

The Power of Exponential Thinking



An Introduction to Singularity University



Singularity
UNIVERSITY



Who we are





What is Singularity University (SU)?



We are a global community using exponential technologies to tackle the world's biggest challenges and build an abundant future for all.

WHO WE ARE

Our impact mission

Positively impact 1 billion people in the next decade using exponentially growing technologies:

.....> Impact

Computers and networks

3D Printing

Digital medicine

Artificial intelligence

Synthetic biology

Nanotechnology

Robotics



DISASTER
RESILIENCE



ENERGY



ENVIRONMENT



FOOD



GOVERNANCE



GLOBAL
HEALTH



LEARNING



PROSPERITY



SECURITY



SHELTER



SPACE



WATER

WHO WE ARE

SU is uniquely at the intersection of



**Technology,
impact, and
business**



Singularity

UNIVERSITY

NASA

Autodesk

Genentech

Google

Cisco

Nokia

NASA Ames, California



Intro to exponentials



INTRO TO EXPONENTIALS

Human development over 250,000+ years



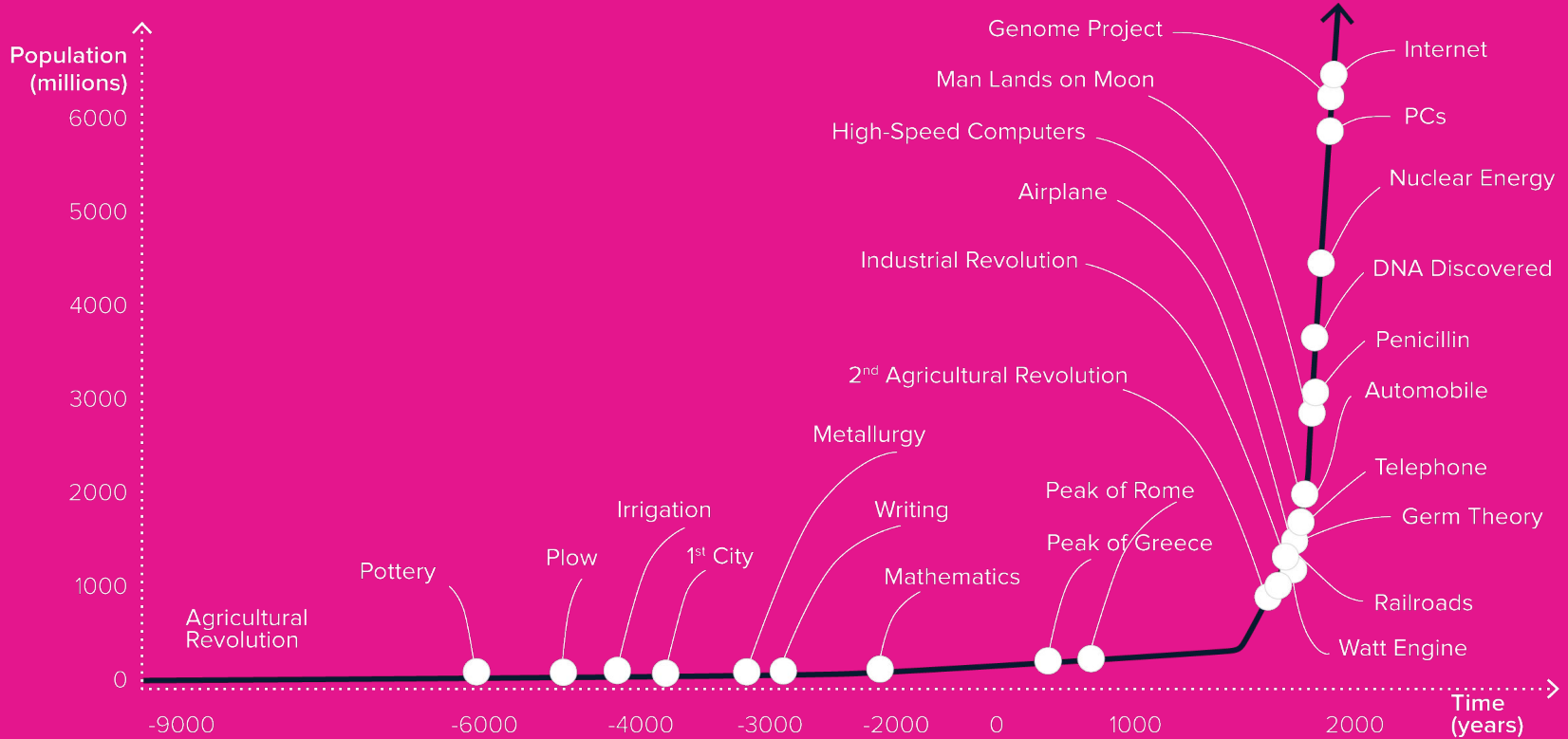
Local + Linear

Human development over 50 years...



