

Disruption

The Digital Disruption Has Already Happened

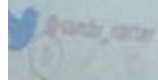
- World's largest taxi company owns no taxis (Uber)
- Largest accommodation provider owns no real estate (Airbnb)
- Largest phone companies own no telco infra (Skype, WeChat)
- World's most valuable retailer has no inventory (Alibaba)
- Most popular media owner creates no content (Facebook)
- Fastest growing banks have no actual money (SocietyOne)
- World's largest movie house owns no cinemas (Netflix)
- Largest software vendors don't write the apps (Apple & Google)

Can you continue this list?

- the most inventive company has no ideas?

- the biggest transportation company has no busses?

...



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A shop where smartphones are sold. (Craig Mod)

Farmers in Myanmar using facebook as a news channel

High-Speed Firms Now Oversee Almost All Stocks at NYSE Floor

by Annie Massa
[t antoniabmassa](#)

Demokratie in Blöcken – die Blockchain als Politikinstrument

25.01.2016 10:49 Uhr – Stefan Mey

[vorlesen](#)



(Bild: gov.uk)

Whot, no banks? No notaries? No gov?

- Slack Chat Bots; replaces some project management tasks
- Project M; replaces human customer service & support
- Drone & Connected Car Delivery; replaces human delivery services

What do the companies in these three groups have in common?

Group A: American Motors, Brown Shoe, Studebaker, Collins Radio, Detroit Steel, Zenith Electronics, and National Sugar Refining.

Group B: Boeing, Campbell Soup, General Motors, Kellogg, Procter and Gamble, Deere, IBM and Whirlpool.

Group C: Facebook, eBay, Home Depot, Microsoft, Office Depot and Target.

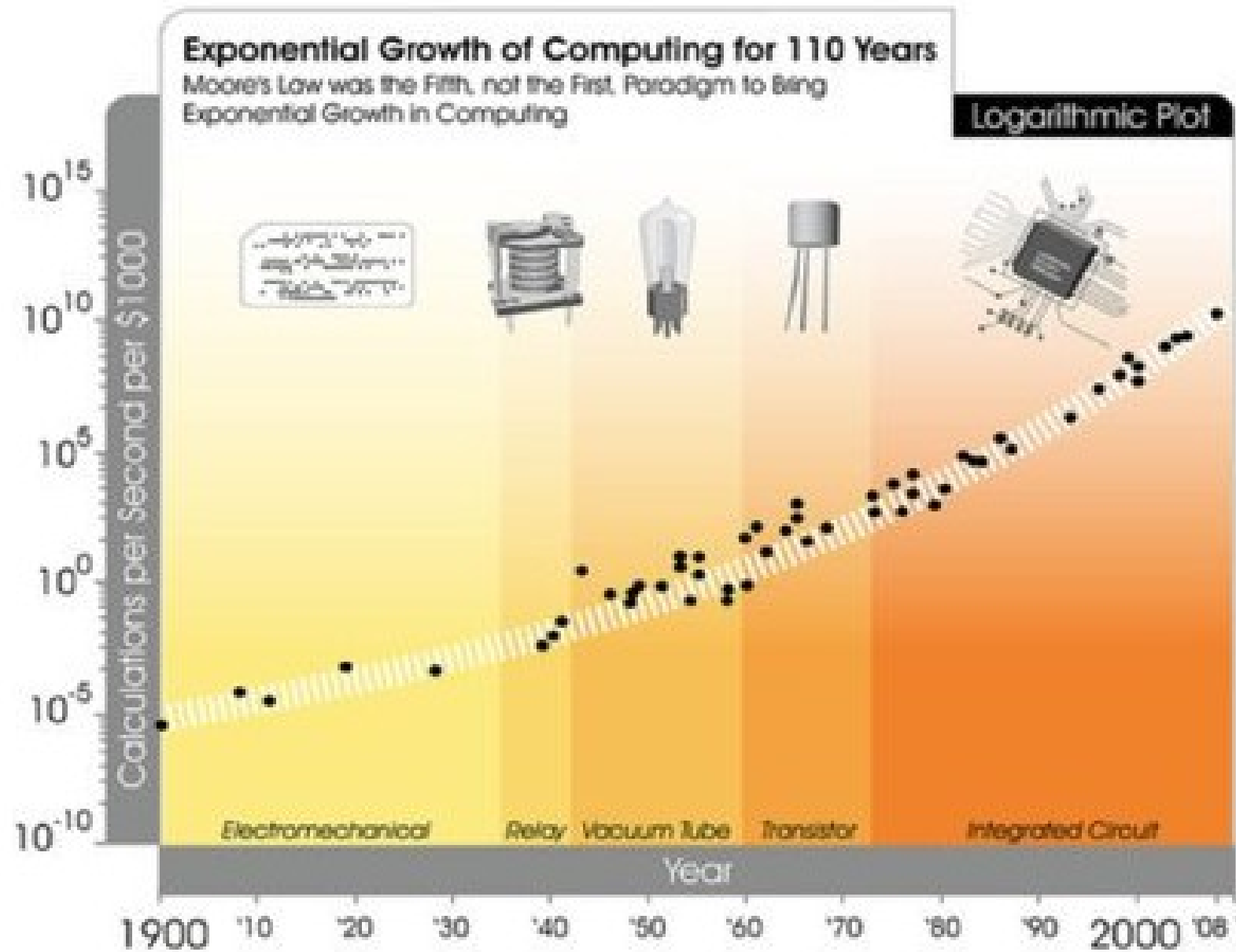
All of the companies in **Group A** were in the Fortune 500 in 1955, but not in 2014.

All of the companies in **Group B** were in the Fortune 500 in both 1955 and 2014.

All of the companies in **Group C** were in the Fortune 500 in 2014, but not 1955.

