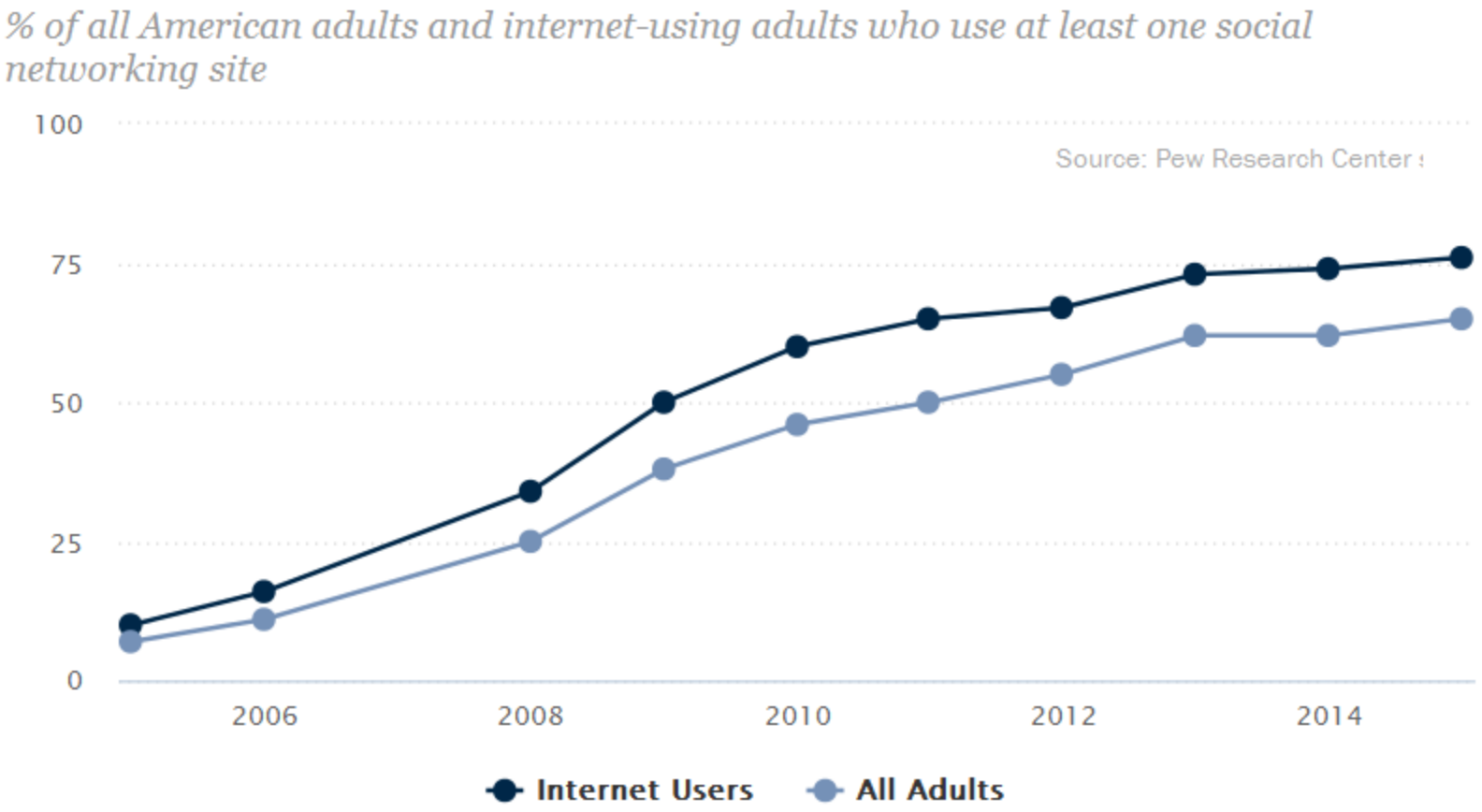
Humankind 2.0: The Technologies of the Future

7. Social Media and Sharing Economy

Piero Scaruffi, 2016

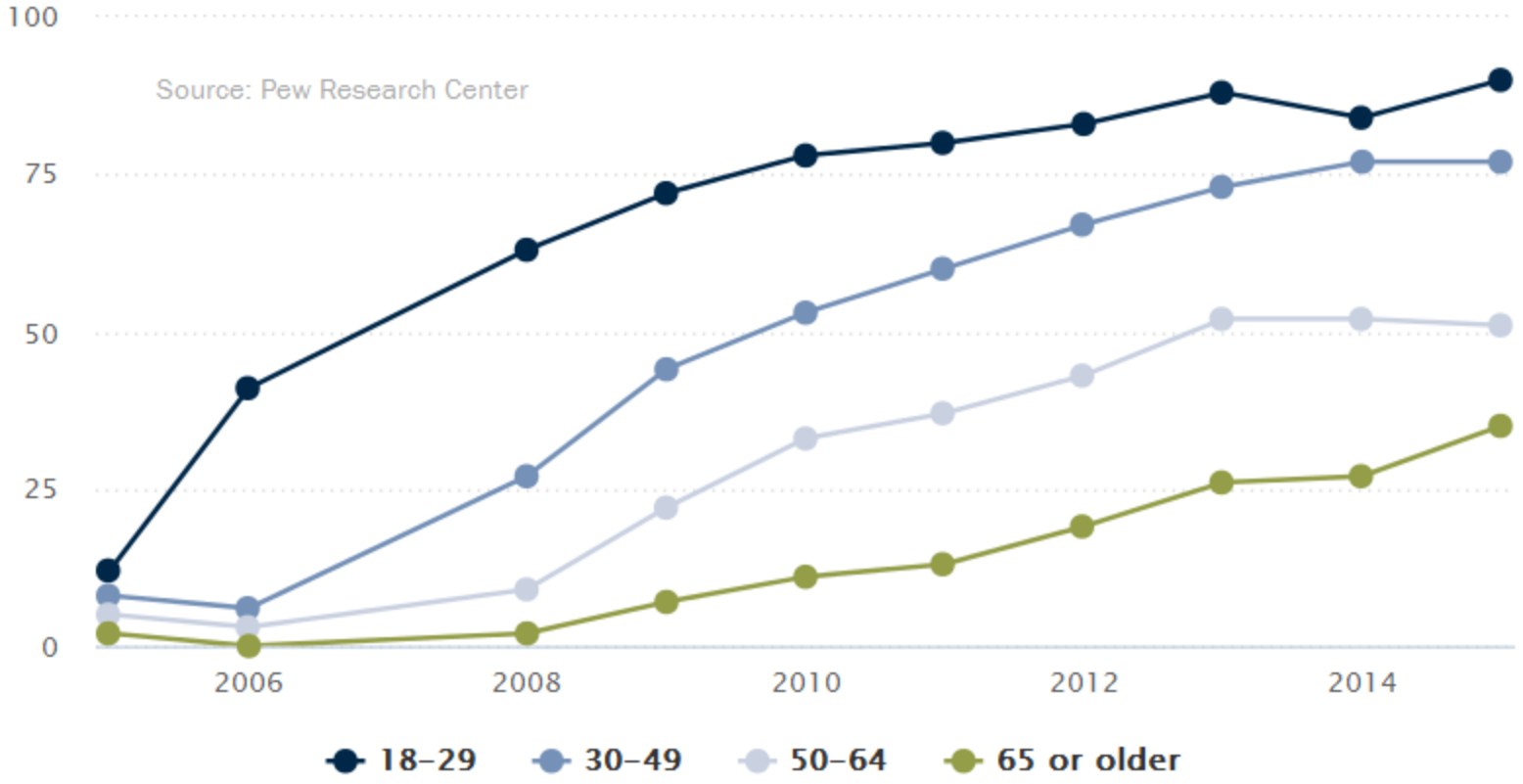
See http://www.scaruffi.com/singular/human20.html
for the full text of this discussion

A pervasive phenomenon



A pervasive phenomenon

- The only gap remains in the age group



The world in 2007

SITE	Nov.2007
Facebook	21.97M
MySpace	57.39M
Twitter	N/A
Classmates	11.46M
LinkedIn	5.44M

The world in 2016

SITE	Nov.2007
Facebook	21.97M
MySpace	57.39M
Twitter	N/A
Classmates	11.46M
LinkedIn	5.44M

1 | Facebook
3 - eBizMBA Rank | **1,100,000,000**

2 | Twitter
12 - eBizMBA Rank | **310,000,000** -

3 | LinkedIn
18 - eBizMBA Rank | **255,000,000** -

4 | Pinterest
22 - eBizMBA Rank | **250,000,000** -

5 | Google Plus+
30 - eBizMBA Rank | **120,000,000** -

6 | Tumblr
34 - eBizMBA Rank | **110,000,000** -

7 | Instagram
77 - eBizMBA Rank | **100,000,000** -

Last Updated April 1, 2016.

The social world in 2016

- Twitter: what I think
- Facebook: what I do
- Instagram: pictures
- YouTube: videos
- LinkedIn: my job
- Pinterest: my hobbies
- Foursquare: my spare time
- Reddit: my opinions

Asocial Networking

- ***"social media" = "advertising media"***
- Business used to be about making things that people want, and the industrial revolution turned this business into a science.
- The radio and television created a new kind of business, the advertising business, that is about making people want things.
- Social networking represents the equivalent of the industrial revolution for advertising.
- Today, instead of advertising products, we "productise" adverts.

Asocial Networking

- The story of social networking media is really a story of addictions, not of socializing
- gossip addiction + vanity addiction + voyeur addiction
- Then this addiction gets "monetized" by selling advertising space

Asocial Networking

- The quality of information has declined
- Wikipedia
  - The only encyclopedia
  - Frequently edited by government agencies (that want to promote their view of the facts), by corporations (that want to promote their business), by celebrities (who want to promote their image) and by special-interest groups (that want to promote special interests like their religion or their political views).
  - Wikipedia can be manipulated more than the printed encyclopedias

Asocial Networking

- A social network is a place where you don't know whether people truly exists.
- The social networks are populated by
  - "trolls" plant inflammatory statements
  - "bullies" harass users
  - "robots" steal your privacy
  - "spammers" bombard you with publicity
  - "phreaks" hijack accounts

Asocial Networking

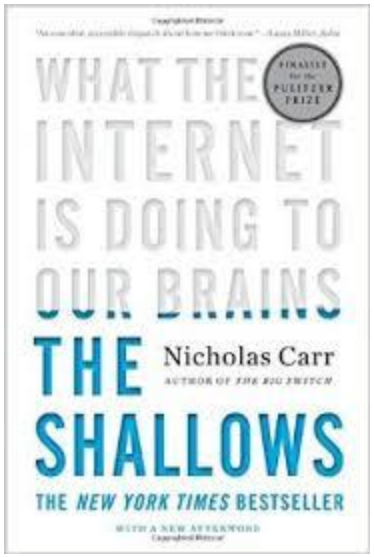
- Dotcom era: the birth of Internet addiction
  - Ivan Goldberg : "Internet Addiction Disorder" (1995)
  - Kimberly Young's "Internet Addiction - The Emergence of a new Clinical Disorder" (1996)

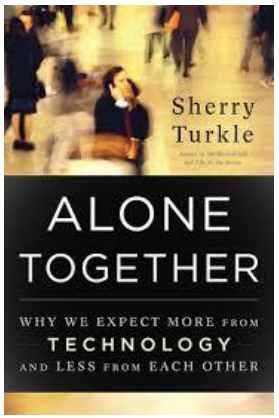
Asocial Networking

- And then it got worse…
  - Google (1998)
  - Facebook (2004)
  - YouTube (2005)
  - Reddit (2005)
  - Twitter (2006)
  - iPhone (2007)
  - Facebook’s "Like" button (2009)
  - Pinterest (2010)

Asocial Networking

- And then it got worse…
  - Nicholas Carr: "The Shallows" (2011)
  - Sherry Turkle: "Alone Together" (2011)
  - "Abnormal White Matter Integrity in Adolescents with Internet Addiction Disorder“ (China, 2012): Internet addiction causes brain changes that are similar to the ones found in the brains of alcoholics and drug addicts.
  - Matt Labash: "The Twidiocracy" (2013)
  - Alice Marwick: "Status Update" (2013)