Exponential + Global

Human history



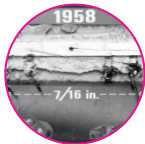


Integrated circuits



1958:

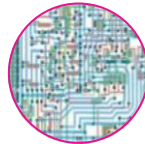
2 transistors



2 transistors

1971:

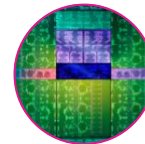
Intel 4004



2,300 transistors

2012:

Nvidia's GPU



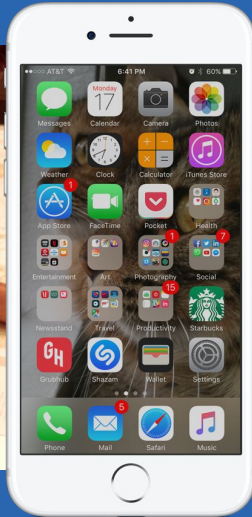
7.1 billion transistors

**10K (faster) & 10M (cheaper) →
100 billion-fold improvement (40 years)**

Technological exponential growth: NASA Apollo



Processing power:



iPhone **120 million** times faster than all of NASA Apollo mission computers

Size:

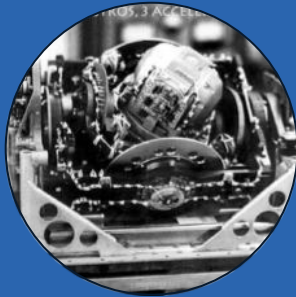


Cost:

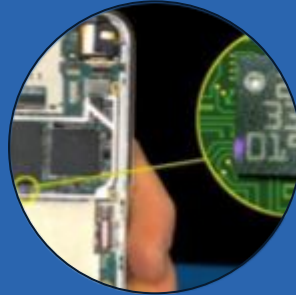


\$3.5 million for the NASA computer vs. the cost of an iPhone

Exponential growth



Early ICBM navigation
Inertial Measurement Unit
1960's - \$ Millions - 50 lbs
Velocity/Orientation/Accel.



Accelerometer: \$1

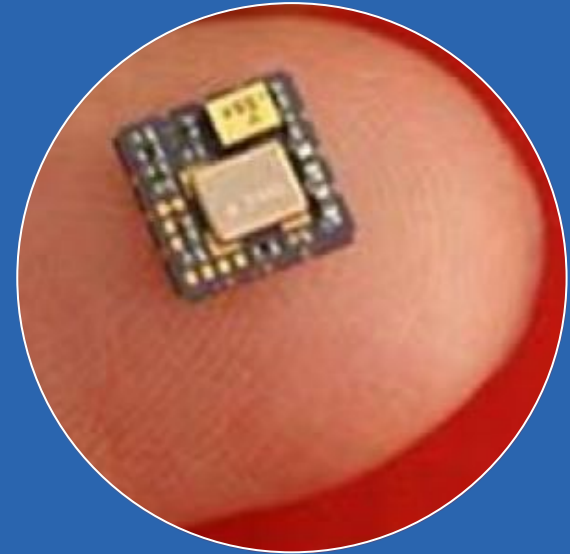


Gyroscope: \$3



Molecular machines
Free and embedded

Exponential growth



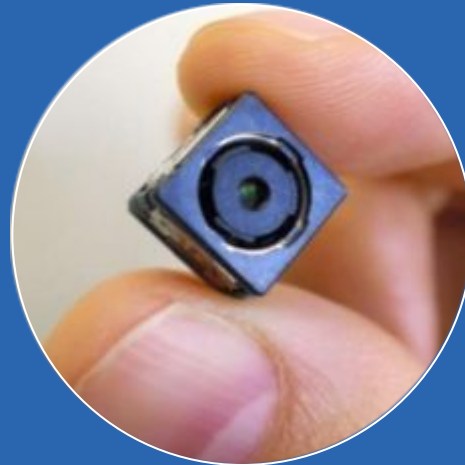
1st commercial GPS receiver in 1981

Weight: 53 lbs; Cost: \$119,900

Single-chip GPS receiver in 2010

<\$5 each

Exponential growth



1976: 1st digital camera (Kodak)

