

EXPONENTIAL PROGRESS

The Exponential Future of Everything: CRE Top Ten List!

Presented by: Geoffrey Kasselmann, SIOR, LEED AP

NKF Executive Managing Director / SIOR Global Past President / Founder & CEO, Op2mize Energy

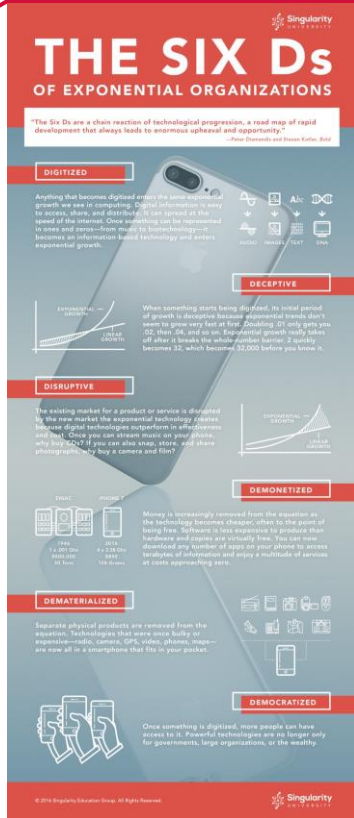
Moderated by: KC Conway, MAI, CRE

April 30, 2018

**YOU ARE
HERE**



TIME



THE SIX DS
OF EXPONENTIAL ORGANIZATIONS

"The Six Ds are a chain reaction of technological progression, a road map of rapid development that always leads to anomalous upheaval and opportunity."
—Peter Dinklage and Brian Koblin, 2012

DIGITIZED
Anything that becomes digitized enters the same exponential growth we see in computing. Digital information is easy to access, share, and distribute. It can travel at the speed of the internet. Once something can be measured in ones and zeros—from music to biotechnology—the barriers to information-based technology and access exponential growth.

DECEPTIVE
When something starts being digitized, its initial period of growth is deceptive because exponential trends don't seem to grow very fast at first. Doubling 01 only gets you 02, then 04, and so on. Exponential growth really takes off after it breaks the whole-number barrier. 2 quickly becomes 12, which becomes 62,000 before you know it.

DISRUPTIVE
The existing market for a product or service is disrupted by the new market the exponential technology creates. Because digital technologies outperform in efficiency and cost, once you can stream music on your phone, why buy CD? If you can also easily take and share photographs, why buy a camera and film?

DEMONETIZED
Money is increasingly removed from the equation as the technology becomes cheaper, often to the point of being free. Software is less expensive to produce than hardware and programs are virtually free. You can now download any number of apps on your phone to access tens of millions of information and enjoy a multitude of services at costs approaching zero.

DEMATERIALIZED
Separate physical products are removed from the equation. Technologies that were once bulky or expensive—radio, camera, GPS, video, phones, maps—are now all in a smartphone that fits in your pocket.

DEMOCRATIZED
Once something is digitized, more people can have access to it. Powerful technologies are no longer only for governments, large organizations, or the wealthy.

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- ✓ Welcome & Thanks!
- ✓ Exponential Future of Everything:
CRE Top Ten List
- ✓ Interactive Q & A!