The Twidiocracy

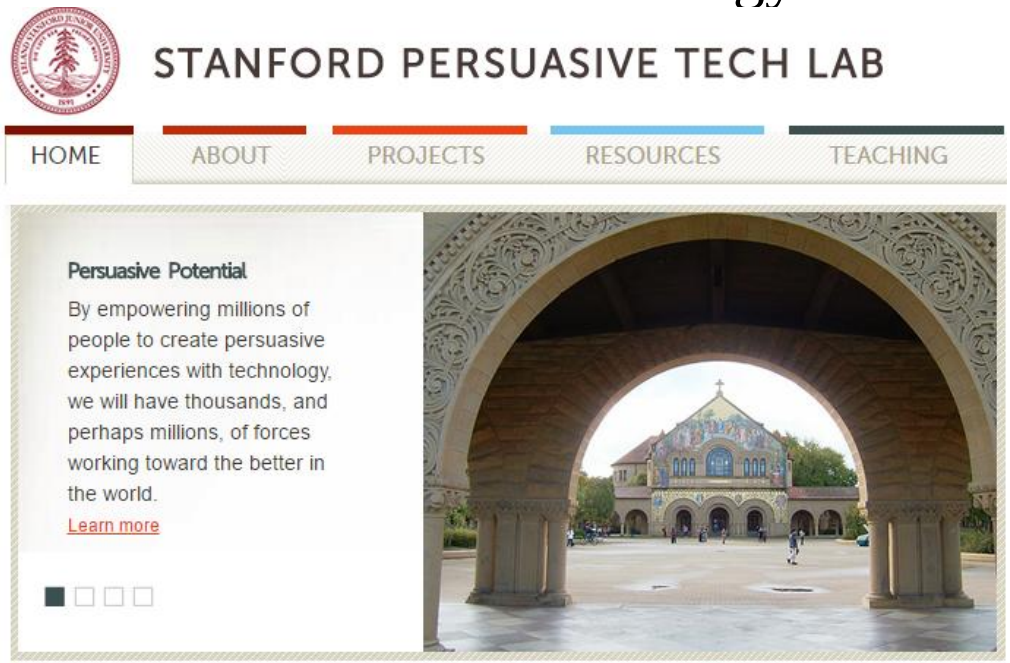
the weekly Standard

The decline of Western civilization, 140 characters at a time

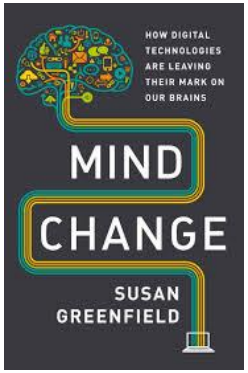
MAY 06, 2013 | By MATT LABASH

Asocial Networking

- And then it got worse…
  - Stanford Persuasive Technology Lab



Asocial Networking



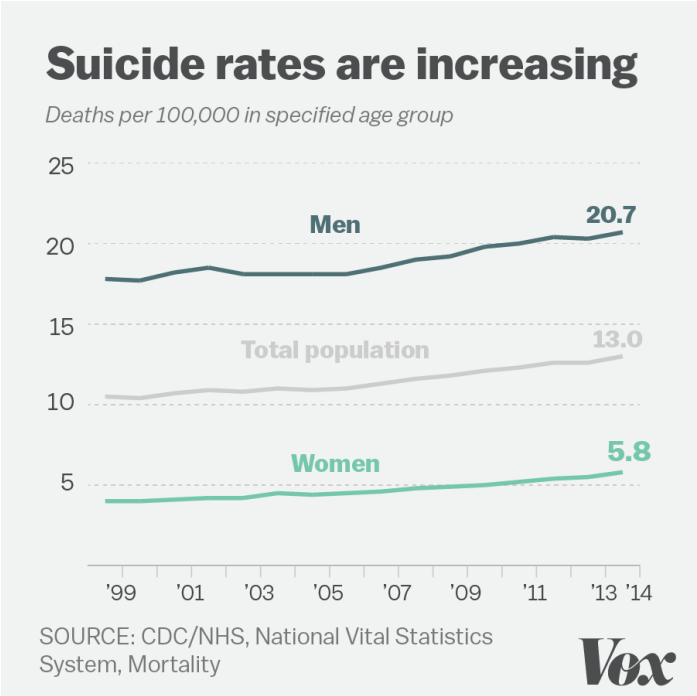
- And then it got worse…
  - Susan Greenfield's article "Mind Change" (2014)
  - Susan Snyder (Univ of North Carolina, 2015): almost 50% of US students are addicted to the Internet, and that many young Internet addicts suffered from mental health problems such as depression, insomnia, attention-deficit disorder, even suicidal tendencies and alcoholism.
  - Joseph Reagle's "Reading the Comments" (2015)

Asocial Networking

- Social networking is not about building a community but about destroying the existing physical communities.

Asocial Networking

- An interesting coincidence
  - CDC (Center for Disease Control): the number of suicides in the USA has been rising since 1999
  - 1999 happens to be the year that the first social network was born (Friendster)



friendster®

Privacy

- Boom of concern for privacy
  - 2013: Snowden affair
  - 2013: Khalil Shreateh hacks into Mark Zuckerberg's Facebook page
- Anonymity to escape network surveillance
- The Dark Net:
  - Tor browser (2008)
  - DuckDuckGo search engine (2008)
  - Wickr instant messenger (2012)
  - Bitcoin cryptocurrency (2009)

Socializing in the post-social world

1. Makers movement
2. Hackerspace movement
3. Volunteer-computing movement
4. Open-source movement
5. Crowdfunding phenomenon

Socializing in the post-social world

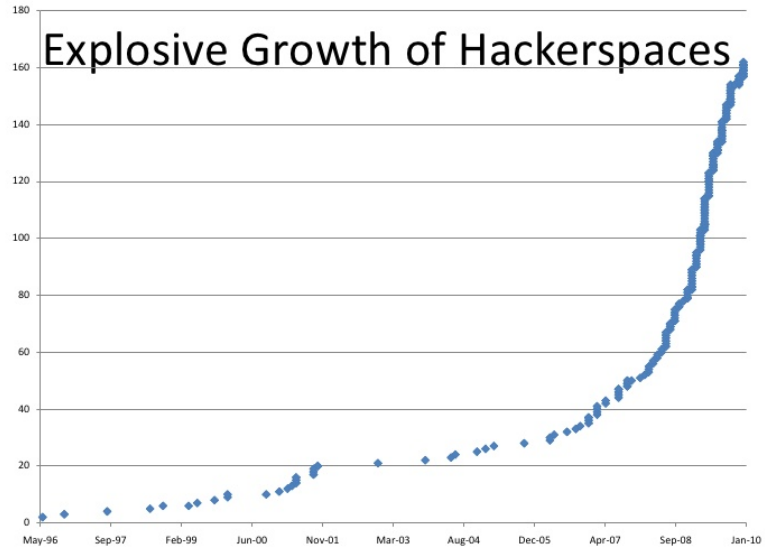
- Makers movement
  - Bay Area known for the Do-It-Yourself (DIY) culture, eg Homebrew Computer Club
  - DIY movement in biotech.
  - Maker Faire (2006)
  - Tech Shop (2006)
  - Hacker Dojo (2009)
  - Explore, don't be afraid of failing

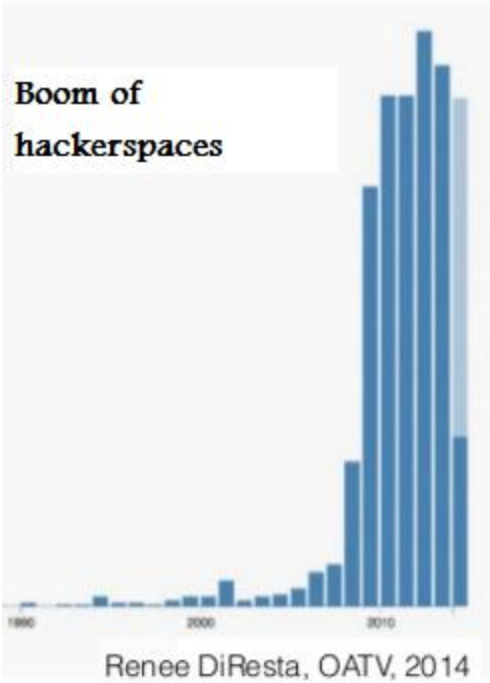
Socializing in the post-social world

- Hackerspace movement
  - Hackers counterculture
    - Chaos Computer Club (Berlin, 1984) and Chaos Communication Congress (C3) conference
    - Metalab (Vienna, 2006)
    - Noisebridge (San Francisco, 2007)
    - 2600 hackerspaces worldwide

Socializing in the post-social world

- Hackerspace movement
  - Any kid in a small town can be a “hacker" like in Silicon Valley
  - Hackerspaces are creating real friendships in the real world
  - A new way to express yourself to your friends.
  - Explore, don’t be afraid of failing



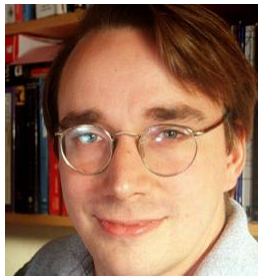


Socializing in the post-social world

- Volunteer computing movement
  - Use the idle time of computers in the homes and offices of volunteers
  - UC Berkeley (1999): SETI@Home (1 million contributors)
  - Stanford (2000): Folding@Home
  - UC Berkeley (2002): Berkeley Open Infrastructure for Network Computing (BOINC)
  - IBM (2004): the World Community Grid (WCG)

Socializing in the post-social world

- Open Source movement
  - 1977: Bill Joy's Unix BSD
  - 1979: Eric Allman's "delivermail"
  - 1983: Richard Stallman's Free Software Foundation
  - 1984: MIT's X Window
  - 1987: Perl, was released by its creator Larry Wall's Perl
  - 1989: First GNU release
  - 1991 Guido van Rossum's Python
  - 1991: Linus Torvalds' Linux
  - 1993: Red Hat commercializes Linux
  - 1995: Apache HTTP Server
  - 1997: Eric Raymond's "The Cathedral and the Bazaar"
  - 1998: Netscape's Mozilla
  - 1998: Freeware Summit in Palo Alto

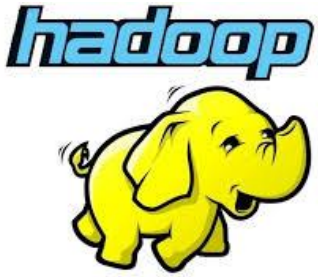


April 14, 1998

OPEN SOURCE PIONEERS MEET IN HISTORIC SUMMIT
Developers of key Internet technologies confirm advantages of open source development process and agree to cooperate in spreading the word

Socializing in the post-social world

- Open Source movement
  - 2008: GitHub
  - 2008: Cloudera commercializes Hadoop
  - 2008: Cassandra
  - 2009: MongoDB
  - 2010: OpenStack
  - 2016: All software by MIT Media Lab to be be released to FLOSS
  - 2016: Apple's Mac OS X becomes open source



Socializing in the post-social world

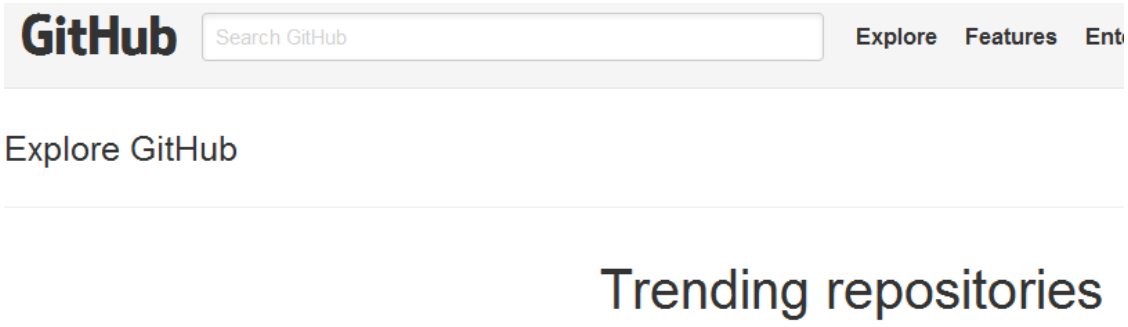
- Open Source movement
  - Deep Learning: Torch (New York University), Caffe (UC Berkeley), Theano (Univ of Montreal, Canada), Tensor Flow (Google).
  - Robotics: Robot Operating System
  - Big Data: Hadoop, Cassandra, …
  - Internet of Things: Arduino, OpenHAB

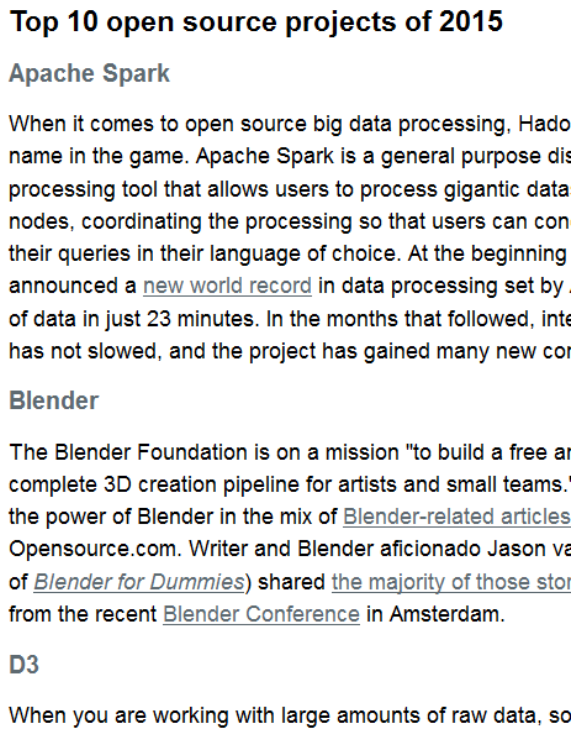
Socializing in the post-social world

- Open Source movement
  - All major corporations donate software to the community
  - Google has released over 20 million lines of code and over 900 projects
  - Facebook: 90 repositories comprising over 40,000 commits

Socializing in the post-social world

- Open Source movement
  - Open-source communities like GitHub (1.2 million members) feature some of the engineers who have the smartest ideas





Socializing in the post-social world

- Crowdfunding
  - Kickstarter
    - $2.3 billion pledged to Kickstarter projects (April 2016)
    - 105,000 Successfully funded projects
    - 11 million total investors
  - Gofundme
    - $2 billion
    - 12 million investors
  - Indiegogo: $800 million

KICKSTARTER

INDIEGOGO

gofundme

NATIONAL VENTURE CAPITAL ASSOCIATION

$58.8 Billion in Venture Capital Invested Across U.S. in 2015

See https://www.kickstarter.com/help/stats for updated stats

Socializing in the post-social world

- Crowdsourcing
  - Community-based applications
  - MIT's Center for Collective Intelligence (2006)
  - Accelerate the feedback loop - Henry Chesbrough's "open innovation" (2005)
  - Dell's Ideastorm.com (2007): customers share ideas and collaborate with one another and with Dell
  - Lego Ideas (2008)
  - Phillips' Simplyinnovate and Open Inovation Challenge
  - Waze