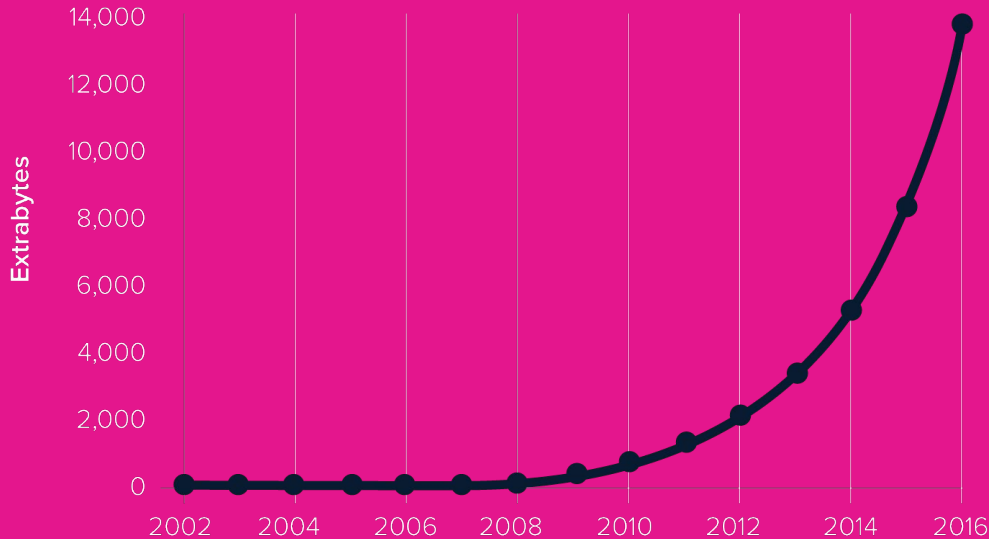
0.01 MP / 3.75 lbs / \$10,000

2014: Mobile digital camera

>10 MP / 0.03 lbs / \$10

- 1000x resolution
- 1000x lighter
- 1000x cheaper
- 1,000,000,000 x better

The exponential growth of data



5 billion gigabytes

In 2010... ~2 days

In 2013... ~10 minutes

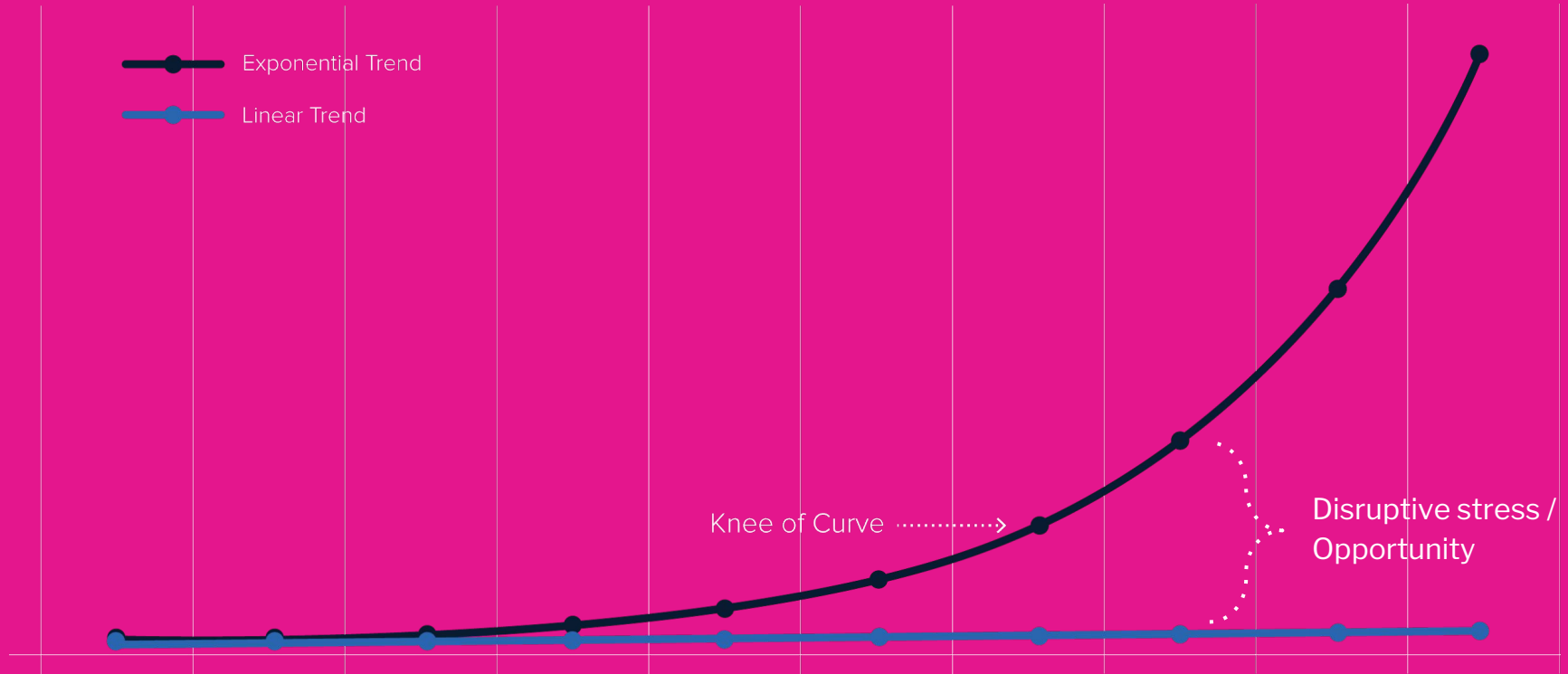
>100 hours of video content is added to YouTube every minute

A commercial airliner generates >1 Terabyte of data per day.

A man with glasses, wearing a dark suit, light blue shirt, and patterned tie, is speaking. The background is dark with a faint, glowing blue and green pattern. Large, white, bold text is overlaid on the image, reading "LAW OF ACCELERATING RETURNS".

LAW OF
ACCELERATING
RETURNS

Disruptive stress/opportunity





Humanity-created data



2003:

5 Exabytes

2013:

1200 Exabytes

2007:

295 Exabytes





Threats and opportunities



Linear vs. exponential forecasting



**In 10 years, it's predicted that
40% of the Fortune 500 companies
will no longer exist.**



Fast Company, April 2011, page 121

“The new Kodak moment”



Linear •> Exponential



1996:

Market cap: \$28M

Employees: 140,000

Kodak

2012:

Bankrupt

Employees: 17,000



Instagram

April, 2012:

Market cap: \$1B

Employees: 13

THREATS AND OPPORTUNITIES

“The new housing moment”