#CREChicago2018
@NKFIndustrial
@op2mize @kgems

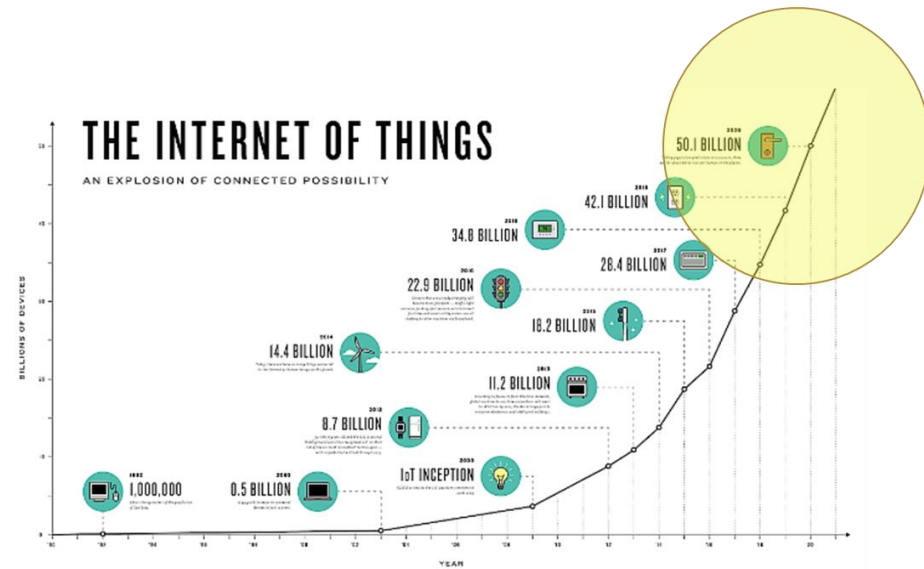
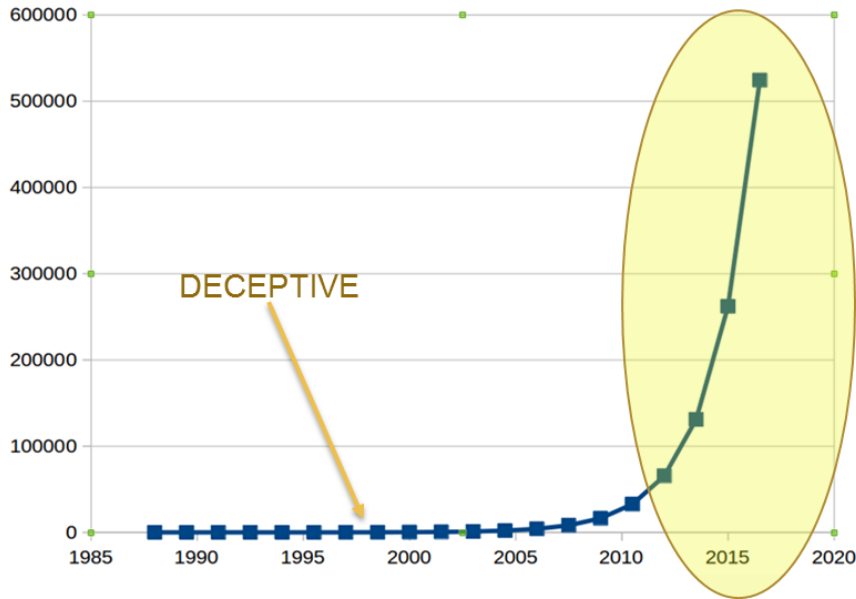


- NKF EMD, Recent National ISG Leader
- 2017 SIOR Global President
- Founder & CEO, Op2mize Energy
- 30+ years CRE experience
- Speaker, author, award-winner
- Tech-centric mentor & board member
- Global research: Smart buildings & cities
- *'Pragmatic futurist'... innovation & sustainability with ROI dynamics*



- Director of Research & Corporate Development – U. of Alabama (ACRE)
- CCIM Institute Chief Economist
- Former SVP, SunTrust Bank
- Former Chief Economist USA, Colliers International
- Federal Reserve Bank of Atlanta
- Highly Acclaimed Speaker
- *CRE Extraordinaire!*

1. The rate of change is increasing... *EXPONENTIALLY*





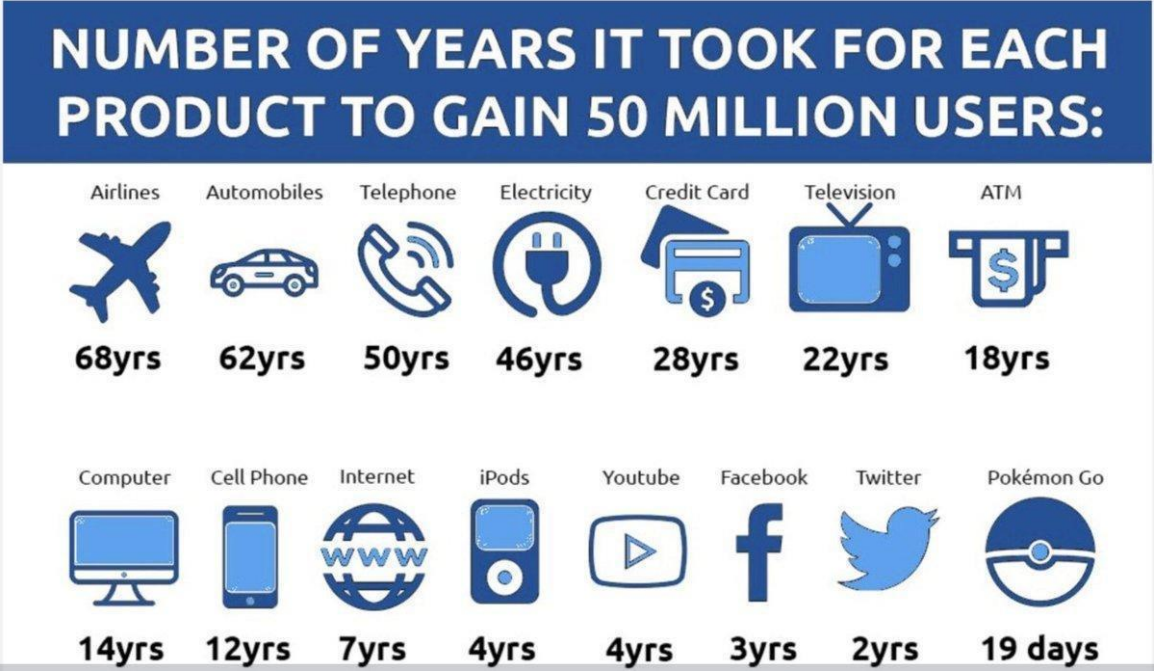
1. The rate of change is increasing... *EXPONENTIALLY*