MIT Center for Collective Intelligence

DELL IdeaStorm

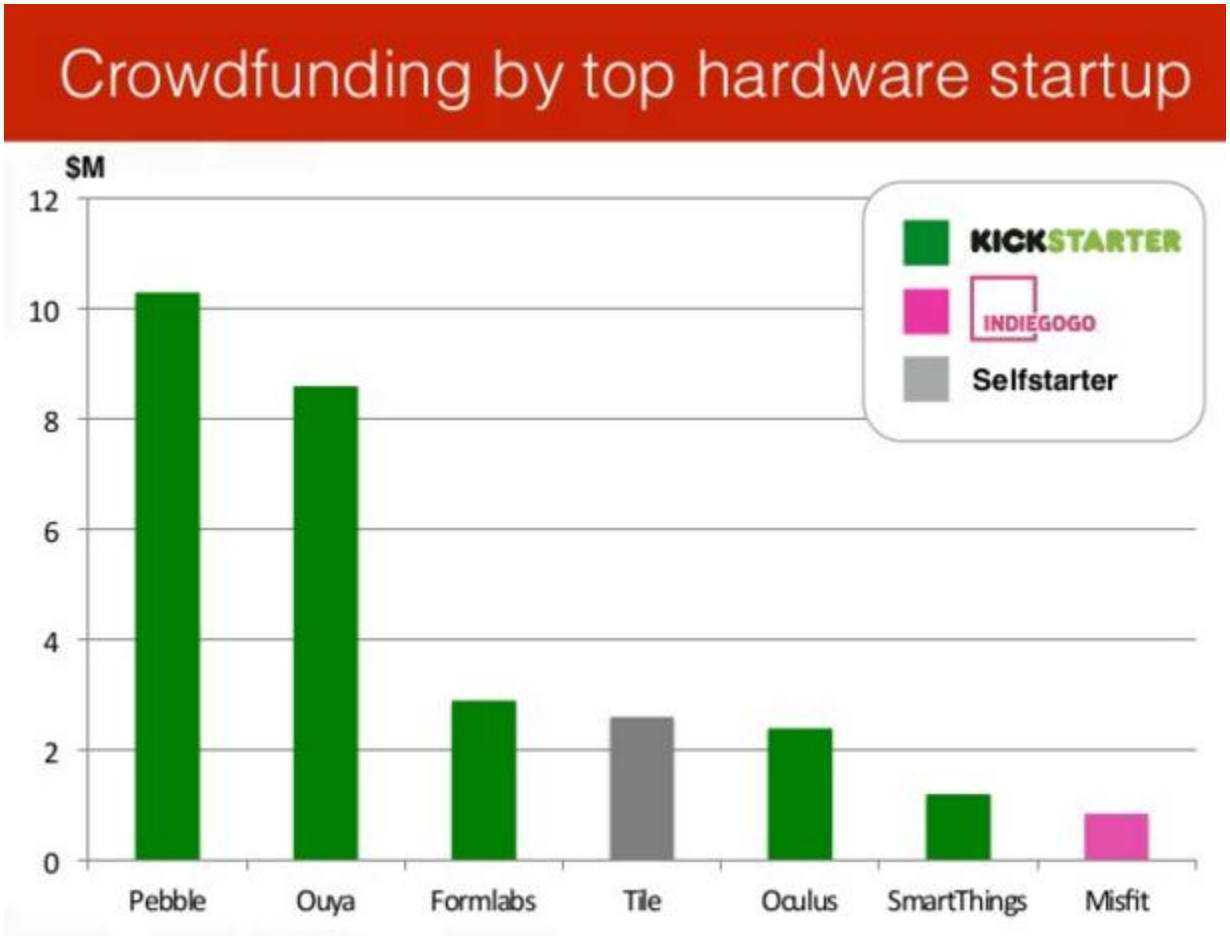
LEGO IDEAS

PHILIPS simplyinnovate

waze

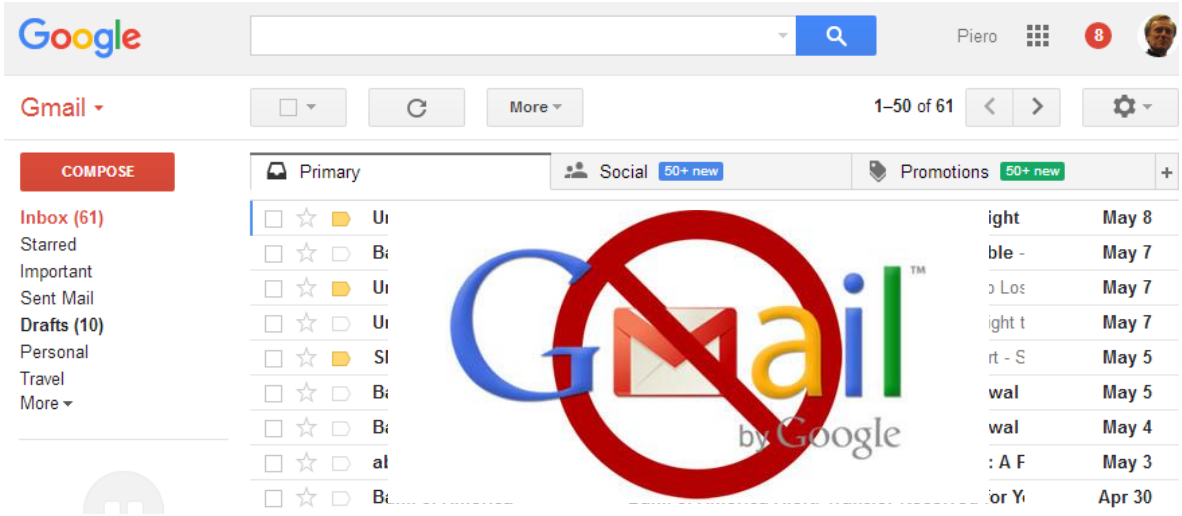
Socializing in the post-social world

- Crowdsourcing deals (as of 2015)



Socializing in the Office

- We increasingly think and work in terms of short messages (tweets and texts)
- Slack
- Decline of email

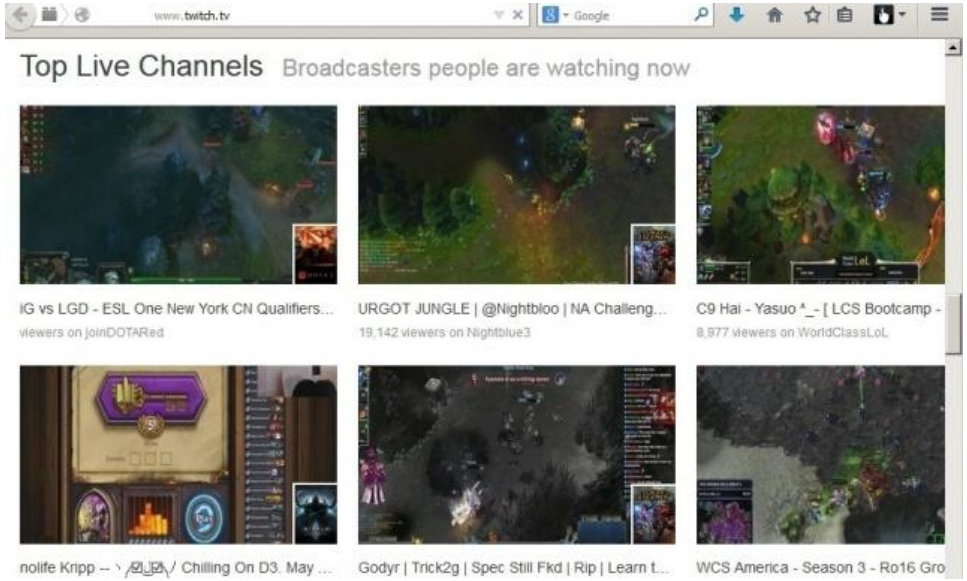


The Future of Social Media

- The future of content
- The future of interaction

The future of content

- Streaming your life live to the world (Twitch.tv, Periscope, Meerkat…)

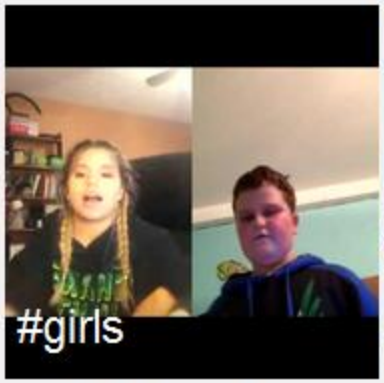


Periscope

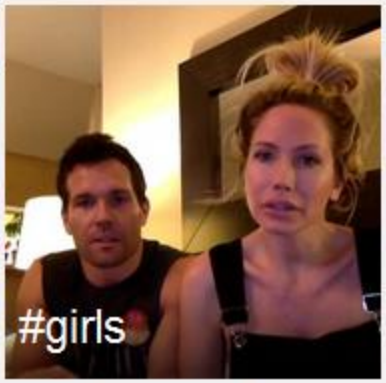
Meerkat
Tweet Live Video

younow EXPLORE MOMENTS LEADERBOARDS

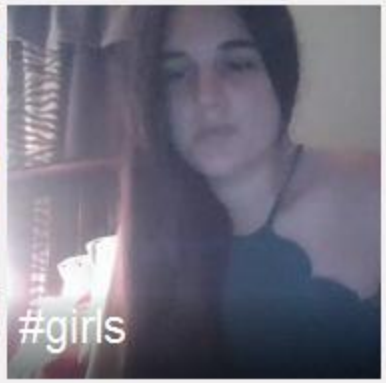
Live Now in #girls



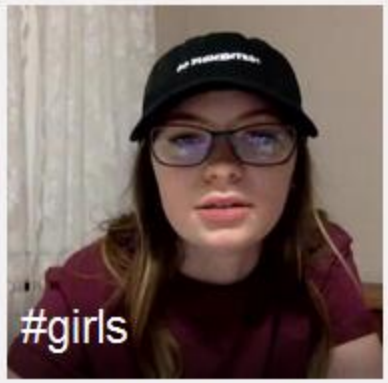
★ 56 itsMeLaurrMarie
Live • 2416



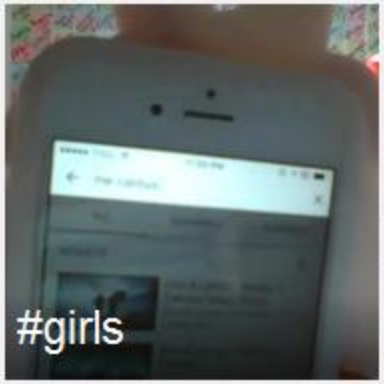
★ 66 ChannonRose
Live • 3035



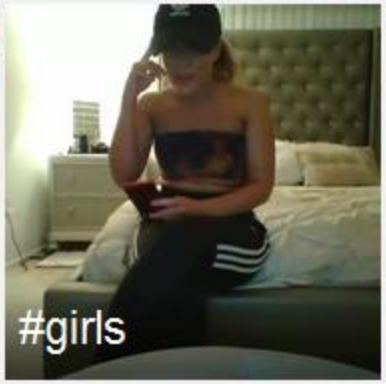
★ 35 Autumn Garran...
Live • 1895



★ 13 HaleighBoBaleigh
Live • 464

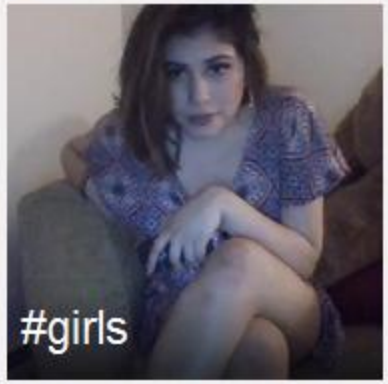


★ 74 Jhovy
Live • 1829



★ 74 MegansNation
Live • 1357

★ 50 Nesmamamdou...
Live • 376



★ 53 JdoJennie
Live • 1168

The future of content

- Video
  - Facebook passed 8 billion daily video views (2015)
  - Snapchat passed 6 billion daily video views (2015)
  - Google YouTube has over a billion users (300 hours of video added every minute)

The future of content

- Apps for video editing
  - Google FlyLabs (New York)
  - Cinematique (New York)
  - Shutterstock's Sequence
  - GoPro's video editing
  - Flipagram (Los Angeles)

The future of content

- Immersive 3D photography
  - Fyusion (San Francisco)
- VR videos
  - 8i (New Zealand)

The future of interaction

- The social life of algorithms
  - In theory we interact with other people,
  - In practice most of the interaction takes place with algorithms
  - Gartner's study : by 2018 about 20% of all business content will be created by machines and there will be 6 billion connected things
  - Thousands of algorithms tell us where to eat, which movie to watch, what to buy, how much to exercise, and whom to date
  - And we mostly obey

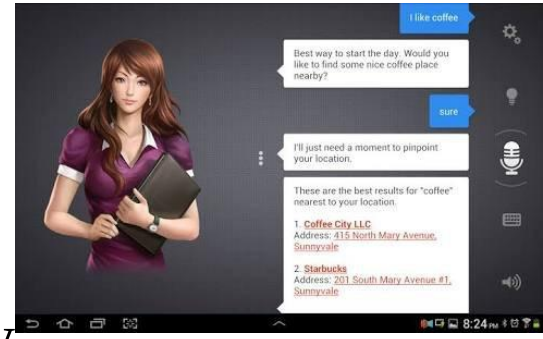
Gartner

ORLANDO, Fla. , October 6, 2015

Gartner Reveals Top Predictions for IT Organizations and Users for 2016 and Beyond

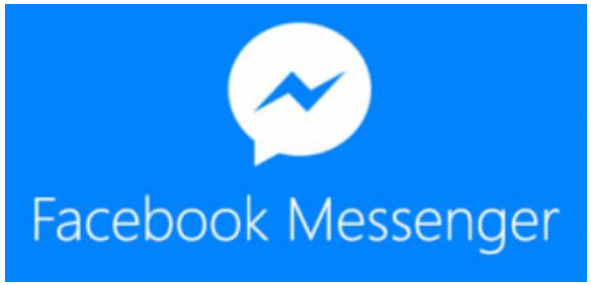
The future of interaction

- The social life of machines
  - Gartner: by 2020 virtual assistants will constitute 40% of mobile interactions
  - Social life in the post-app era will be largely controlled by virtual assistants
  - Virtual assistants will also interact with smart things around the house, the office and the city
  - Robots will "socialize" via the cloud.
  - The social life of machines will be more interesting than the social life of people



The future of interaction

- The social life of chatbots
  - Facebook Messenger becomes a platform for developers of chatbots

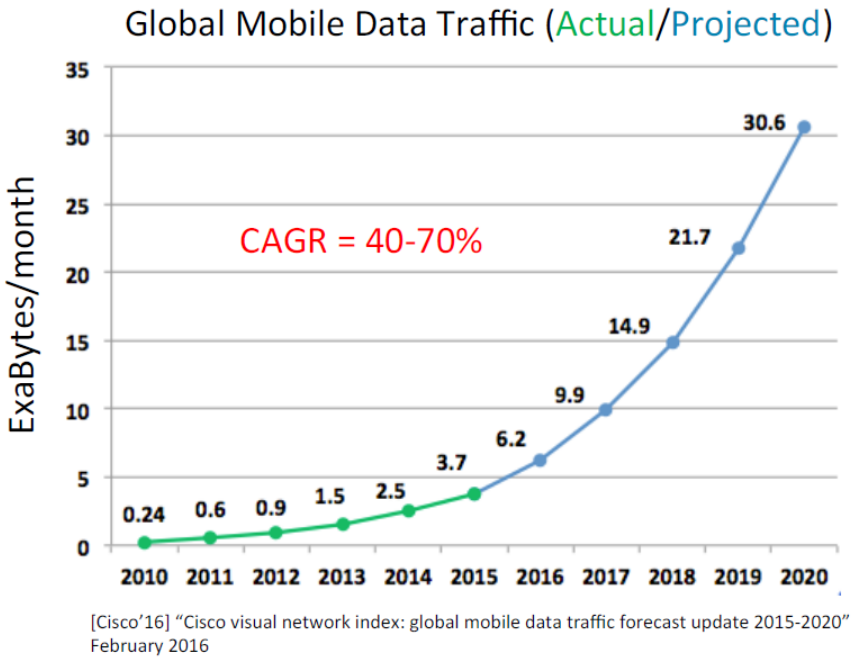


facebook for developers

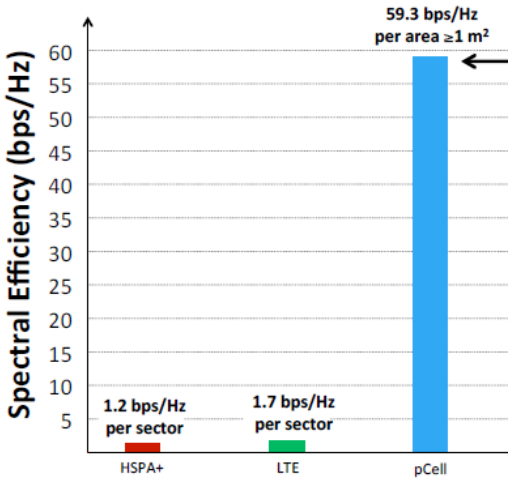
How To Build Bots for Messenger

The future of delivery

- Explosion of videos, live streaming, video calls, video conferencing, etc is testing the limits of 4G technology
- Artemis: the pcell