Comparing the Fortune 500 companies in 1955 to the Fortune 500 in 2014, there are **only 61 companies that appear in both lists**. In other words, only 12.2% of the Fortune 500 companies in 1955 were still on the list 59 years later in 2014, and almost 88% of the companies from 1955 have either gone bankrupt, merged, or still exist but have fallen from the top Fortune 500 companies (ranked by total revenues). Most of the companies on the list in 1955 are unrecognizable, forgotten companies today (e.g. Armstrong Rubber, Cone Mills, Hines Lumber, Pacific Vegetable Oil, and Riegel Textile).

Digital Revolution



Graphic from *The Singularity Is Near* demonstrating "Law of Accelerating Returns" in the field of computation.

Zu diesen gehören Erik Brynjolfsson und Andrew McAfee vom Massachusetts Institute of Technology. In ihrem fesselnden und faktenreichen US-Bestseller «The Second Machine Age» wagen sie die Prognose, dass uns die Informationstechnologie in eine Zeit führt, «in der alles, was früher war, kein verlässlicher Indikator mehr dafür ist, was als nächstes passiert».

Die meisten Denker würden das ungeheure Potenzial der Computertechnologie massiv unterschätzen, da sie von einem linearen Fortschrittsmodell ausgingen. Die Rechenleistung von Computern verdoppele sich aber seit über einem halben Jahrhundert etwa alle 18 Monate. Das exponentielle Wachstum der Rechnerkapazitäten bilde den «steten Hinter-grundrhythmus» einer Ära, «in der in nur wenigen Jahren Spielzeugen die Leistung eines Supercomputers zur Verfügung steht». Wir stünden an einem Wendepunkt, an dem der Fortschritt «nach langer, allmählicher Entwicklung» zu einem «grossen Sprung» ansetze.

The second machine age?

1) The First Age: Steam/Water, Mechanical Production Equipment
(railroads/trains)

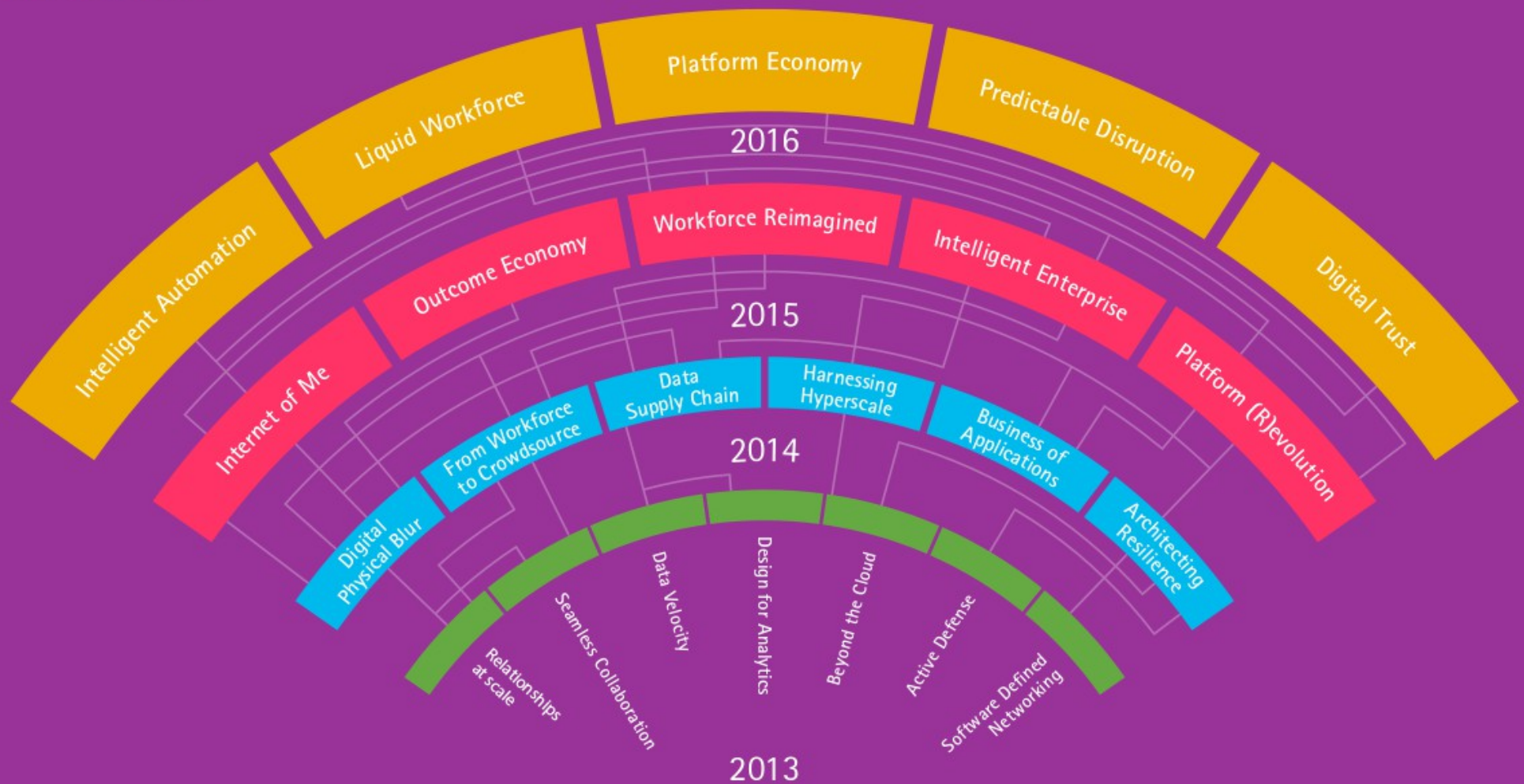
2) The Second Age: Division of Labor, Electricity, Mass Production
(assembly line/cars)

3) The Third Age: Electronics, IT, Automated Production—
(PC/smartphones/transistors)