- Digitization
- Deception
- Disruption
- Demonetization
- Dematerialization
- Democratization





1. The rate of change is increasing... *EXPONENTIALLY*



Source: Bill Gross on Twitter



1. The rate of change is increasing... *EXPONENTIALLY*

“We won't experience 100 years of progress in the 21st century - it will be more like 20,000 years of progress (at today's rate).”




-- Ray Kurzweil





2. Blockchain will be *bigger* than the Internet



-  Global
Blockchains are Borderless
-  Distributed
Blockchains Resist Centralization
-  Database
Blockchains Store Data



2. Blockchain will be *bigger* than the Internet

<https://www.youtube.com/watch?v=6WG7D47tGb0>





2. Blockchain will be *bigger* than the Internet

2015

Exploration & Investment

- Initial capability & use case assessments
- Early adoption likely for internal reconciliation



2016-2017

Early Adoption

- Leading-edge banks see the value of blockchain and begin deployments for asset classes that are bilaterally traded and/or have no central clearing authority
- Regulatory certainty drives adoption for external uses
- Regulatory authorities realize the benefits of blockchain for auditing and compliance, and rule-making begins

2018-2024

Growth

- Banks begin to see the benefits accorded to early adopters and – combined with regulatory guidance and certainty – the network effect takes hold
- New service providers and models emerge
- Deployments go viral across numerous asset classes
- New products and services are created; incumbent processes and services are discarded

2025

Maturity

- Blockchain adoption is considered mainstream and integral to the capital markets ecosystem

Source: Accenture Research



2. Blockchain will be *bigger* than the Internet

Eight Key Benefits of Blockchain for Commercial Real Estate

1. Fewer payment disputes
2. Allows for real-time updates
3. Eliminates the need for multiple databases with one shared database
4. Faster prelease due diligence
5. Reduced potential for fraud
6. Faster liquidation of assets for investors needing to diversify portfolios
7. More efficient finance and payment processing
8. Substantially decreasing the process of recording and transferring titles

Source: Goldin Peiser & Peiser



2. Blockchain will be *bigger* than the Internet

<https://www.youtube.com/watch?v=s2X55v-sZEE>





2. Blockchain will be *bigger* than the Internet

BIG DATA
GEO SPATIAL

FOAM NAVIADDRESS REX

ConstrucTECH MILLENNIUM

HOSPITALITY
ACCOMMODATION

acornbase LOCKCHAIN Trippki

MARKETPLACES & PORTALS

PROPSY THEPERA
Zillow REALISTA EEDCOIN

P2P
RENTAL

Cryptofeb stayawhile Rentberry
bee zingli

BUY & SELL

CPROP AQWIRE EstateX HGI

PROPERTY MANAGEMENT

crafty embly PRIME EX RREAL

RECORD KEEPING

PROPY LIBITQUTY ChromaWay
VELOX.RE clickto purchase

REAL ESTATE MARKETING

PROPIFY blocksquare

BLOCKCHAIN REAL ESTATE ECOSYSTEM

Finnovating MARCH 2018 VERSION 1.0

EVENTS

PropTech (London) Nov-2018 BitcoinCRE Proptech Europe 2017
FUTURE: Prop Tech Realkomm20 inman
NYC Real Estate Tech Week 2018 mppm

DOMOTICS & IoT M@DULUM

SMART CITIES

SmartCity NIQBIX

RE BACKED CRYPTO

VR / AR

ARCONA Decentraland PROTECT DISTRICTS
speetiv VIMARKET

NEWS & KNOWLEDGE

PROPTECH JAMES DEARSLY PROPTech
inman

PROPERTY INVESTMENT

PROPERTY TOKENIZATION

ATLANT BITPROPERTY BLOCKSQUARE
LATOEN SHARE ESTATE HGI Skye Properties
SwissRealCoin REAL INTRIO CRYPTETUM
EHAB

REAL ESTATE FUND

Brickblock ZAREBCOIN CUMAR
PROPERTY COIN
Evarcium xred



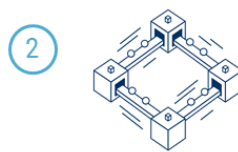
2. Blockchain will be *bigger* than the Internet

The next frontier of blockchain-based identity



NATIONAL IDENTITY

Governments are exploring what distributed identity might look like, starting with birth registrations with potential to expand to credit ratings.