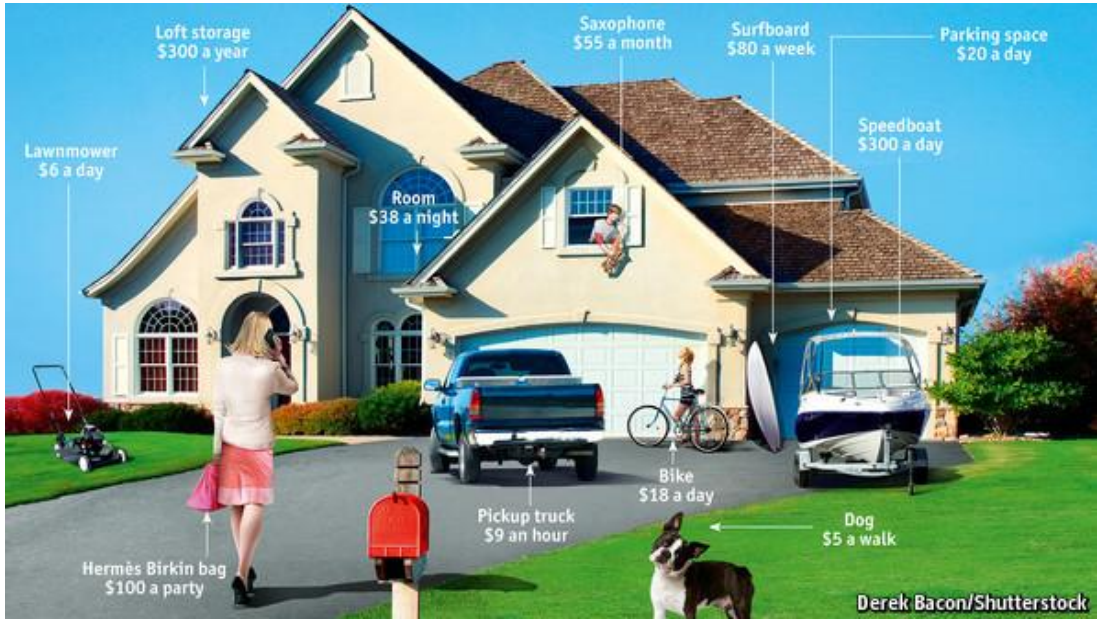
[Cisco'16] "Cisco visual network index: global mobile data traffic forecast update 2015-2020" February 2016



[Rysavy'14] Rysavy Research/4G Americas, August 2014

Sharing Economy

- Sharing Economy
  - Monetize idling capacity: most of the time we don't use most of what we own



Sharing Economy

- Sharing Economy
  - Collaborative consumption
  - A side-effect of the financial crisis of 2009-10
  - Enabled by social mobility, by Amazon/Yelp customer reviews (“trust”), and by… a wasteful society (idling capacity)!

Sharing Economy

- Technology is changing the future of capitalism from competing to sharing
- *"By the end of this decade, power and influence will shift largely to those people with the best reputations and trust networks, from people with money and nominal power… giving a voice to what we once called "the silent majority."*
- Rachel Botsman and Roo Rogers: What's Mine is Yours (2010)
- Lisa Gansky: The Mesh: Why the Future of Business is Sharing (2012)

Craig Newmark (Craigslist)

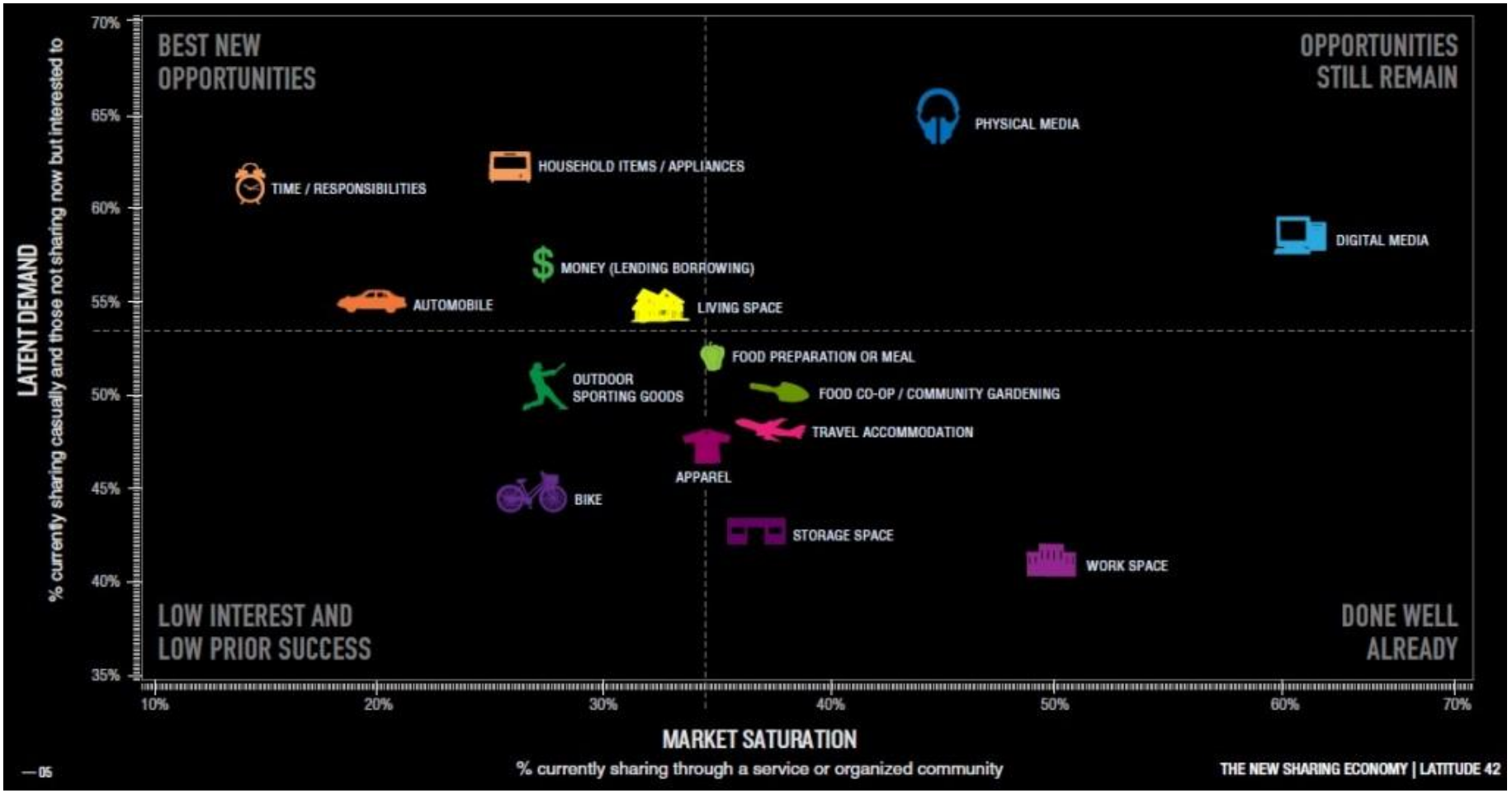
Sharing Economy

- “Glocal:” a localized version of a global service (eg Uber)

Sharing Economy

- P2P Finance
  - Marketplace lending (LendingClub)
  - P2P Insurance (Lemonade)

Sharing Economy



jwtintelligence.com

Sharing Economy

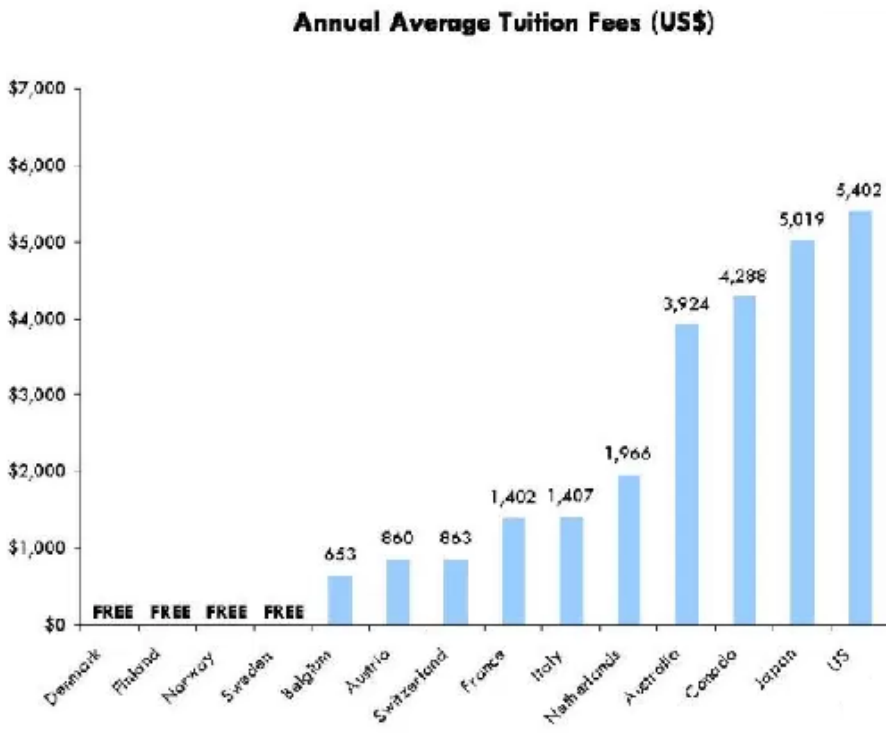
- Businesses must think of what value they own besides… their business
- Eg, motels and schools own parking lots that are not used for many hours during the day, a valuable asset in congested cities

Sharing Economy

- Sharing Economy
  - Invisible sharing: the "sharing" of resources and knowledge will be done automatically
    - Waze (acquired by Google)
    - Here (owned by BMW, Audi, and Daimler) to crowdsource information acquired by in-car sensors to provide other cars' drivers with more accurate information on traffic

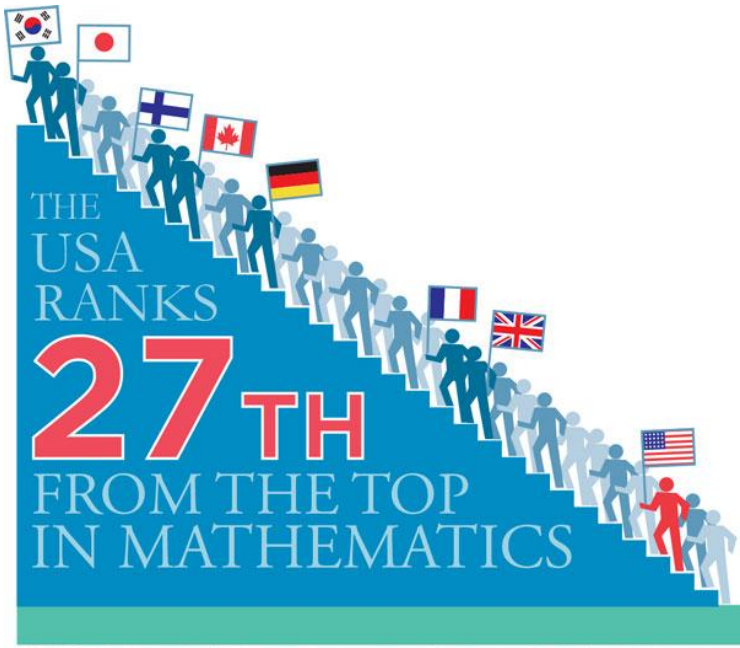
Ed-tech

- Education in the USA
  - 7% of the GDP
  - $12,731 per pupil on secondary education
  - #1 in tuition fees



Edtech

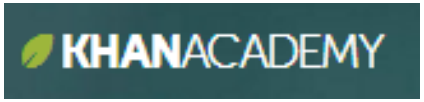
- 1946: the USA had the #1 high school graduation rate in the world
- Today: # 22 among 27 industrialized nations
- US students rank 25th in math, 17th in science and 14th in reading (OECD, 2012)
- Only 46% of students finish college



SOURCE: The Organization for Economic Co-operation and Development, Results from PISA 2012, Country Note: United States (France, OECD, 2013)

Democratizing Education

- MOOCs (Massive Open Online Courses)
  - Khan Academy (Salman Khan, 2006): free K12 education worldwide
  - SlideShare (Jon Boutelle, 2006): free repository of slide presentations
  - Edmodo (Nic Borg and Jeff O'Hara, 2008): platform for teachers
  - Udemy (Eren Bali, 2010): online marketplace where anyone can upload and sell a class