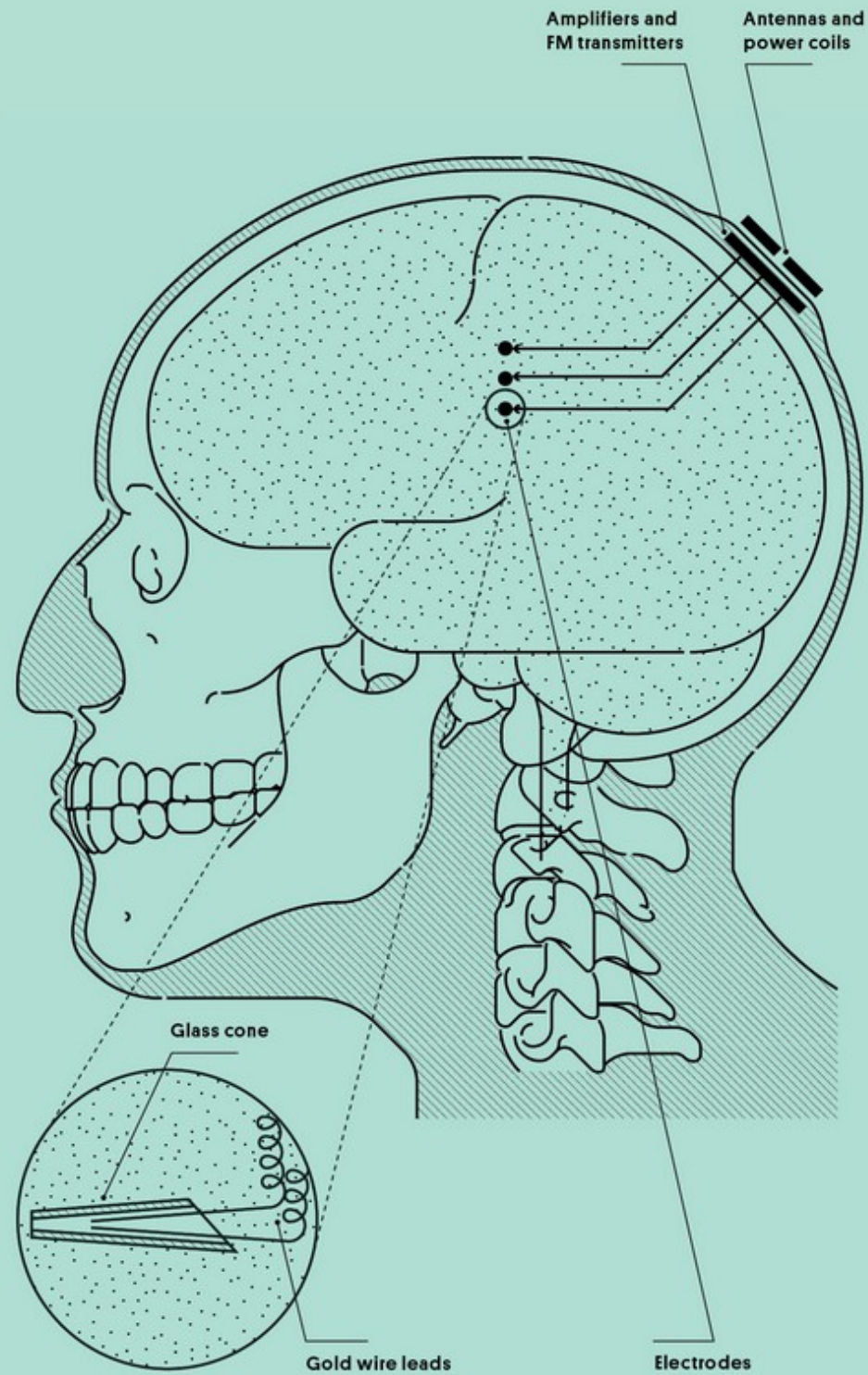
4) The Fourth Age: Human/Cyber Systems, AI (wearables, bots, connected cars, supply chain automation)