Linear •> Exponential

HYATT®

\$8.4B

\$4B in revenue

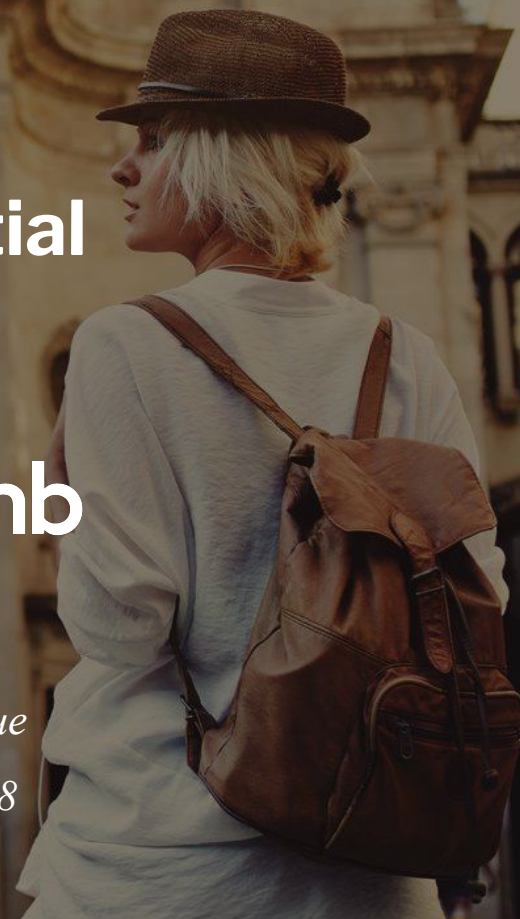
Founded in 1957

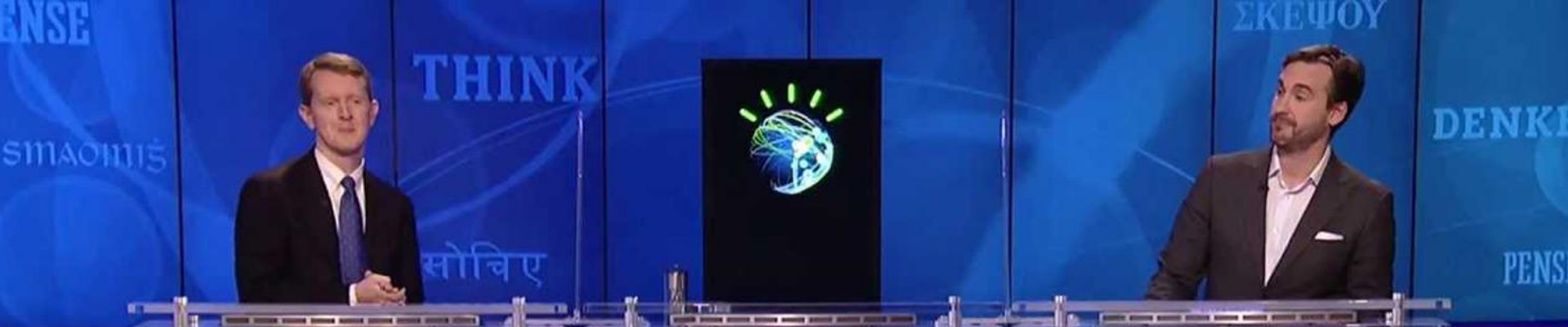
 **airbnb**

\$20B

\$250M in revenue

Founded in 2008





\$24,000

Who is Stoker?
(1 FOR ONE WELCOME OUR
NEW COMPUTER OVERLORDS)
\$ 1,000

\$77,147

Who is Bram
Stoker?
\$ 17,973

\$21,600

WHO IS
BRAM STOKER?
\$5600

Linear **Exponential**

SINGULARITY UNIVERSITY

Linear Exponential

SU Curriculum



EXPONENTIAL TECHNOLOGIES

Computers and networks Synthetic biology
Artificial intelligence Digital medicine
Robotics Nanotechnology
3D Printing

CROWD/COMMUNITY TOOLS

Incentive competitions Crowdfunding
(Big) data mining DIY communities
Crowdsourcing Crowd creativity