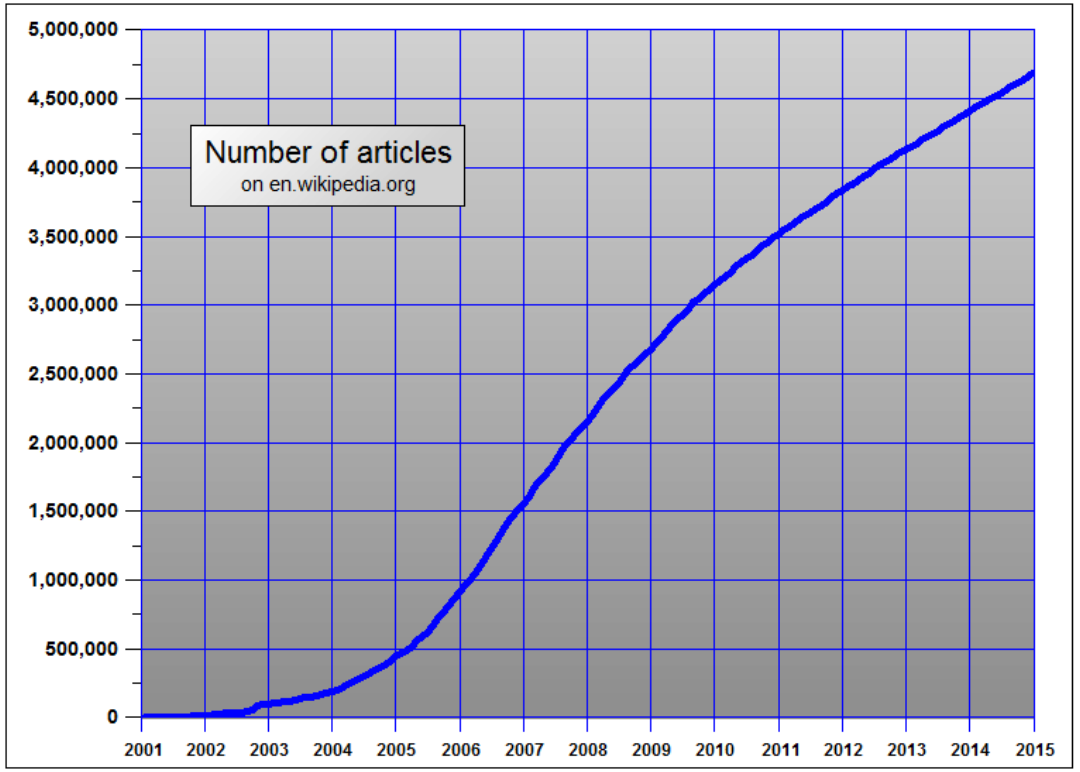


Democratizing Education

- MOOCs (Massive Open Online Courses)
  - Coursera (Andrew Ng, 2011): online university-level courses in collaboration with universities
  - Udacity (Sebastian Thrun, 2011): online training courses in collaboration with industry
  - EdX (MIT & Harvard, 2012): like Coursera but nonprofit and running on open-source software

Democratizing Education

- Free encyclopedia
  - Wikipedia (2001)

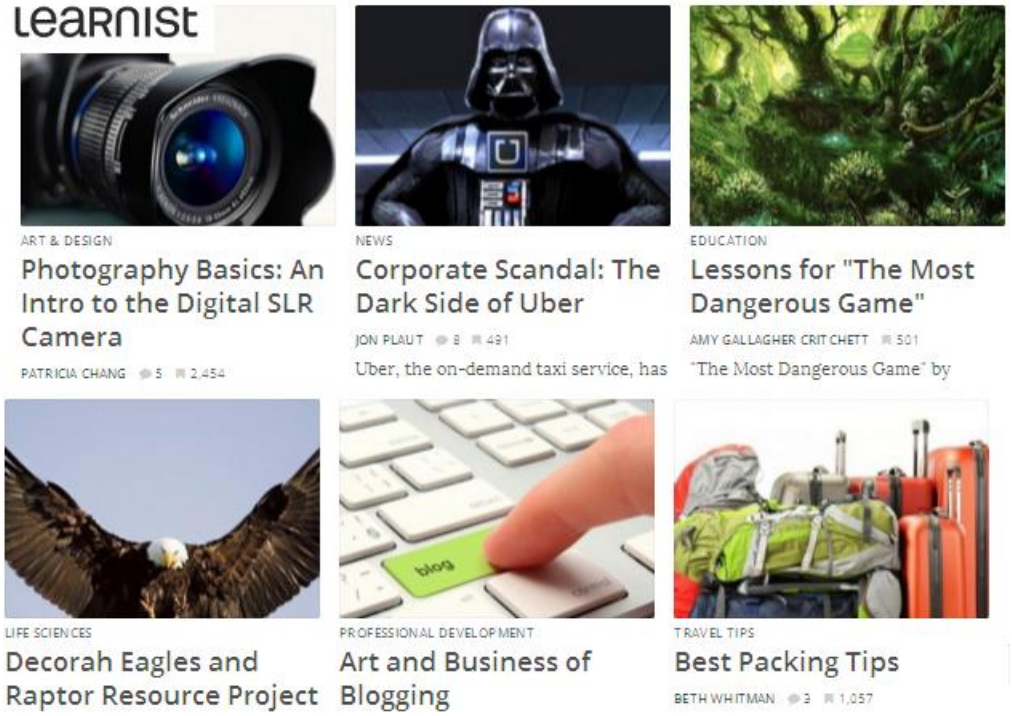


Democratizing Education

- 2015 statistics
  - SlideShare 19.7 million slide presentations
  - Udemy: 40,000 courses and 10 million students
  - EdX: 5 million students
  - Coursera: 15 million students
  - Udacity: 4 million students
  - Khan Academy: 10 million (per month)
  - Edmodo: 44 million

Startups to watch

- Learnist (San Francisco, 2012): teachers and students can curate content on “Learnboards” (a knowledge social network)



Startups to watch

- Primo Toys (Britain, 2013): teaching the basic of programming without using letters

Startups to watch

- Codeacademy (New York, 2011): online interactive coding classes - 24 million users in 2015

Startups to watch

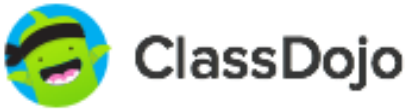
- Duolingo (Carnegie Mellon, 2011): nonprofit language-learning platform - 10 million users in 2015

Startups to watch

- CareerFoundry (Germany, 2013): a learning platform plus a job-coaching service plus a job-placement service

Gamified Education

- GameDesk (Univ of Southern California, 2008): games as educational tools
- Knewton (New York, 2008): Adaptive learning - 10 million users in 2015
- KnowRe gamified Adaptive-learning
- ClassDojo (San Francisco, 2011): classroom management for teachers through real-time feedback and online rewards - 30 million users in 2015



Courseware Authoring

- Creating interactive personalized courseware
  - Amplify (New York, 2000)
  - Blinklearning (Britain, 2009)
  - Top Hat Monocle (Toronto, 2010)
  - Pear Deck (Iowa, 2014)

Parents Involvement

- Mobile messaging platforms to connect teachers, parents and students
  - Remind (San Francisco, 2011): mobile messaging platform - 10 million users in 2015
  - Kaymbu (Boston, 2012)

Foundations to watch

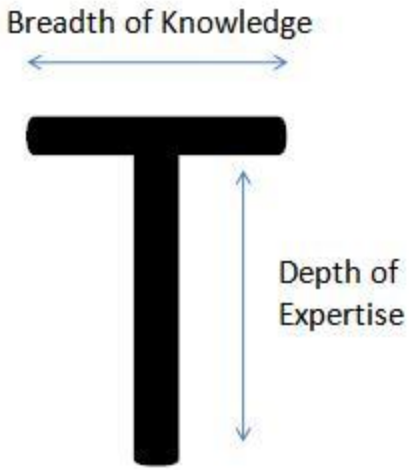
- Meritful (Washington, 2012): helping small firms recruit the best college graduates
- Beyond 12 (San Francisco, 2009): nonprofit tracking the careers of high school graduates
- Edcamp (Pennsylvania, 2011): teacher-run "unconferences" (“edcamps”) that take place on Saturdays and during the summer

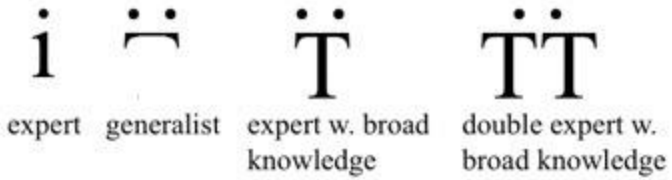
Edtech Incubators

- Imagine K12 incubator (Palo Alto, 2011)

Edtech

- Stanford wants to form T-shaped people





Edtech

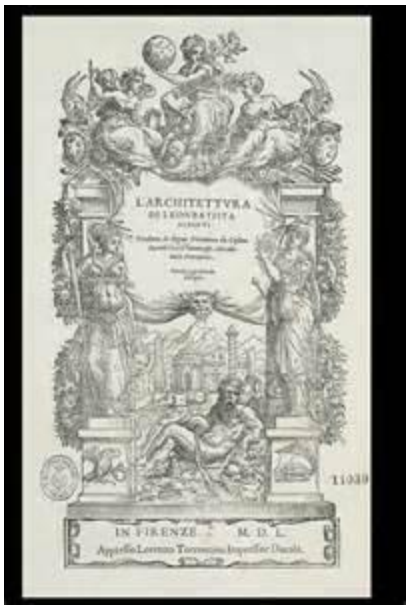
- China and the West
  - 1,000 years ago China was inventing everything and the West was copying
  - Today the West is inventing everything and China is copying
  - China has to rediscover the spirit of 1,000 years ago

Edtech

- China and the West
  - A very interdisciplinary spirit
  - Scholar-official of the Song dynasty: the universal man, combining the qualities of scholar, poet, painter, statesman

Ecotopia

- Leon Battista Alberti's "On the Art of Building" (1452*): "the city is like a great house, and the house in its turn a small city."*
- Federico da Montefeltro's palace in Urbino (1444-82): *"a city in the form of a palace" (Baldassare Castiglione)*



Ecotopia

- “The Ideal City” (1480s)

Technology and Ecotopia

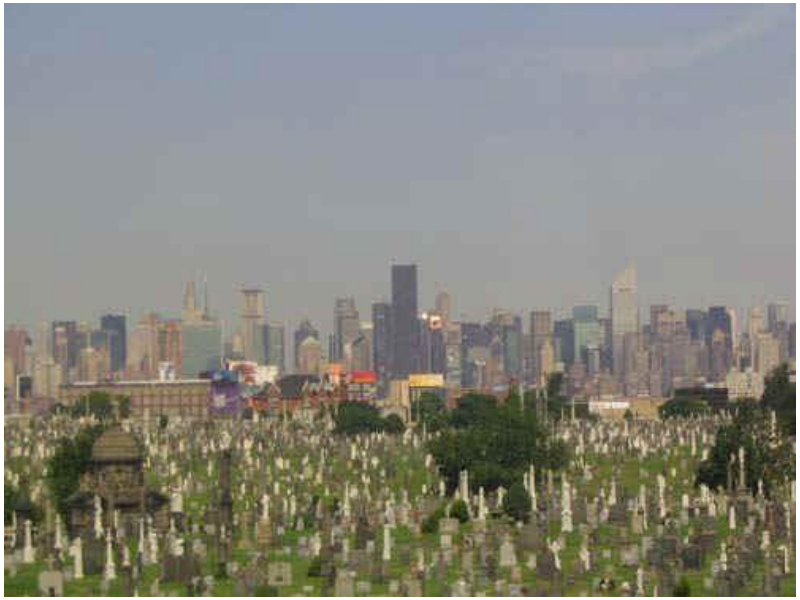
- Technology mediates between the individual/family and the social and natural environment
- The technology of 1480 was architecture, a very physical technology
- We are inventing the technology of the 2010s, and it is increasingly virtual, not physical

Technology and Ecotopia

- Physical technology mediates well if it is efficient and beautiful
- Urban planning until the 20th century = efficiency + aesthetics
- Urban planning of the 2010s = efficiency + ?

Not Ecotopia

- USA 1950s/1960s:
  - Unchecked two-dimensional expansion of urban sprawl
  - Boring streets make pedestrians unhappy
  - Skyscrapers make people lonely and neurotic



Urban growth is an environmental issue

- 1900: there are only 16 cities with populations of greater than 1 million
- 2015: There are more than 500 cities with populations of greater than 1 million
- 2.5 billion people expected to move to urban areas by 2050
- Urban areas are increasingly dispersed and extensive

Urban growth is an environmental issue

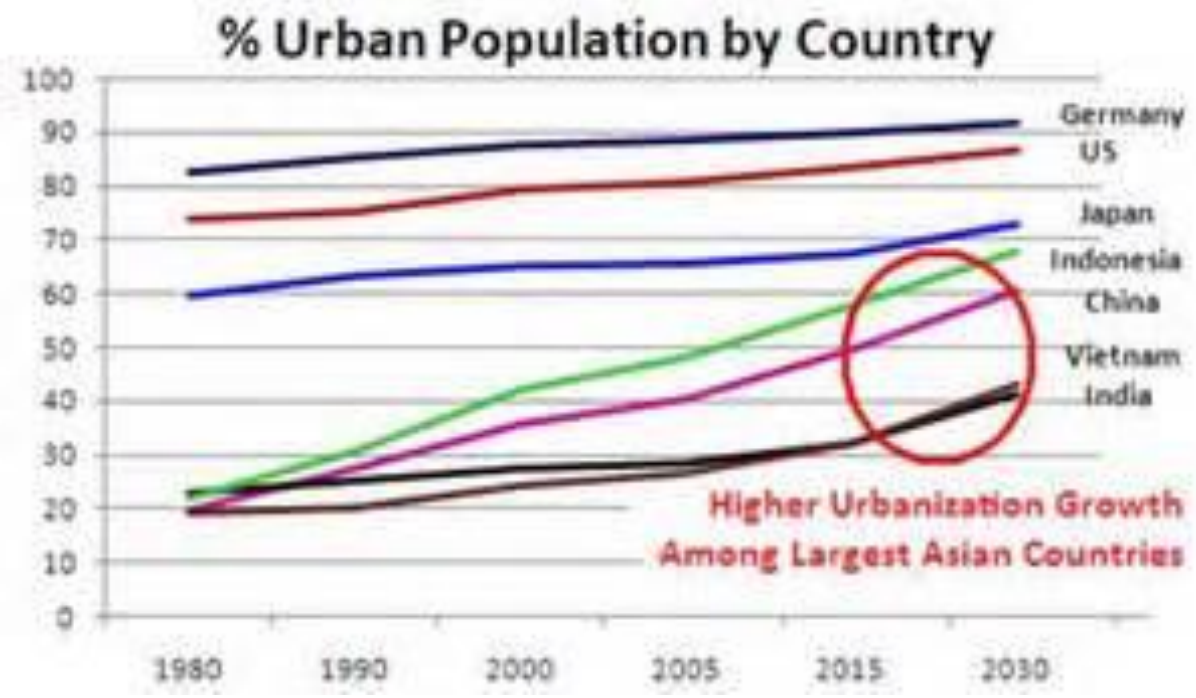
- 1950s-2010s:
  - US metropolitan areas increasingly dispersed
  - Boom of consumption
  - But also boom of per-capita resource consumption (land, water, and fossil fuels)
- US-style ways of urban living are not sustainable

China 2025

- China's wave of urbanization:
  - to move 250 million rural residents into newly constructed towns and
  - to fully integrate 70% of the country's population, or roughly 900 million people, into city living by 2025.
- "Urbanization can launch a process of value creation" (Xiang Songzuo, chief economist, Agric.l Bank of China)

China 2025

- China's wave of urbanization:



Anti-urbanization movement

- Case study: Paolo Soler's: "Arcology" (1969, Arizona)
  - architecture + ecology
  - The city as a living, breathing, evolving organism
  - Living in harmony with the natural world
  - the sprawling urban landscape replaced by dense, integrated, three-dimensional cities

Ecotopias of the 2000s

- Sustainable, hyper-efficient buildings
- Evolving human communities
- Simcity 2000 city-building game: building arcologies
- Many experiments:

Shimizu Corporation's TRY Mega-City Pyramid (2004)

Norman Foster's Masdar, UAE

Ecotopia: yesterday and tomorrow

- Low-tech ecotopia
  - The move to suburbia in the 1950s was driven by the middle class
  - Enabled by car and highways
  - Appeal: affordable enjoyable housing – better physical life
- High-tech ecotopia
  - The move to satellite cities of the 2010s driven by the engineers
  - Enabled by the smartphone and the Internet
  - Appeal: better online life?