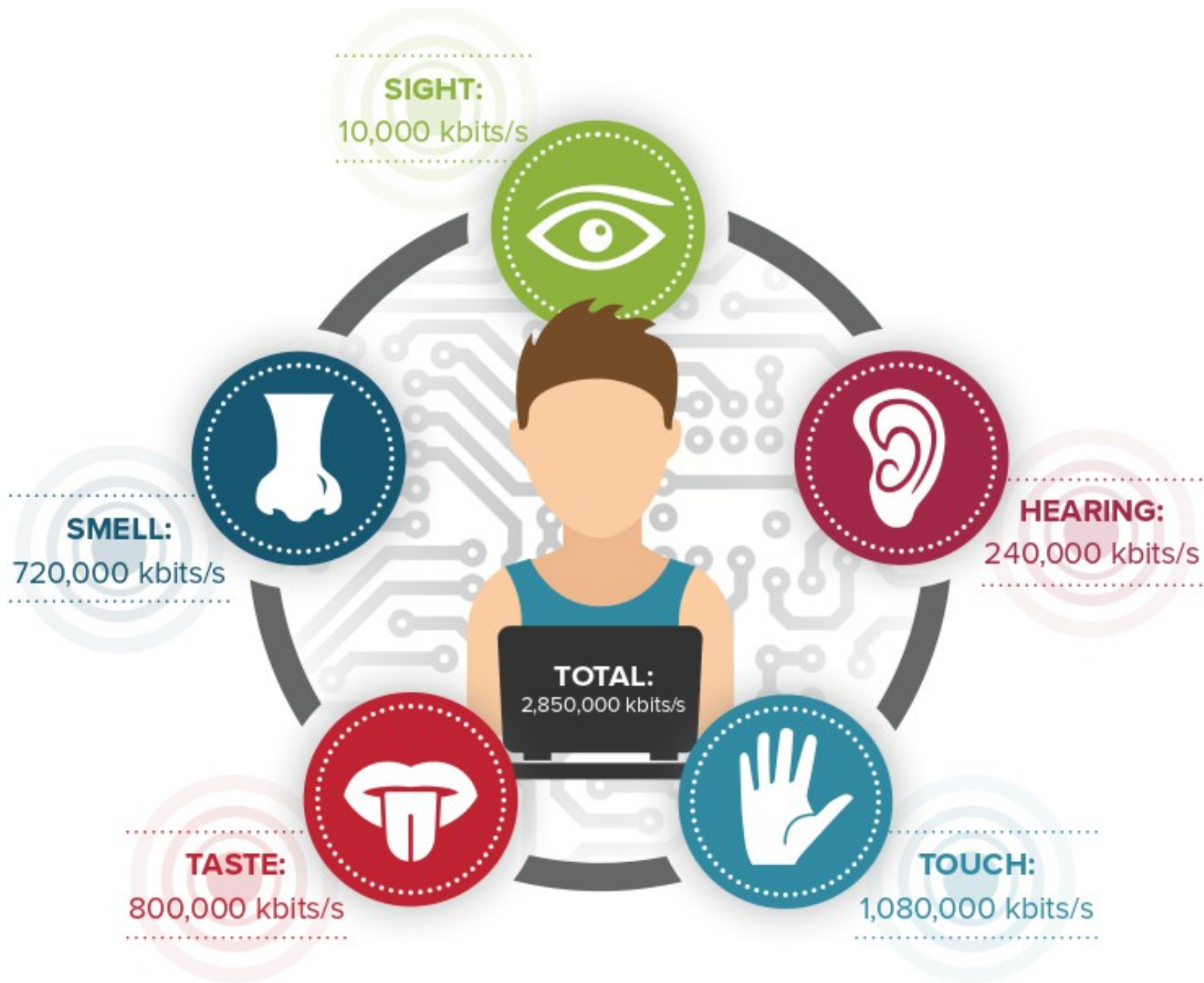
So you're probably asking, *why should I care about the this new coming of age?* The rise of the machines (don't worry, no one is building Skynet), will eventually **reorganize the global workforce**. Think about it for a second:

Technology Vision Evolution 2013-2016



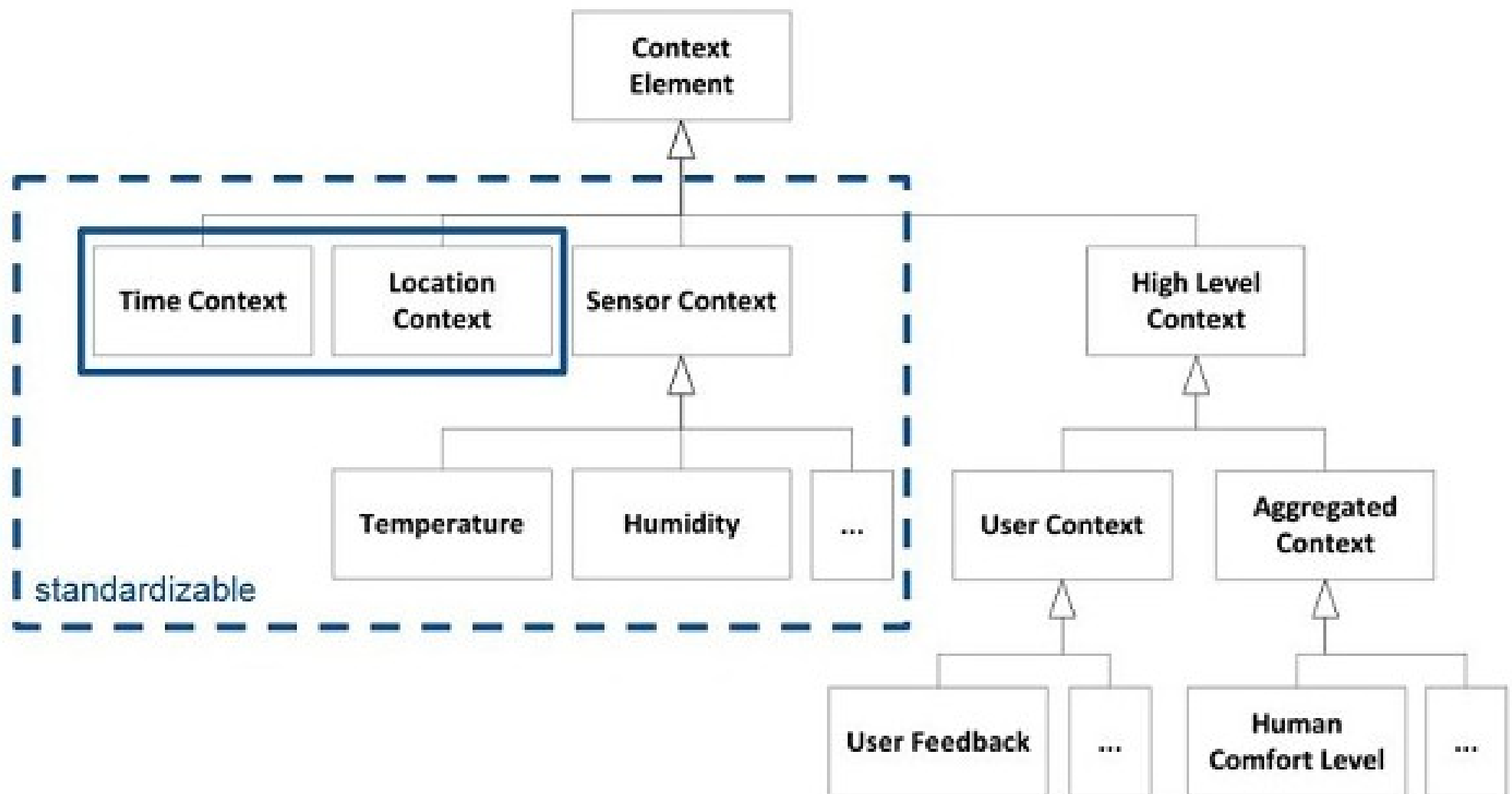
HCI self-experiment 2015





Dating in 2040: all senses digital experience. Augmented with big data matching algorithms and behavioral analysis.