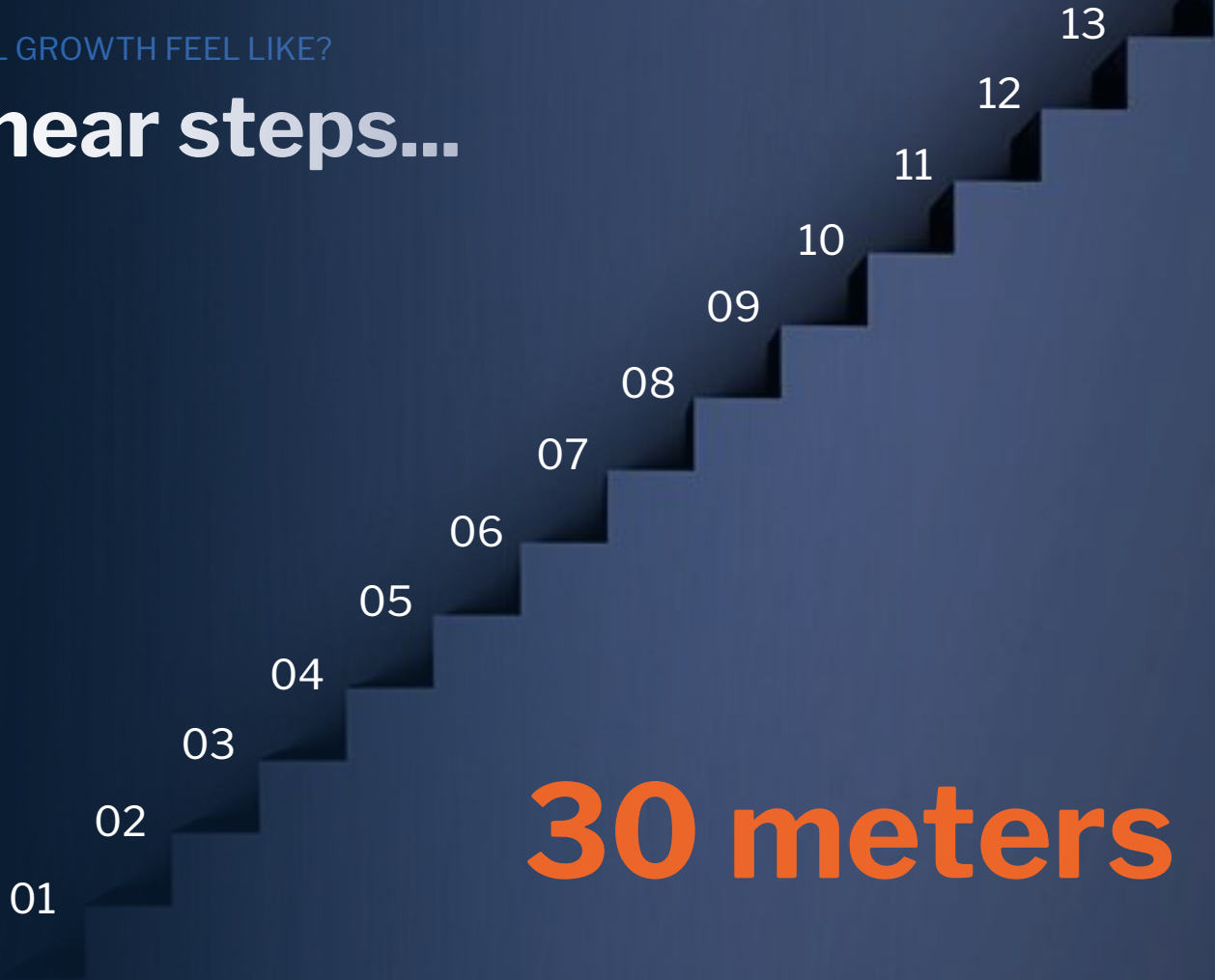


What does
exponential growth
feel like?



WHAT DOES EXPONENTIAL GROWTH FEEL LIKE?

Take 30 linear steps...



WHAT DOES EXPONENTIAL GROWTH FEEL LIKE?

Take 30 exponential steps...



26X

around the Earth!

01

02

04

08

16

32

64

128

256

...**1,073,741,824 meters**



WHAT DOES EXPONENTIAL GROWTH FEEL LIKE?

What is driving this?



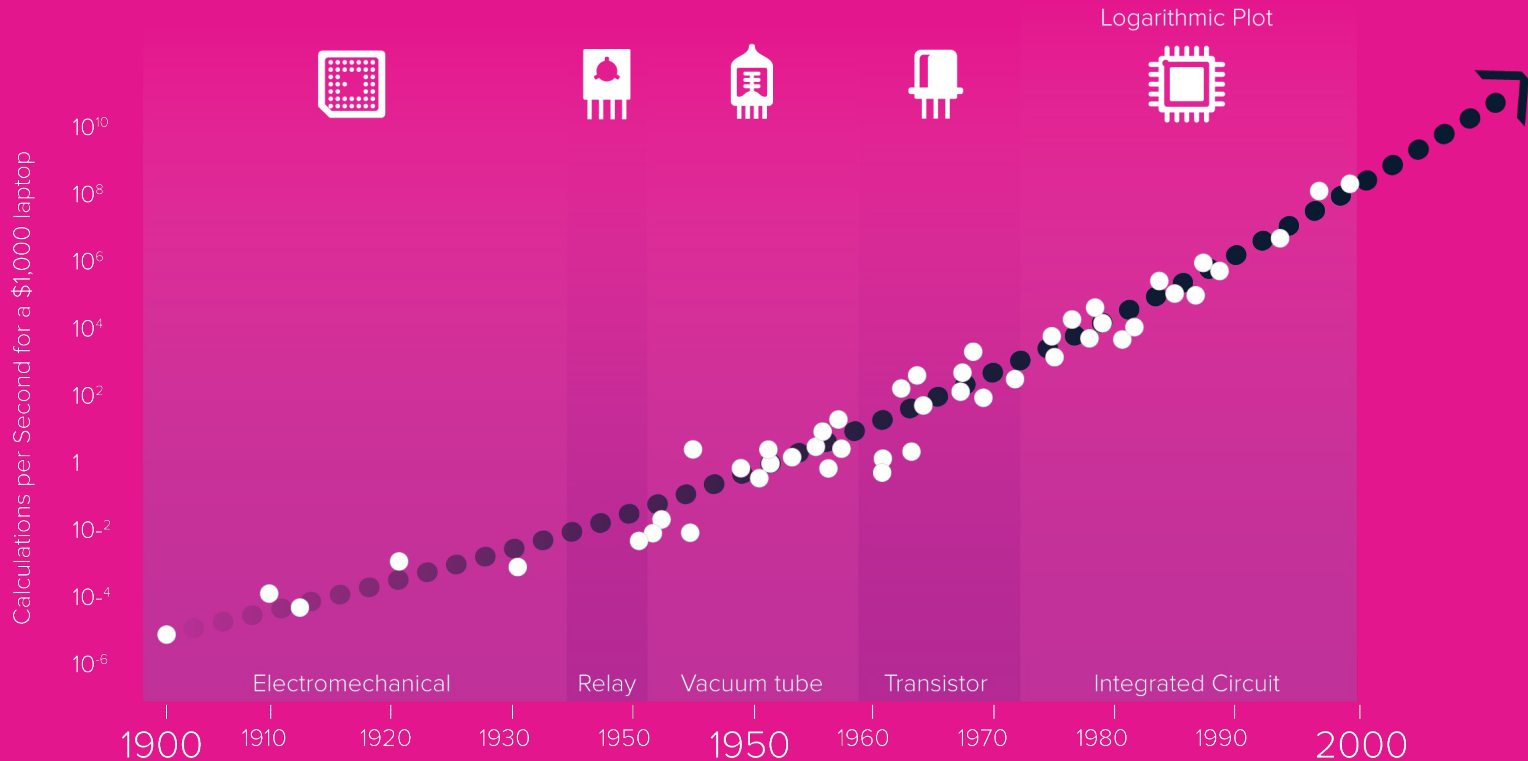
Moore's Law:

