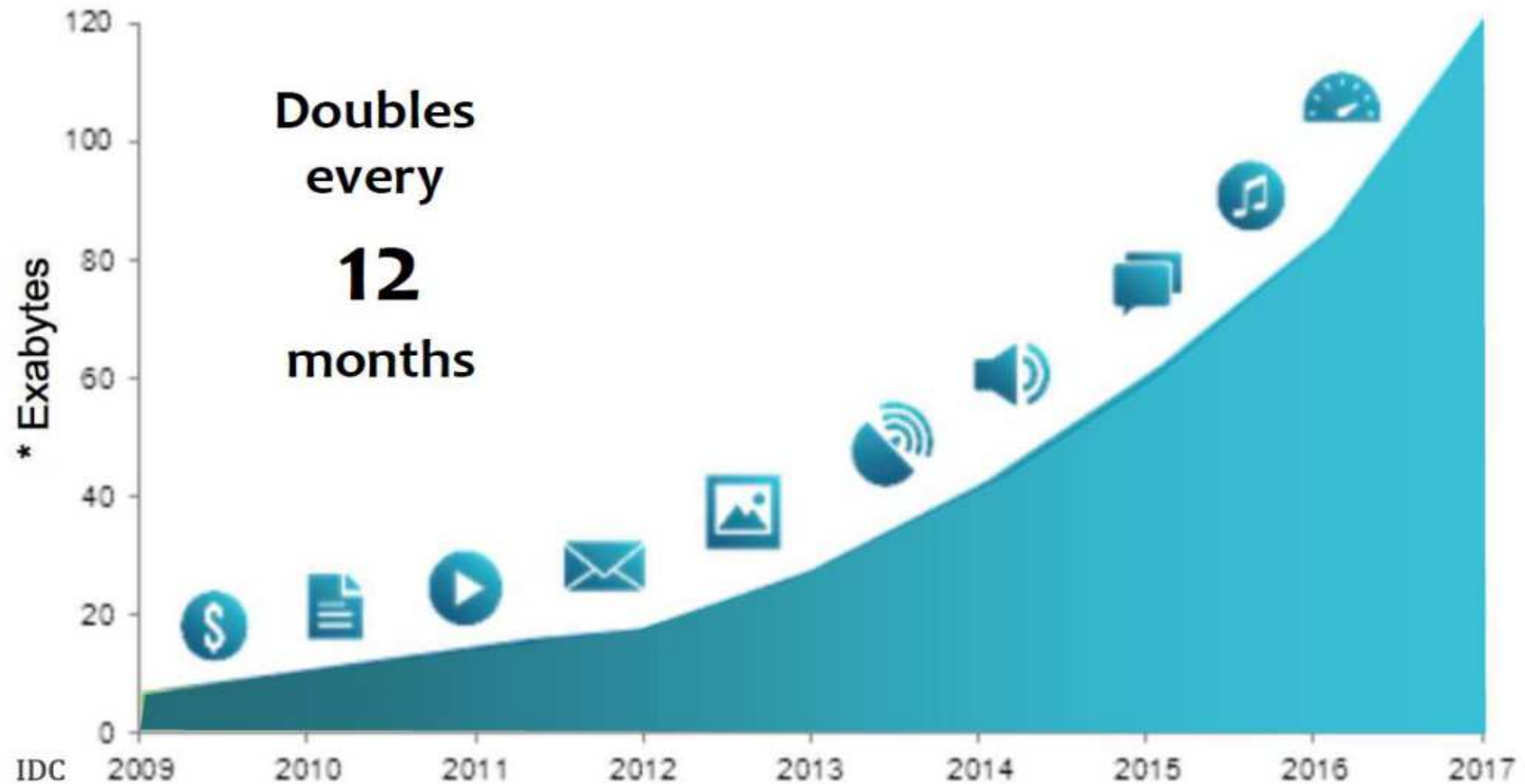


**Amazon opens up its Sidewalk network  
for anyone to build connected gadgets**





# Data is also going exponentially!







**WHAT'S THE CONCLUSION?**





"You cant control the wind, but you can harness the power of the wind to steer your boat in the right direction"



# KEY TRENDS WHICH WILL CONTINUE DO EXPONENTIALLY GROW



Compute power is exponentially growing and reducing in cost



Code is not a differentiator



Data is growing exponentially and is the key asset and fuel for AI

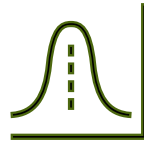


Deep learning is exponentially growing and driven by both compute capacity and data growth

## MAKE SURE THAT YOUR SAIL IS READY FOR HARNESSING THE POWER OF THE WIND



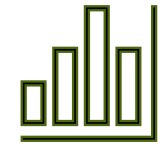
**PROACTIVE  
CHANGE  
MENTALITY**



**FASTER  
TECHNOLOGY  
ADAPTATION**



**LEVERAGE OPEN-  
SOURCE  
PLATFORMS**



**DATA IS KEY AND  
DATA IS THE TRUE  
ASSET**



A photograph of a wooden boat on a calm lake, with steep, rocky mountains in the background. The boat's interior is visible in the foreground, showing wooden planks and the curved hull. The water is still, reflecting the surrounding landscape. The mountains are rugged and partially covered in greenery. The sky is overcast.

**Thank you!**