Digital Platforms



IoT Reference Architecture



Gerard Grech

CRUNCH NETWORK CONTRIBUTOR



Take a look at the last decade's fastest-growing companies. You'll notice they have one thing in common: They're all platforms.

Stop calling Uber, Airbnb and Munchery just apps. These apps are the front end of a full-stack revolution powered by cloud, mobile, drones, robots and AI. These apps started as simple solutions to match demand and supply, but they have the potential to **reinvent entire industries**.

Three New Rules of the Platform Business

1. *Network Effects/Two-Sided Market*: Exists when two user groups (typically, producer and consumer) generate network value for each other, resulting in mutual benefits that drive demand-side economies of scale. The network effects of platforms, with more connected users and transactions, drive value creation and scale.
2. *Distribution Power Law*: Relates to platform business models that enable scale by allowing others to generate profits in the 'long tail' of the distribution curve—avoiding diminishing returns associated with traditional (linear) value chain models.
3. *Asymmetric Growth and Competition*: Based on driving the demand of a core market through complementary markets, which are often subsidized (or free) to users and which cross industry lines. Asymmetric competition exists when two companies go after market opportunities with very different approaches and resources.

- Continuous deployment
- Experiment driven decisions
- Lean Enterprise Concepts
- Continuous delivery
- New Corporate Cultures

Platform technology building blocks to master:

- 1 Foundation: Cloud services
 - 2 Digital Glue: API strategy and architecture
 - 3 Accelerator: Open-source and reusable software
 - 4 Digital Treasure Chest: Mobile development platforms
 - 5 Real-time Business Models: Driven by the Internet of Things
 - 6 Containers: Independence and portability of software.
-

Amazon Web Services





Compute

-  **EC2**
Virtual Servers in the Cloud
-  **Lambda** **PREVIEW**
Run Code in Response to Events

Storage & Content Delivery

-  **S3**
Scalable Storage in the Cloud
-  **Storage Gateway**
Integrates On-Premises IT Environments with Cloud Storage
-  **Glacier**
Archive Storage in the Cloud
-  **CloudFront**
Global Content Delivery Network

Database

-  **RDS**
MySQL, Postgres, Oracle, SQL Server, and Amazon Aurora
-  **DynamoDB**
Predictable and Scalable NoSQL Data Store
-  **ElastiCache**
In-Memory Cache
-  **Redshift**
Managed Petabyte-Scale Data Warehouse Service

Networking

-  **VPC**
Isolated Cloud Resources
-  **Direct Connect**
Dedicated Network Connection to AWS
-  **Route 53**
Scalable DNS and Domain Name Registration




Administration & Security

-  **Directory Service**
Managed Directories in the Cloud
-  **Identity & Access Management**
Access Control and Key Management
-  **Trusted Advisor**
AWS Cloud Optimization Expert
-  **CloudTrail**
User Activity and Change Tracking
-  **Config** **PREVIEW**
Resource Configurations and Inventory
-  **CloudWatch**
Resource and Application Monitoring

Deployment & Management

-  **Elastic Beanstalk**
AWS Application Container
-  **OpsWorks**
DevOps Application Management Service
-  **CloudFormation**
Templated AWS Resource Creation
-  **CodeDeploy**
Automated Deployments

Analytics

-  **EMR**
Managed Hadoop Framework
-  **Kinesis**
Real-time Processing of Streaming Big Data
-  **Data Pipeline**
Orchestration for Data-Driven Workflows

Application Services

-  **SQS**
Message Queue Service
-  **SWF**
Workflow Service for Coordinating Application Components
-  **AppStream**
Low Latency Application Streaming
-  **Elastic Transcoder**
Easy-to-use Scalable Media Transcoding
-  **SES**
Email Sending Service
-  **CloudSearch**
Managed Search Service