The rise of Silicon Valley

- 1940: Silicon Valley's urban development covers 50 km2 (US Geological Survey, 1940)
- 2000: 750 km2 (868 autos per 1000 residents)

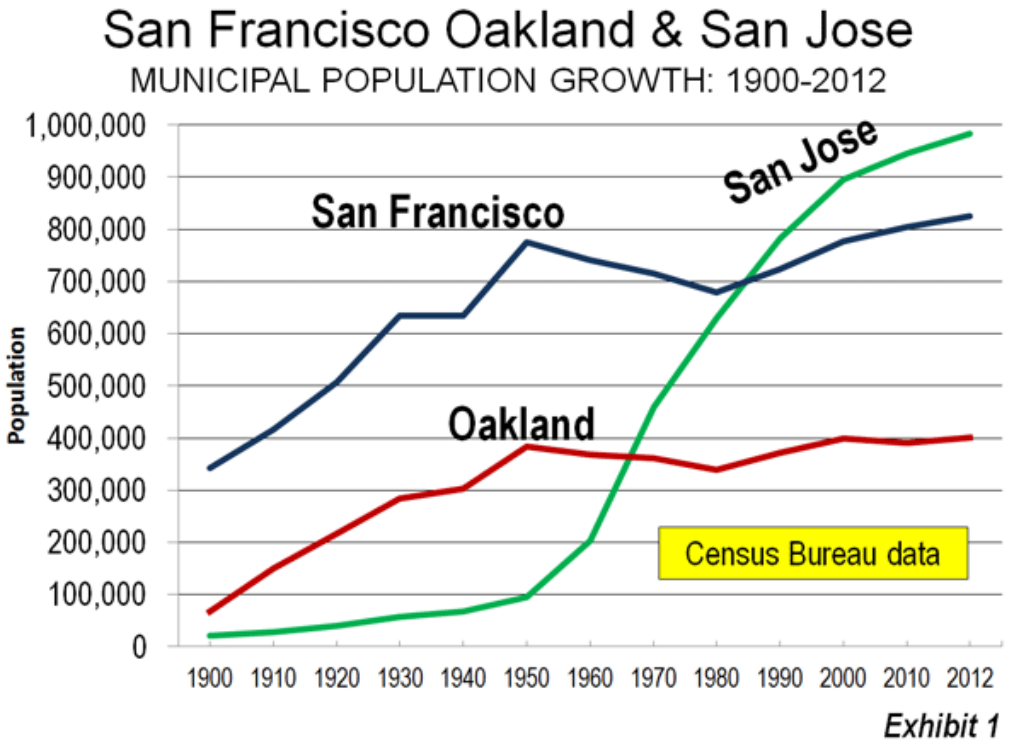
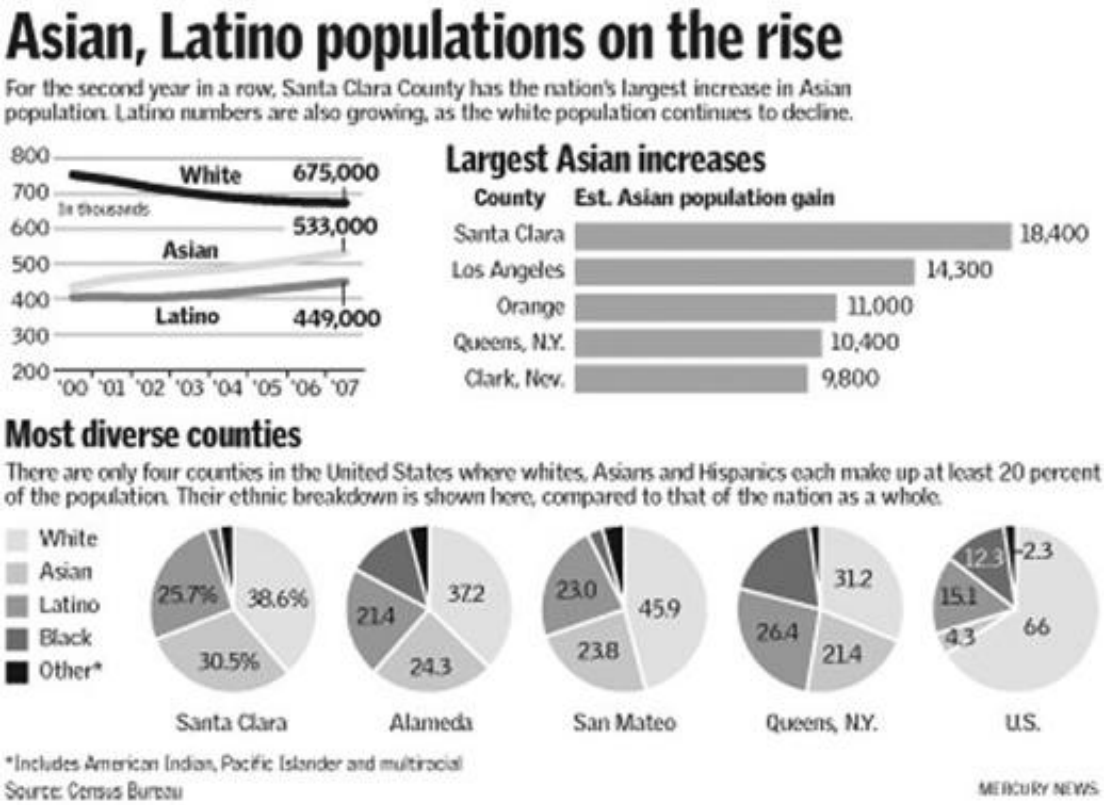


Exhibit 1

(trivia)

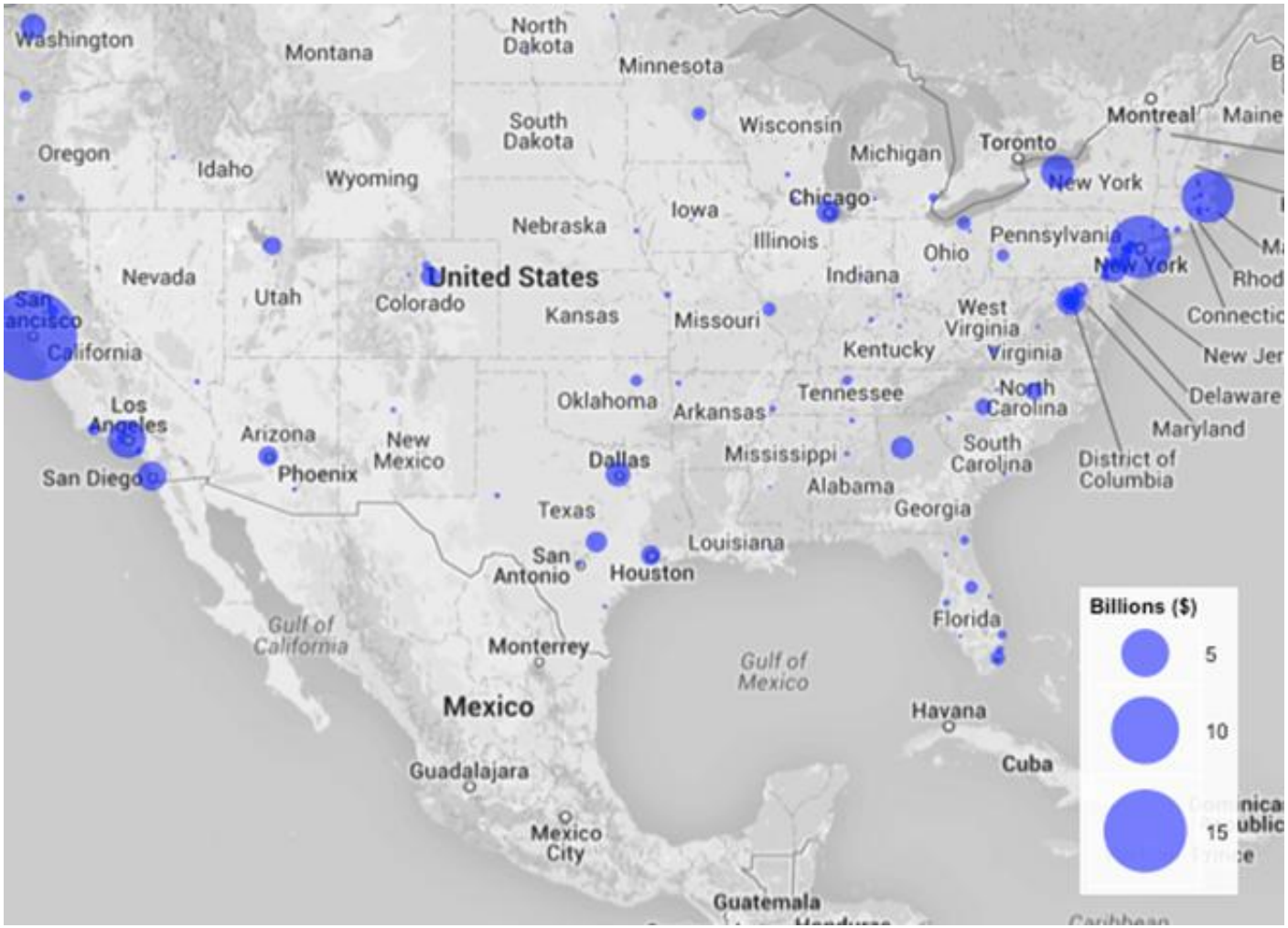
- BTW: the largest increase in Asian population of the entire USA!



The rise of the Bay Area

- Bay Area: $13.5 billion in venture capital investment (2011)
- More than four times metropolitan Boston or metropolitan New York (second and third largest centers for venture capital investment in the USA)

The rise of Silicon Valley



2013 venture capital

Silicon Valley

- Technopolis: a geographically concentrated high-tech urban entity which is characterized by
  - Collaborative relationships between government, industry and universities,
  - Risk-taking venture capital
  - Free movement of labor
  - Meritocracy
  - Tolerance for failure
  - Cosmopolitan
  - Networking “(coopetition”)
- SV is flat! No high-rise buildings! No center of town
- A cluster of cities with no boundaries and no personality

Silicon Valley

- Silicon Valley is a polycentric metropolis
  - San Jose: eBay, Cisco , IBM Almaden Labs
  - Cupertino: Apple
  - Santa Clara: Intel
  - Sunnyvale: Yahoo
  - Mountain View: Google
  - Menlo Park: Facebook
  - Palo Alto: VMware
  - Redwood City: Electronic Arts
  - Redwood Shores: Oracle
  - South San Francisco: Genentech
  - San Francisco: Autodesk, Twitter, Airbnb, Uber

Where's downtown?