Price performance
of computers doubles
every 18 – 24 months

– Gordon Moore

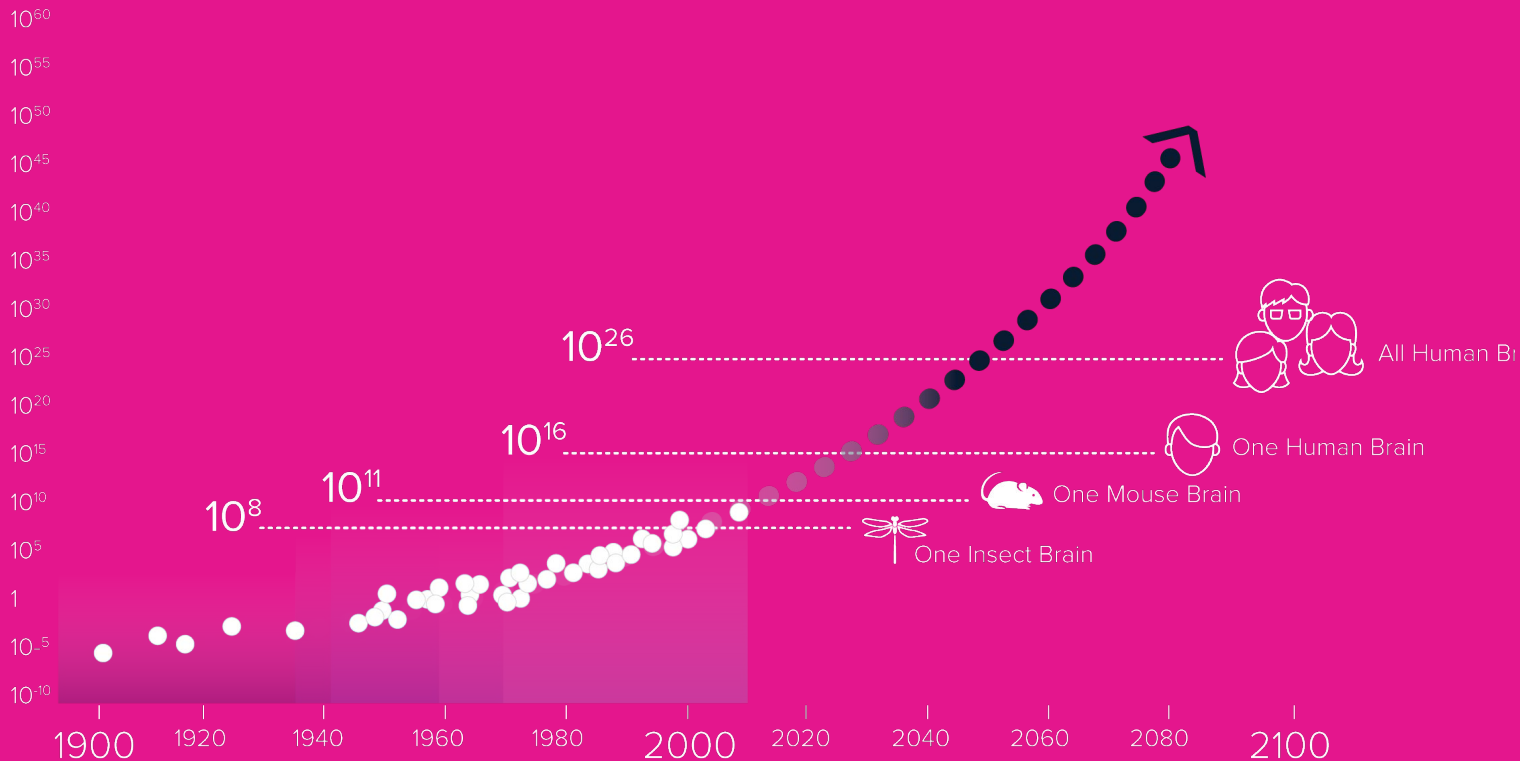
WHAT DOES EXPONENTIAL GROWTH FEEL LIKE?

Moore's Law: 5th paradigm of exponential growth



WHAT DOES EXPONENTIAL GROWTH FEEL LIKE?

Moore's Law: 5th paradigm of exponential growth



WHAT DOES EXPONENTIAL GROWTH FEEL LIKE?



“6 Ds” exponential framework



Digitized

(Information Tech)