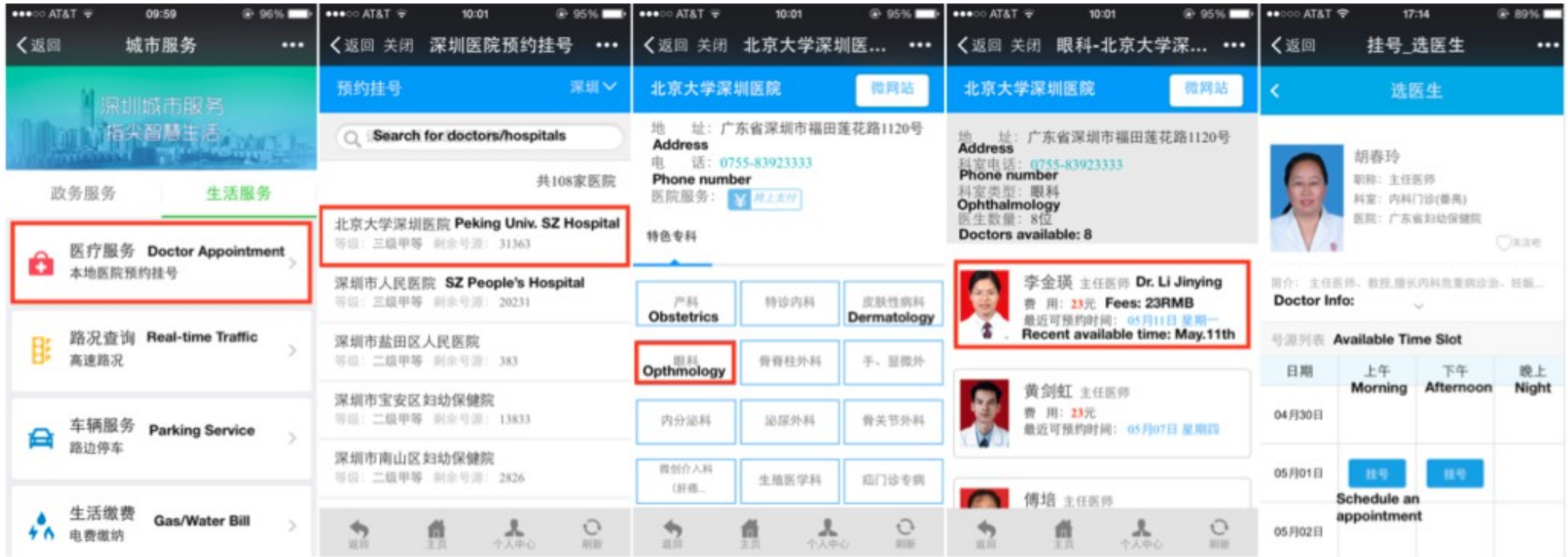
Mobile Services

-  **Cognito**
User Identity and App Data Synchronization
-  **Mobile Analytics**
Understand App Usage Data at Scale
-  **SNS**
Push Notification Service

Enterprise Applications

-  **WorkSpaces**
Desktops in the Cloud
-  **Zocalo**
Secure Enterprise Storage and Sharing Service

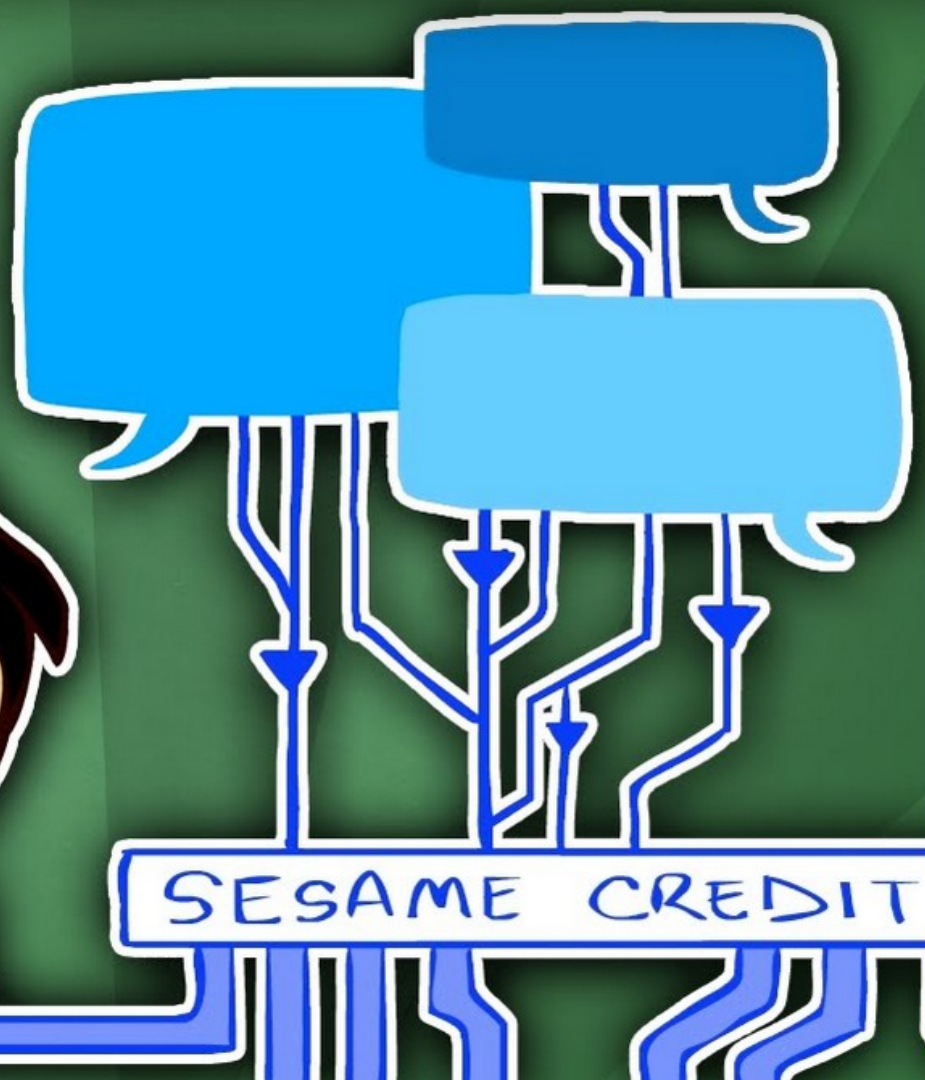
What does this spell for the future of computer science education?



These 5 screenshots, viewed left to right, show the flow of booking a doctor appointment via WeChat Wallet

„Conversational commerce“ with messaging platforms

Sesame Credit



[As Extra Credits explains on YouTube](#): "If you post pictures of Tiananmen Square or share a link about the recent stock market collapse, your Sesame Credit goes down."

"Share a link from the state-sponsored news agency about how good the economy is doing and your score goes up."

Similarly, Sesame Credit can analyse data from online purchases.