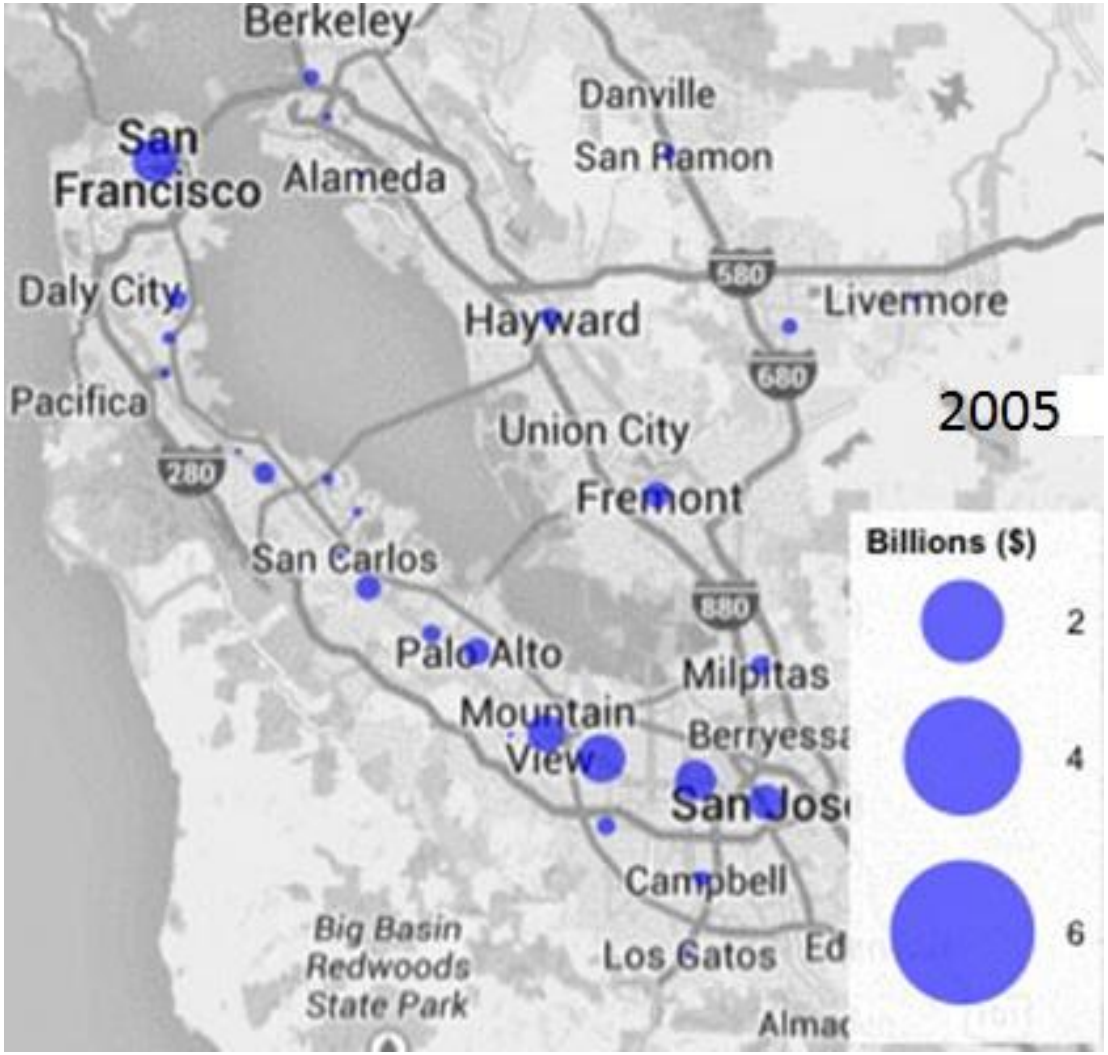
The 2000s

- University Avenue, Palo Alto: Google, Facebook, PayPal…

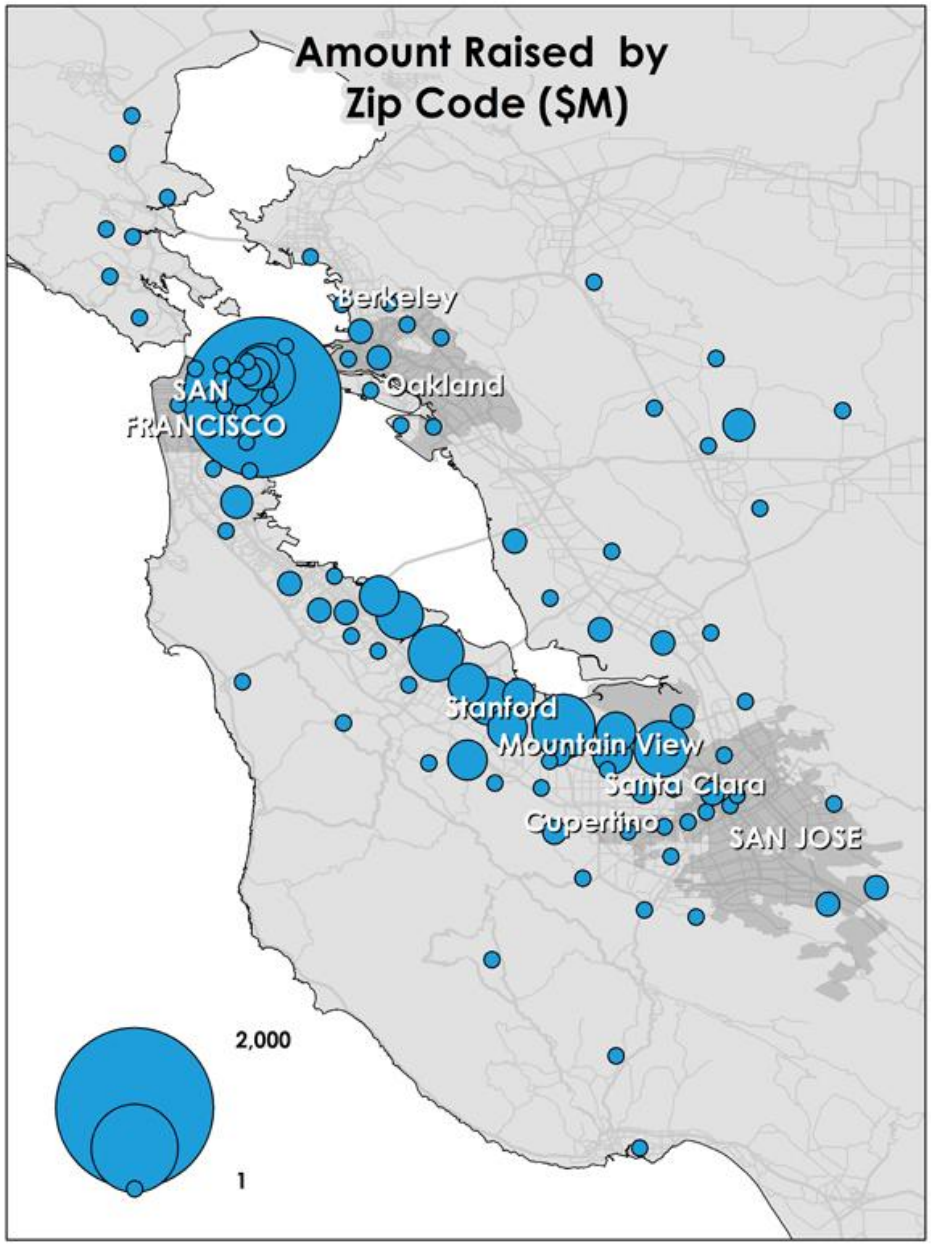
The 2010s

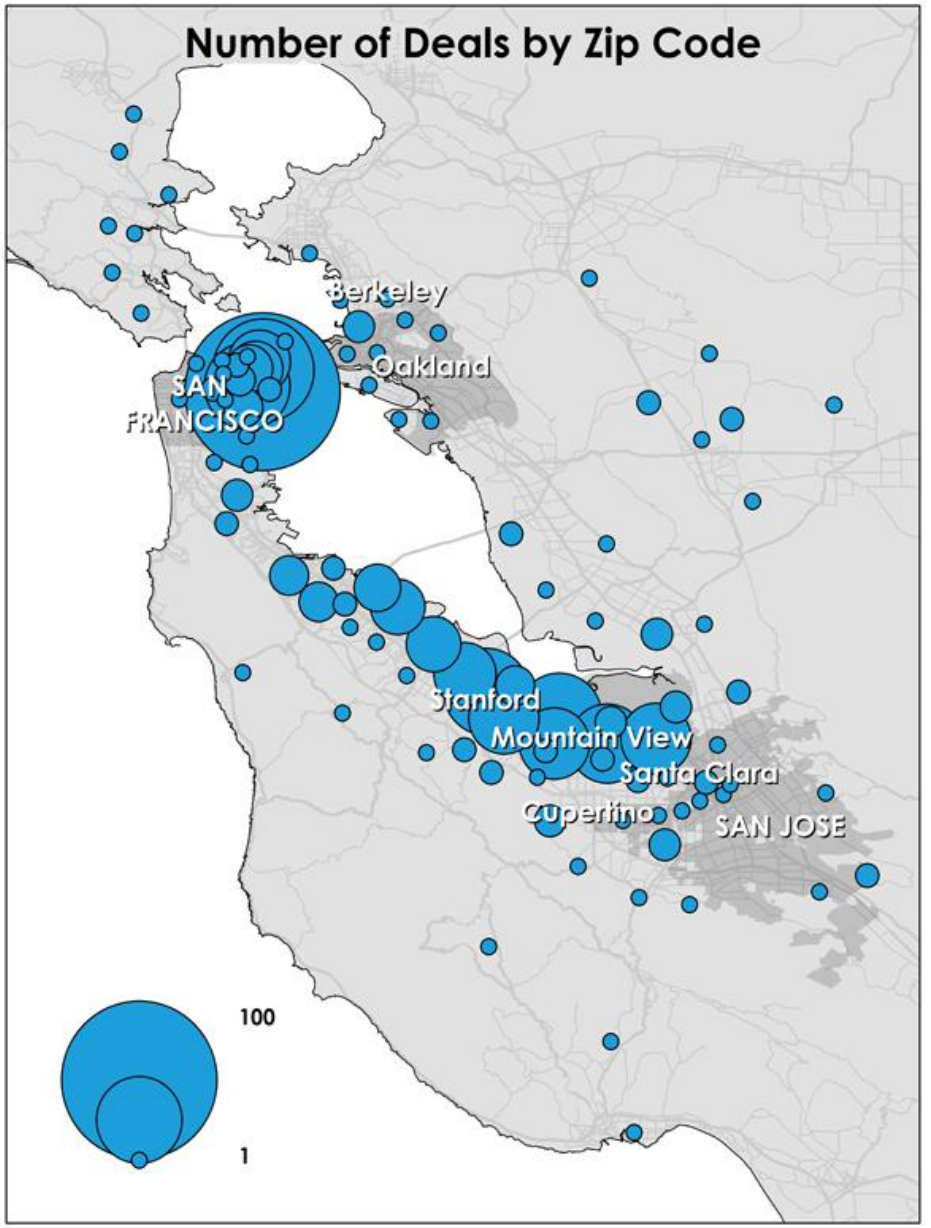
- Twitter, Pinterest, Airbnb, Uber…: San Francisco.
- Jack Dorsey (Twitter's co-founder): "I love the idea of an urban corporate campus with all the energy and variety that provides."

Venture capital by city (2005)



Venture capital by city (2014)





Top areas for VC investment

Top Ten Zip Codes for Venture Capital Investment in the Bay Area				
Rank	*Zip Code*	*Neighborhood and Features*	*City*	*Investment (millions)*
1	94107	Portero Hill, South Beach, South Park	San Francisco	$1,885.8
2	94105	Rincon Hill, Embarcadero South	San Francisco	$693
3	94043	Suburban Mountain View, including Google headquarters	Mountain View	$660.5
4	94063	Centennial, Stambaugh Heller, Redwood Village, Friendly Acres	Redwood City	$575.2
5	94103	South of Market	San Francisco	554.6
6	95054	Suburban Santa Clara, north	Santa Clara	$548.3
7	94065	Redwood Shores	Redwood City	$433.5
8	94301	Crescent Park, University South, Old Palo Alto	Palo Alto	$412.7
9	94085	North-central Sunnyvale	Sunnyvale	$389.7
10	94089	North Sunnyvale, including Lakewood, Lockheed Martin headquarters	Sunnyvale	$378.2

94043: Googleplex - 94301: downtown Palo Alto

By city

Leading Cities for Venture Capital Investment in the Bay Area		
Rank	*City*	*Investment (millions)*
1	San Francisco	$4,390
2	Palo Alto	$1,291
3	Redwood City	$1,064
4	Mountain View	$918
5	Sunnyvale	$800
6	Santa Clara	$733
7	San Jose	$688
8	San Mateo	$307
9	Fremont	$299
10	Pleasanton	$284

San Francisco: 16% of total US venture investment

Palo Alto: 4.8%

The rise and fall of Silicon Valley

- Easy access to economic and social activity is a primary driver of urban life
- The “time” factor: cost of access to transportation and activities
- The dominant mode of urban transport (eg streetcar or car) during a city's major growth periods determines the city's overall development pattern.

The rise and fall of Silicon Valley

- Silicon Valley until the 2000s: fast inexpensive auto-based transport + dispersed employment locations = sprawling highway-oriented urban growth and little investment in public transport and increased dispersion of employment
- Accessibility was not an issue
- Subsidized housing

The rise and fall of Silicon Valley

- Silicon Valley in the 2010s: expensive auto-based transport + poor public transport + no sense of community + skyrocketing real estate prices

The national trend

- *Clusters of venture capital and technology start-ups are shifting from shapeless suburban boomtowns to denser population areas*

Driven by the investor

- 1980s:
  - Venture capital-backed societies
  - High-tech innovation hubs = high-tech firms + university campuses + specialized services
  - Abundance of reusable industrial real estate is a must
  - Proximity to a campus is a must (proximity to a high-skilled labor pool)
  - Silicon Valley and Boston's Route 128 area

Driven by the investor

- 1990s and 2000s:
  - Silicon Valley dominates
  - The “decentralized, cooperative ecosystem” (AnnaLee Saxenian) wins over the bureaucratic corporate model
  - Mythology of Silicon Valley becomes a magnet in itself

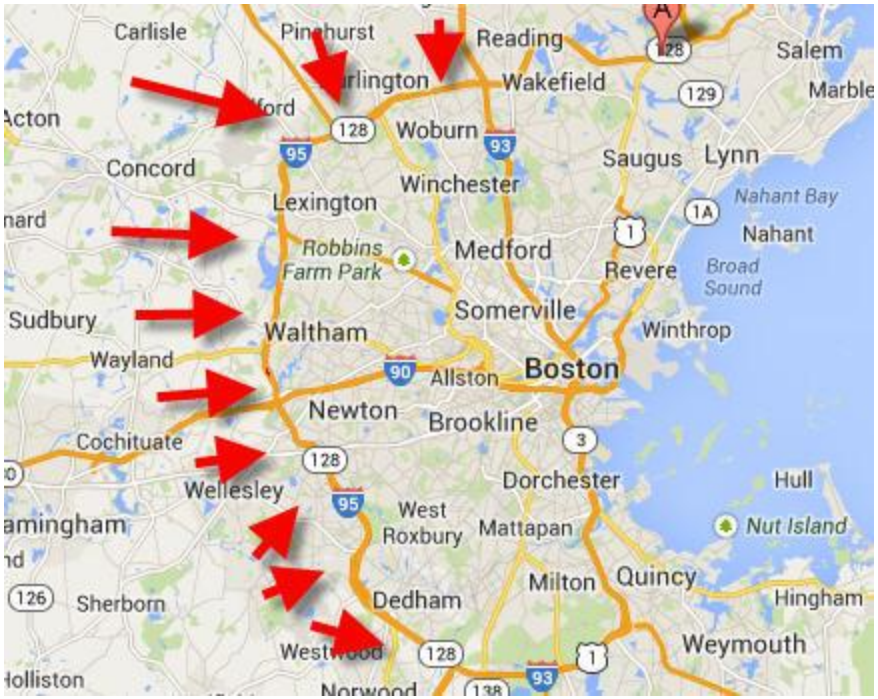
Driven by the investor

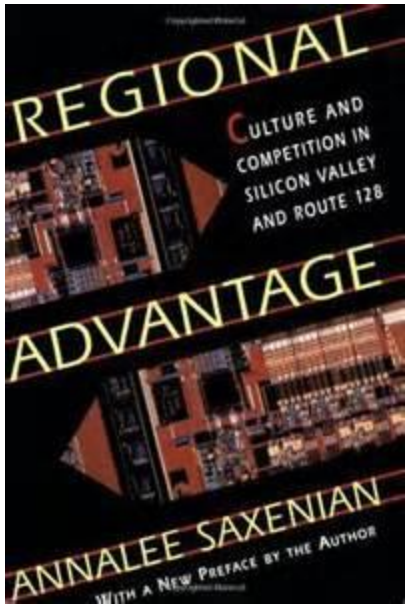
- 3000 Sand Hill Rd, Menlo Park

Driven by the engineer

- 1970s-2000s:
  - High-tech firms, engineers and investors prefer suburbia, far away from the traditional industry and commerce
  - High-tech alone creates sprawling suburbs
- 2010s: “The great inversion" (Alan Ehrenhalt)
  - New York City, San Francisco, Boston… Berlin… Seoul, Beijing…
  - Highly educated individuals drive a return to the crowded city