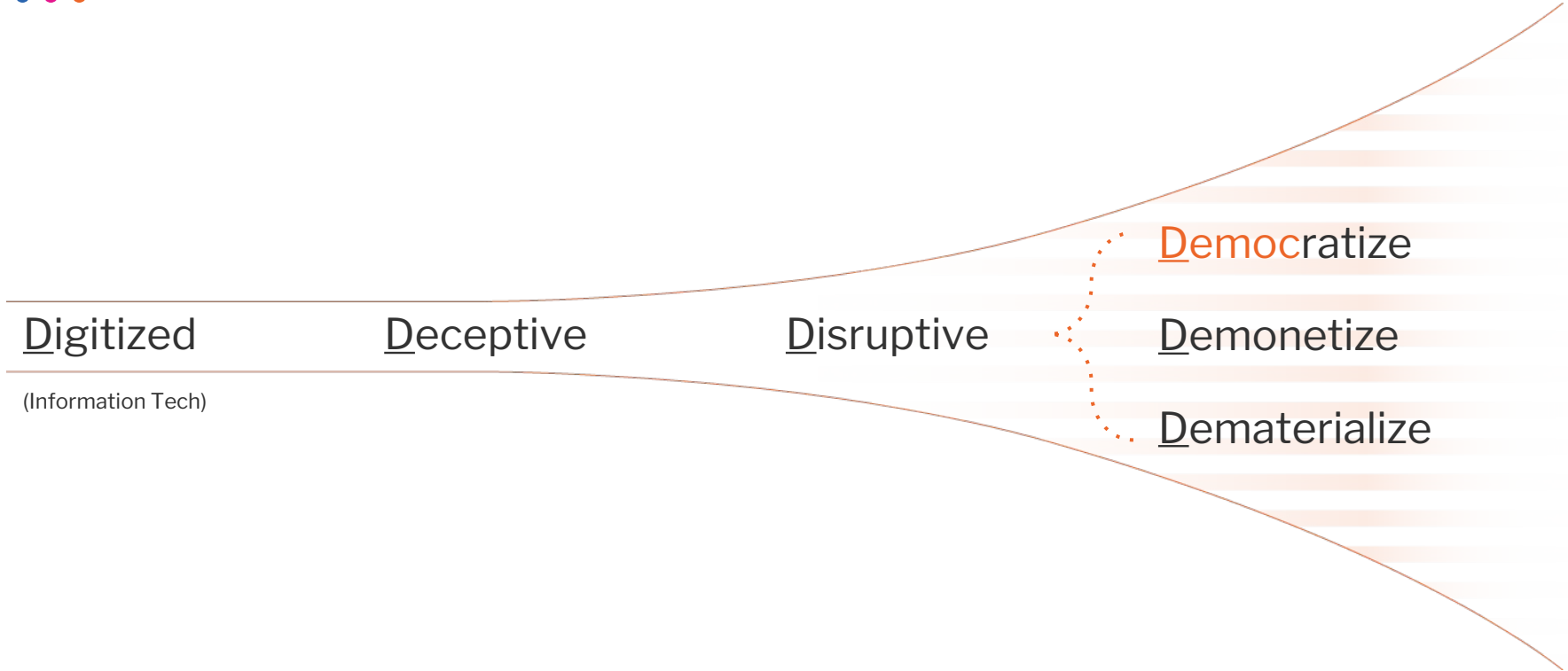
Deceptive

Disruptive

Democratize

Demonetize

Dematerialize





Dematerialization





20 years later...



All of these fit in your pocket...

...and come for free on your phone!





Demonetization





Yesterday vs. today



iTunes

RECORD STORE



amazon

BOOK STORE



skype™

LONG DISTANCE



Google

RESEARCH LIBRARY



craigslist

CLASSIFIEDS



ebay

LOCAL STORES



Four critical insights



1st Insight: The only constant is change and the rate of change is increasing.

2nd Insight: You either disrupt your own organization, or someone else will. Standing still = death.

3rd Insight: Your competition is no longer a large organization. It is the explosion of exponentially empowered entrepreneurs.

4th Insight: Your mindset matters (a lot)... What's yours?



A bold and abundant mindset



A long-exposure photograph of a starry night sky, showing a dense field of stars and their trails. The stars are concentrated in a central region, creating a circular pattern of light trails. The background is dark, with some faint, wispy clouds visible. In the foreground, the silhouette of a person is visible, looking up at the sky. The overall mood is contemplative and awe-inspiring.

Be Exponential.

A BOLD AND ABUNDANT MINDSET

What is your moonshot?



What is the one area of your work where you should shoot for 10x growth, rather than 10%?



SU's mission:

**Our mission is to educate, inspire,
and empower leaders to apply
exponential technologies to address
humanity's grand challenges.**