Talk

Smart, Private Messaging



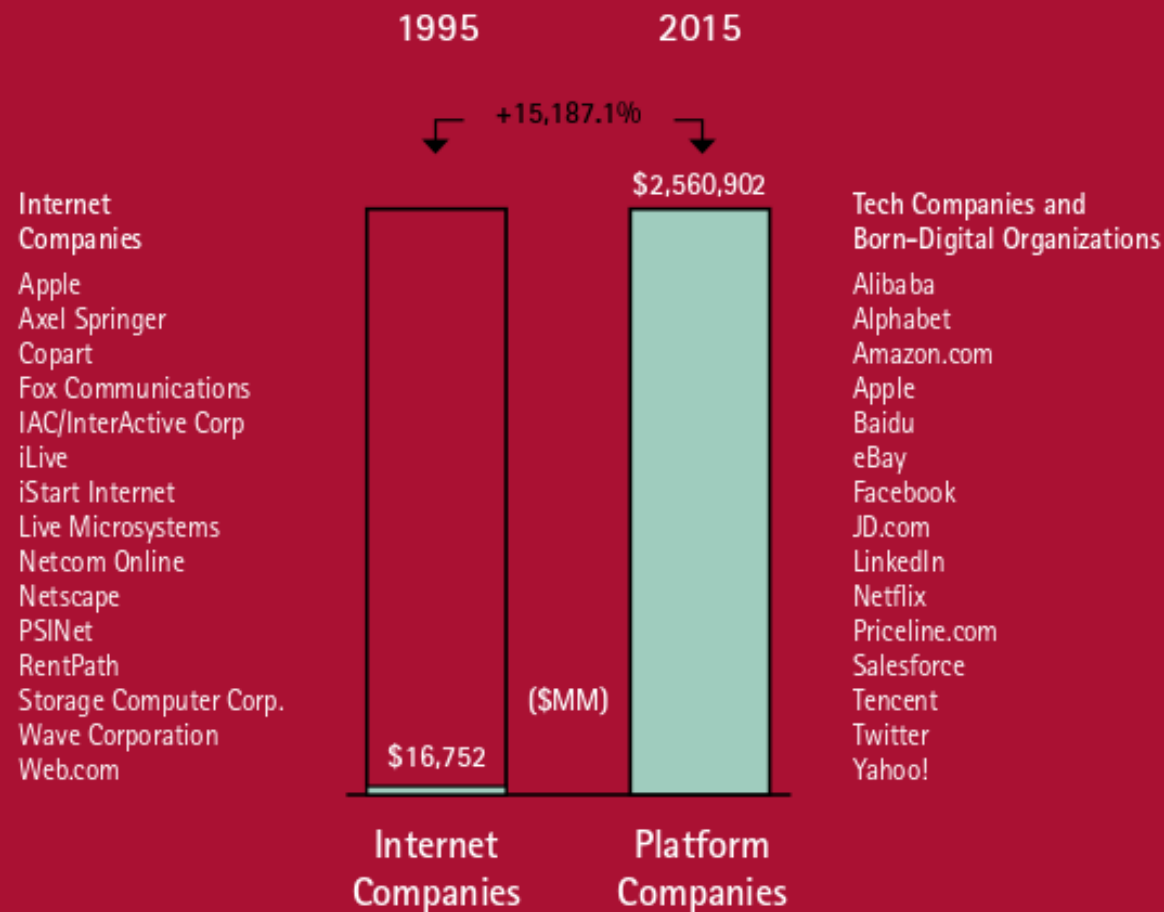
Path Talk allows users to communicate with businesses via text messaging

Algorithm

- SkyNet
- High-Frequency Trading
- Google Alpha
- Block-Chain
- Deep Learning Nets with Memory
- Probabilistic Algs.
- Recommendations
- Crime Prediction