Case Study:
Cambridge, MA and "Route 128"





Case Study: Cambridge, MA and "Route 128"

- Proximity to 2 major universities (MIT, Harvard) and many Boston colleges
- Pioneering work in computers (most of the world's programmers in the 1950s)
- 300 years of startup experience (Saugus Iron Works , the first integrated ironworks in North America, founded in 1646)
- Close association and seamless cooperation between academia, government and industry

Case Study: Cambridge, MA and “Route 128”

- “ Route 128” competing with Silicon Valley in the 1980s (“mini-computer” era)
- But very few “ Route 128” success stories in the last 20 years although providing brains to Silicon Valley (eg Facebook)
- Silicon Valley adapted successfully to changing patterns of international competition (Japanese semiconductor boom), Route 128 failed to adapt

Case Study: Cambridge, MA and "Route 128"

- Causes of decline
  - Defense always accounted for more than 50% of I.T. funding, but the Vietnam War ended in 1975 and the space race slowed down after 1969 and the Soviet Union collapsed in 1991
  - Not enough of the high-tech industry was founded by independents
  - MIT and Harvard and the other schools continue to attract and graduate the best talents, but these are more likely to find investors elsewhere

Case Study: Cambridge, MA and "Route 128"

- Causes of decline
  - Excessive partnership between academia, government and industry (3 different world views with 3 different goals), i.e. the local government over-managed (Silicon Valley let the free market build and diversify the local economy)
  - Emphasis on traditional values: trade secrecy (minimal flow of information in the network), corporate loyalty, (minimal labor mobility), centralized decision system, risk-averse stability (vs Silicon Valley's decentralized informal network-based risk-taking industrial system)

Case Study: Cambridge, MA and "Route 128"

- Causes of decline
  - Bob Metcalfe's law: the value of the network to each node is exponentially related to the number of nodes on the network.
  - It is not a zero-sum game
  - Innovation ecosystems driven by competition actually create a form of cooperation, or collective progress
  - The success of one increases the chances of the success of another
  - Silicon Valley: semiconductor to personal computers to local area networks to dotcoms to search to social networks….

Case Study: Cambridge, MA and "Route 128"

- Causes of decline
  - Limited appeal of experimentation for the sake of experimentation
  - Great creativity among young people, but limited motivation to explore new ways of public-private partnerships to drive innovation

Silicon Valley-ian Ecotopia

- Satellite cities for high-tech industry:
  - Sophia Antipolis (France)
  - Oulu (Finland)
  - Skolkovo (Russia)
  - Hsinchu (Taiwan)
  - Cyberjaya (Malaysia)
  - Bangalore's Electronics City (India)
  - Hyderabad Information Technology and Engineering Consultancy (HITEC)

Walkable Urbanism

- (Christopher Leinberger, George Washington University, 2012)
- Simulating an urban experience in a suburb by building condos and apartments on the same block, or even in the same building, with restaurants, boutiques, offices, markets, etc
- Home within walking distance—or at least within a few minutes' drive—to public transportation
- Young techies want the amenities of a city
- Young techies don't want a car

Walkable Urbanism

- 558 walkable urban places in the USA (2014)
- More:
  - http://www.brookings.edu/about/programs/metro/walkable-urbanism (Brookings Inst)
  - http://www.smartgrowthamerica.org/documents/foot-traffic-ahead.pdf

RANK	METRO AREA	# OF WALKUPS
1	Washington, DC	45
2	New York	66
3	Boston	37
4	San Francisco	57
5	Chicago	38
6	Seattle	23

Shea's Mountain House development, about an hour outside of Silicon Valley.

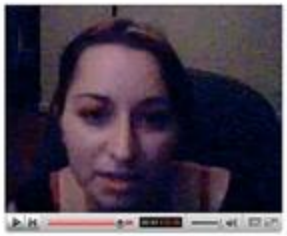
Convergence of the digital and physical world

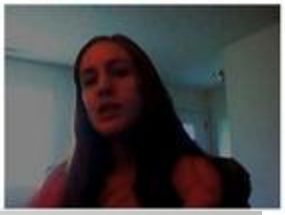
- Internet of Things will enable many new technologies relevant to urban planning
- New model for connectivity
- Centers of education, creativity and innovation

Convergence of the digital and physical world

- New York
  - Control Group, Titan, Qualcomm and Comark: LinkNYC (10,000 communications hubs that provide city residents and visitors with free public gigabit Wi-Fi, access to communications, information and municipal services)
  - Sep 2015: Control Group and Titan merge to form Intersection and are acquired by Sidewalk Labs.
  - Intersection project: expanding LinkNYC model (free Wi-Fi) to cities around the globe (intersection.com)

Art



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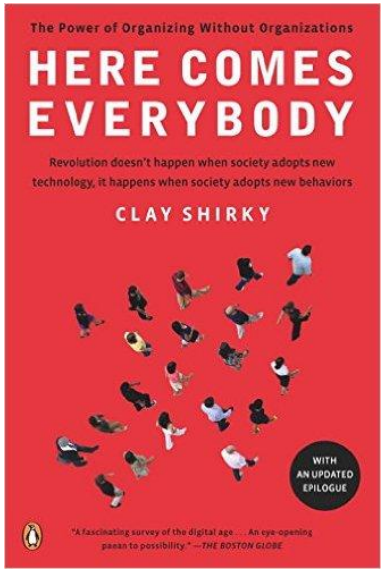
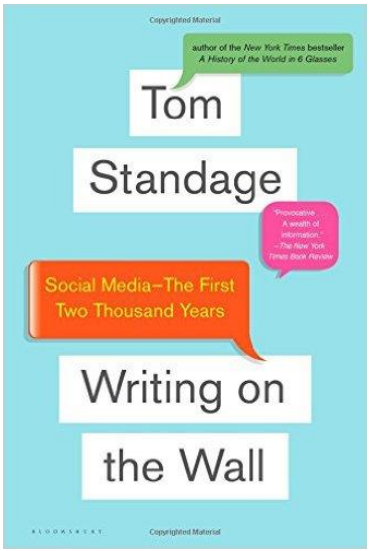
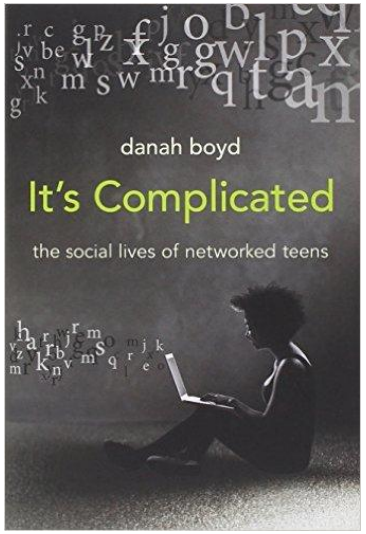
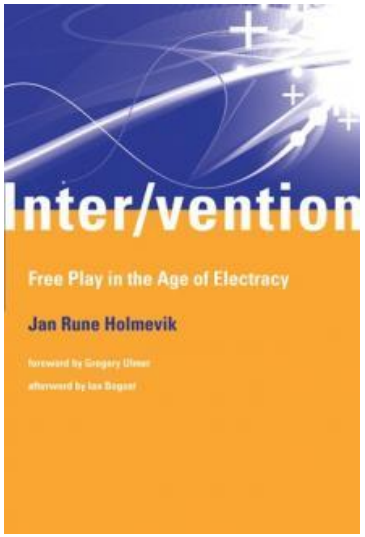
Sergey Brin
Reserved
Terry Chang
Nic,
Here's a little about me and why I like this painting.
"Even though I've been a New Yorker for eight years now, I'm really a child of the Silicon Valley. I spent the first four years of my life toddling around the UCBerkeley campus (where my dad was a doctoral candidate in Computer Science in the early 80s) and then in Saratoga, California, which is essentially a bedroom community for Silicon Valley's high-tech people. Out there, Sergey's a bit of an icon.
I've been gazing at some of the portraits of Otto Dix and Egon Schiele lately and thinking about how much of portraiture is capturing a sense of attitude. Sergey's shock of hair here reminds me of some of Schiele's self-portraits - kind of insouciant and irreverent. But whereas the German expressionists have this bleak melancholy tinge to their work, the mood of this portrait is fun and young and playful and light, which I think it not only captures Sergey but maybe the energy of the Silicon Valley as a whole."
-Terry Chang

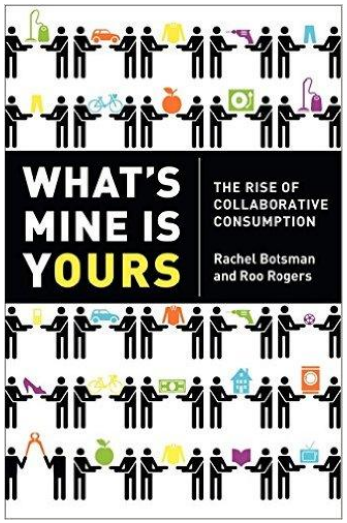
Bibliography

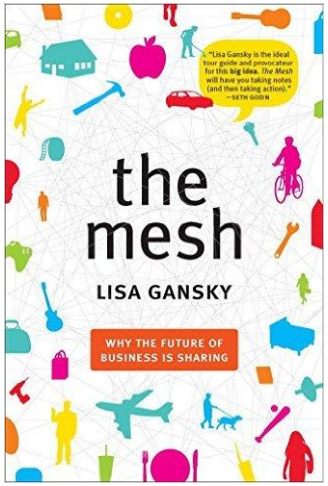


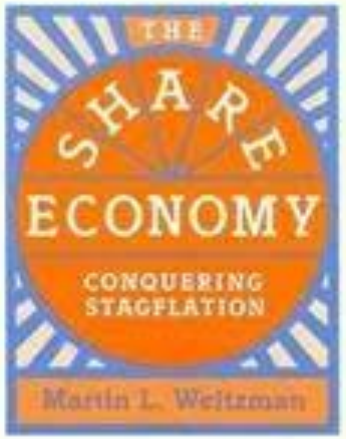


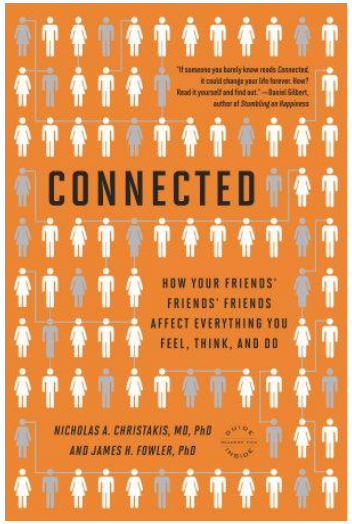


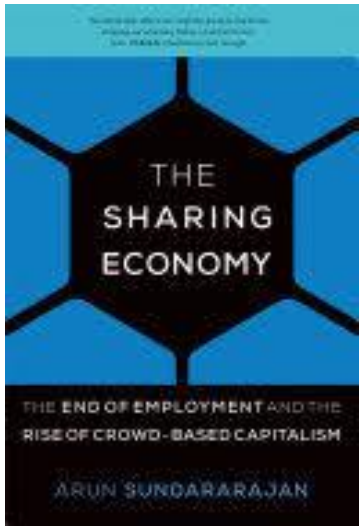












Contact

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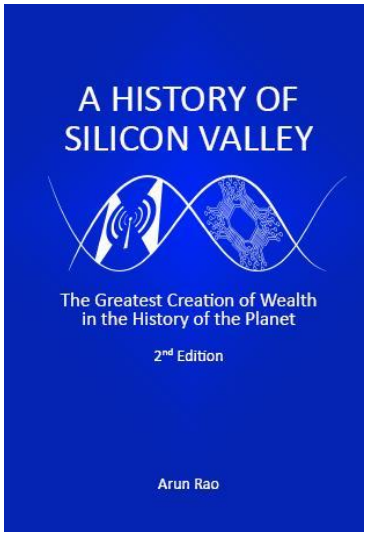

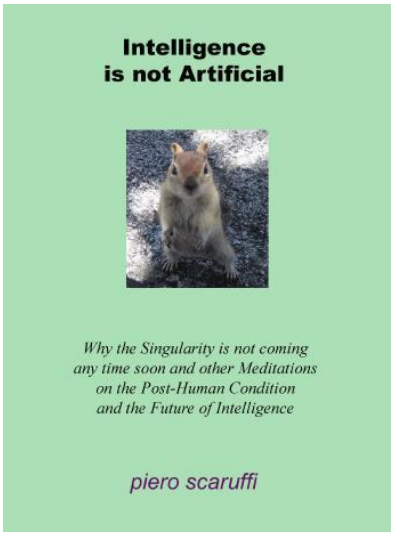

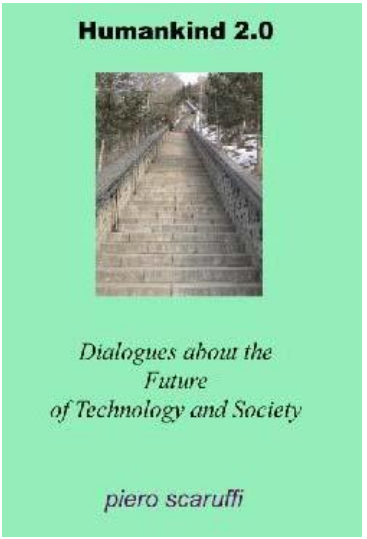

See http://www.scaruffi.com/singular/human20.html for the full text of this discussion