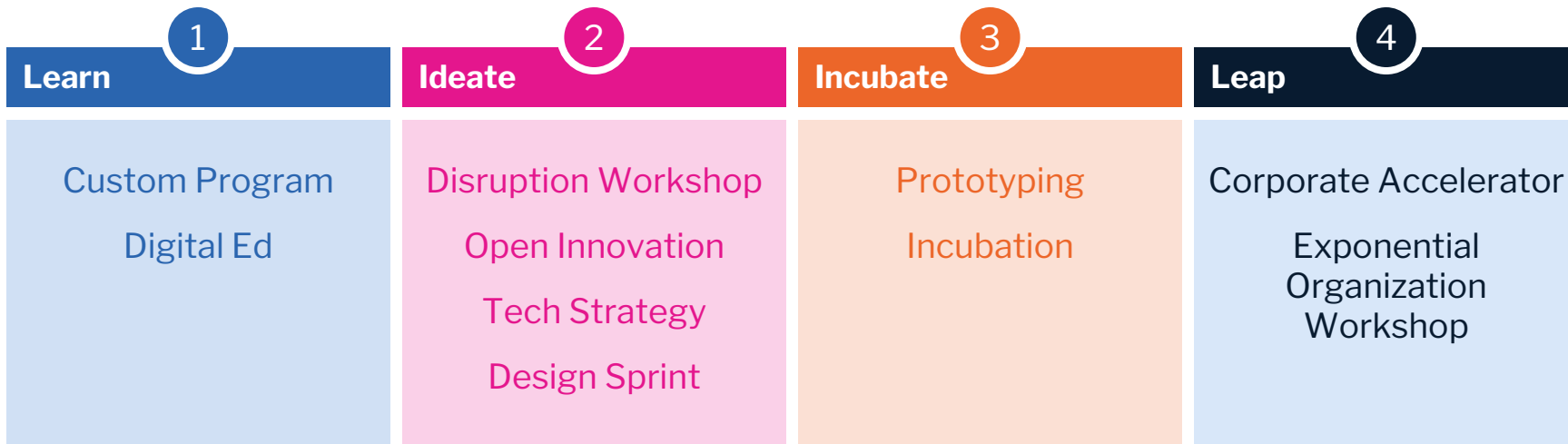
A BOLD AND ABUNDANT MINDSET

Exponential strategy: engine for innovation





How SU fuels the corporate innovation journey



See
the future

Design
the future

Test
the future

Become
the future

A BOLD AND ABUNDANT MINDSET

Global alumni



21,093 alumni
and participants

Representing **110** countries
and territories

A BOLD AND ABUNDANT MINDSET



Our global community



Education

21,093

Educated

4,284
Conferences

3,570
Summits

603
Global Solutions
Programs

1,982
Executive
Programs

34
Labs programs

10,620
Custom Programs



Innovation

34

Startup companies

\$181.6M
Capital raised by startups

302
Number of startup employees

2
Exits

28
Innovation Partnership
Program members

11
Development org partners



Community

101,495

Community members

110
Countries and territories

53
Chapters in 33 countries

94
Global Impact Challenges



Impact

373

Impact initiatives

93
New organizations

15
Enacted policy

41
R&D projects

67
Education and
awareness

76
Organizational
innovation

81
Mobilized
resources



Modern
Meadow

@singularityu



focus@will



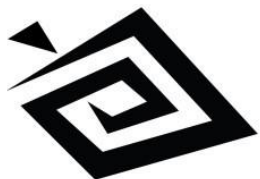
**MADE
IN SPACE**®

@singularityu



Be My Eyes

Lend your eyes to the blind



Be My Eyes

@singularityu

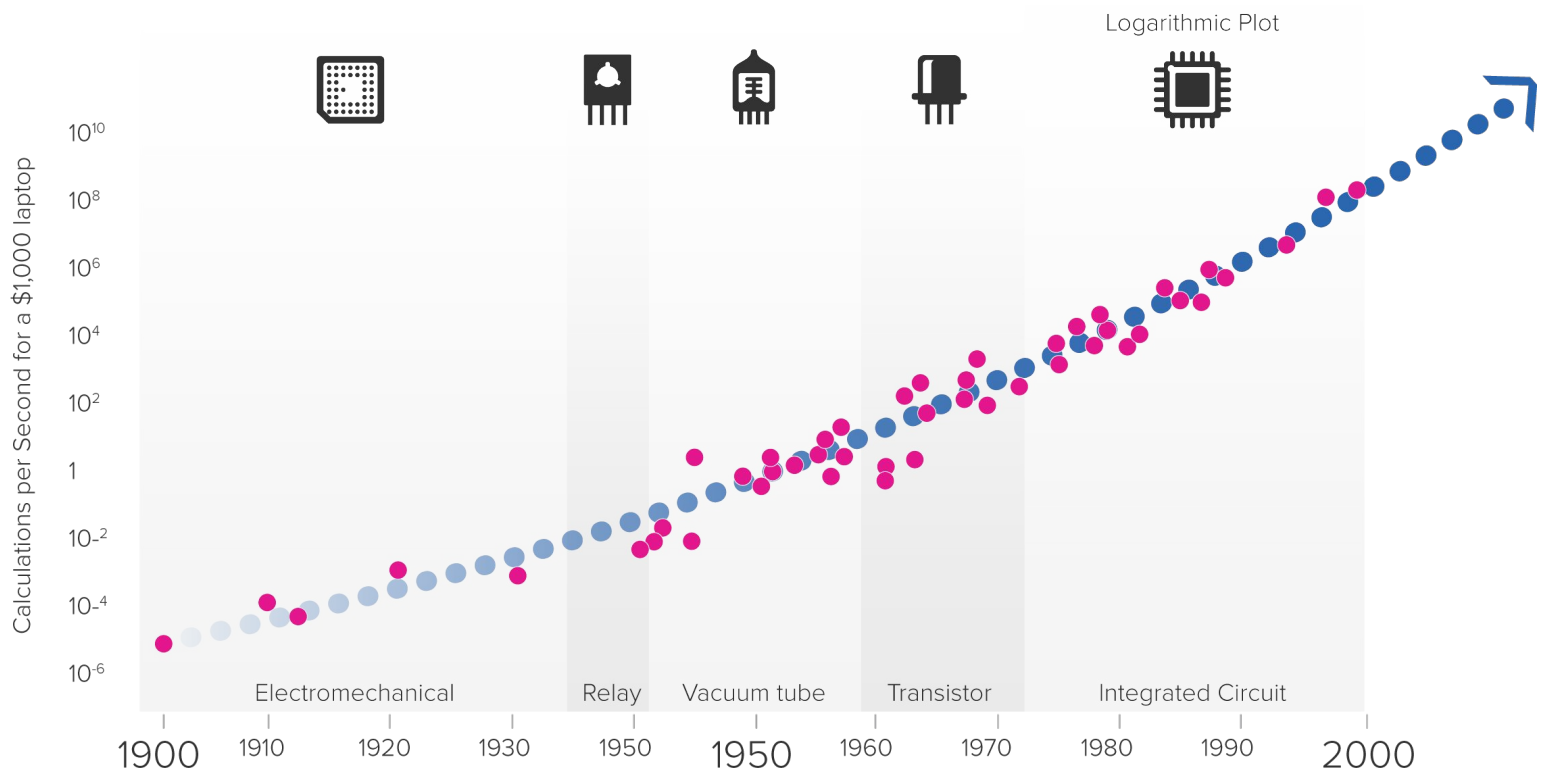
“Technology is a force that takes what was once scarce and makes it abundant.”



– *Peter Diamandis*



Moore's Law: 5th paradigm of exponential growth





Thank You. ■



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