Money

Market Cap Valuations—Internet vs. Platform Companies

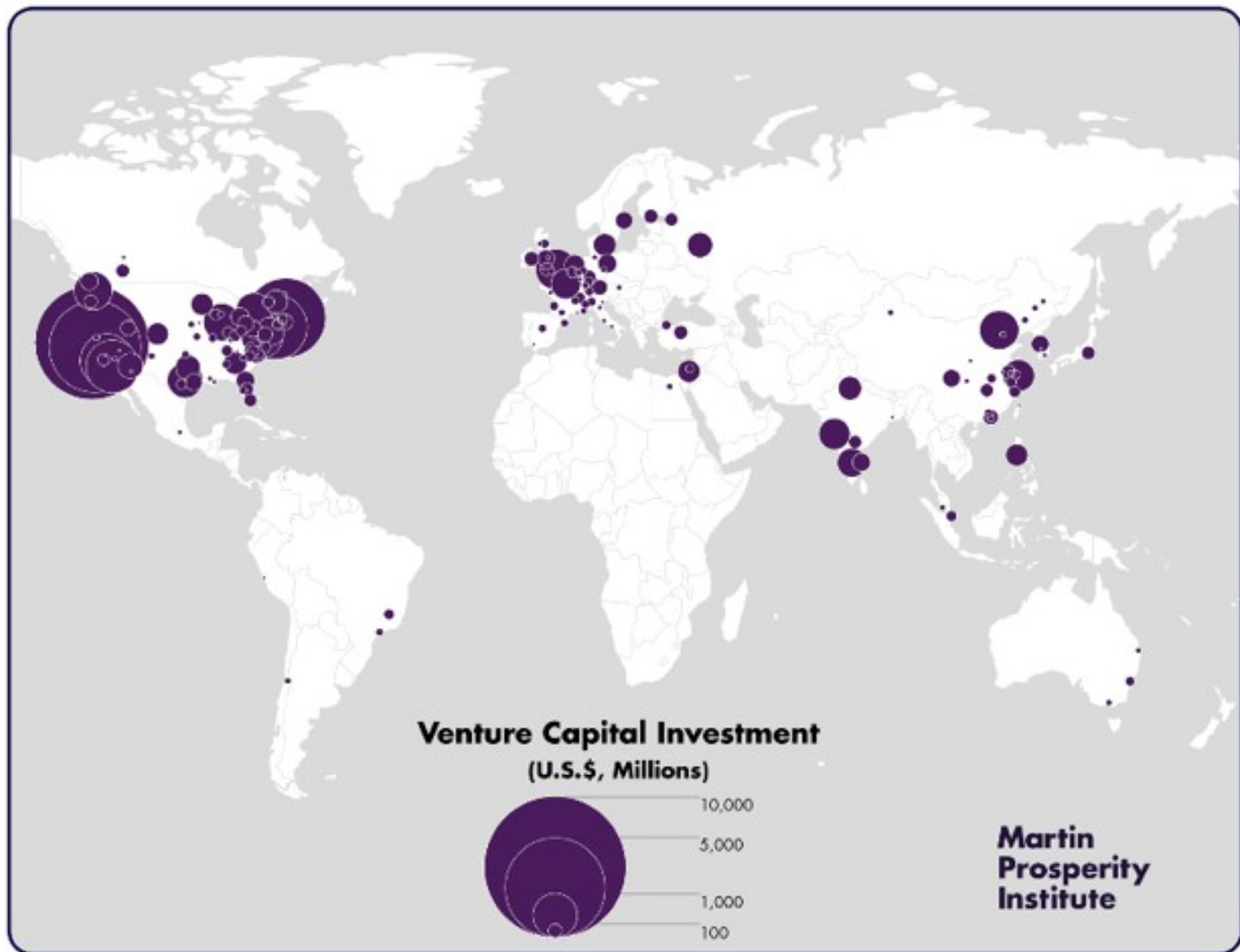


Market Cap of Top 15
Public Platform Companies:
\$2.6 trillion

Market Cap of Private
'Unicorn' Companies:
\$500 billion

TOTAL: \$3+ trillion

Fortune 500 life expectancy 50 years ago: 75 years. Today: 15 years.



Valued At \$1B And Above

Total Number of Unicorn Companies: 151

Total Cumulative Valuation: \$531B

Updated in
Real Time

Want to see the companies predicted to become unicorns?

Our list here: <https://www.cbinsights.com/research-future-unicorn-companies>

Get Our Unicorn Research For Free

| Company | Valuation (\$B) | Date Joined | Country | Industry | Select Investors |
|-----------------------------|-----------------|-------------|---------------|------------------------------|---|
| Uber | \$51 | 8/23/2013 | United States | On-Demand | Lowercase Capital, Benchmark Capital, Google Ventures |
| Xiaomi | \$46 | 12/21/2011 | China | Hardware | Digital Sky Technologies, QiMing Venture Partners, Qualcomm Ventures |
| Airbnb | \$25.5 | 7/26/2011 | United States | eCommerce/Marketplace | General Catalyst Partners, Andreessen Horowitz, ENIAC Ventures |
| Palantir Technologies | \$20 | 5/5/2011 | United States | Big Data | RRE Ventures, Founders Fund, In-Q-Tel |
| China Internet Plus Holding | \$18 | 12/22/2015 | China | eCommerce/Marketplace | DST Global, Trustbridge Partners, Capital Today |
| Snapchat | \$16 | 12/11/2013 | United States | Social | Benchmark Capital, General Catalyst Partners, Lightspeed Venture Partners |
| Flipkart | \$15 | 8/6/2012 | India | eCommerce/Marketplace | Accel Partners, Digital Sky Technologies, Iconiq Capital |
| Didi Kuaidi | \$15 | 12/31/2014 | China | On-Demand | Matrix Partners, Tiger Global Management, Softbank Corp., |
| SpaceX | \$12 | 12/1/2012 | United States | Other Transportation | Founders Fund, Draper Fisher Jurvetson, Rothenberg Ventures |
| Pinterest | \$11 | 5/19/2012 | United States | Social | Andreessen Horowitz, Bessemer Venture Partners, Firstmark Capital |
| Dropbox | \$10 | 10/5/2011 | United States | Internet Software & Services | Accel Partners, Greylock Partners, Index Ventures |
| Lufax | \$10 | 12/26/2014 | China | Fintech | Ping An Insurance |

Guess how many German companies?

Stack Fallacy

FIELDS ARRANGED BY PURITY

→
MORE PURE

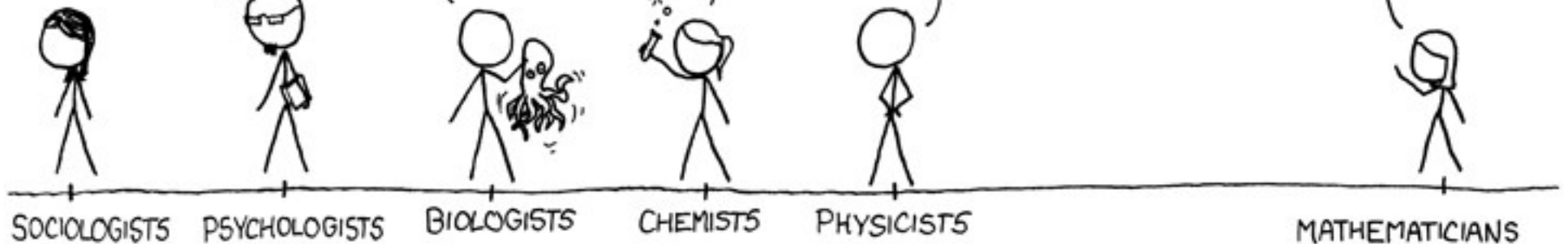
SOCIOLOGY IS
JUST APPLIED
PSYCHOLOGY

PSYCHOLOGY IS
JUST APPLIED
BIOLOGY.

BIOLOGY IS
JUST APPLIED
CHEMISTRY

WHICH IS JUST
APPLIED PHYSICS.
IT'S NICE TO
BE ON TOP.

OH, HEY, I DIDN'T
SEE YOU GUYS ALL
THE WAY OVER THERE.



What is he looking at?

Literature

Erik Brynjolfsson, Andrew McAfee: The Second Machine Age. Plassen, Kulmbach 2014. 400 Seiten, Fr. 32.90, E-Book 25.-.

Nick Bostrom: Superintelligenz. Szenarien einer kommenden Revolution. Suhrkamp, Berlin 2014 (erscheint 8.11.). 480 Seiten, Fr. 41.90.