IDENTITY OF THINGS

Beyond identification solutions for people, blockchain could be used to attest identity for objects and act as a network for the internet-of-things.



A NEW INTERNET

If users can own their data and identity, they can also rebuild the internet from the ground up – emphasizing privacy and open borders.



2. Blockchain will be *bigger* than the Internet

<https://www.youtube.com/watch?v=D70g122myWo>





3. While you were sleeping... AI arrived

"AI is one of the most important things that humanity is working on. It's more profound than, I don't know, electricity or fire."



-- Sundar Pichai, Google CEO

```
ttt.attachEvent("onreadystatechange",H),e.attachE
boolean Number String Function Array Date RegE
_={};function F(e){var t=_[e]={};return b.ea
t[1]===!!&&e.stopOnFalse){r=!1;break}n=!1,u&
o=u.length:r&&(s=t,c(r))return this;remove
ction(){return u=[],this};disable:function ()
re:function(){return p.fireWith(this,arguments
ending",r={state:function(){return n},always:
romise)?e.promise().done(n.resolve).fail(n.re
id(function){n=s},t[1^e][2].disable,t[2][2].
e0,n=h.call(arguments),r=n.length,i=!|=r|e&
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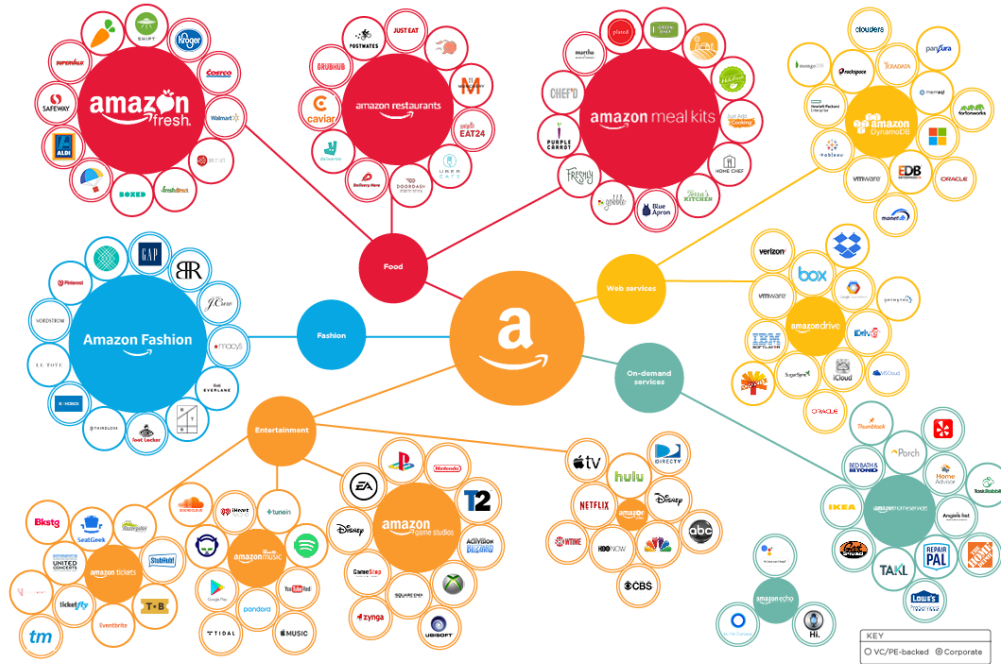


3. While you were sleeping... AI arrived

"I am really quite close, very close, to the cutting edge in AI and it scares the hell out of me. It's capable of vastly more than almost anyone knows and the rate of improvement is exponential."

-- Elon Musk, Tesla CEO

4. Amazonification of... *EVERYTHING?!*





4. Amazonification of... *EVERYTHING?!*




- World's largest taxi company owns no taxis (*Uber*)
- World's largest hotel company owns no real estate (*AirBNB*)
- World's largest movie company owns no cinemas (*Netflix*)
- World's most valuable retailer owns no inventory (*Alibaba*)
- Largest teleco's own no telco infrastructure (*Skype/WeChat*)
- Largest media company creates no content (*Facebook*)
- Largest software vendors write no apps (*Google & Apple*)
- Fastest growing banks have no money (*SocietyOne*)

Source: IBM



5. Retailers must roll the “DICE”

BRICK & MORTAR RETAILER MARKET VALUE (2006* VS. TODAY)

Item	Market Value 2006	Market Value Today	% Change
 BEST BUY	\$28.4B	\$14.5B	(49%)
JCPenney	\$18.1B	\$3.0B	(83%)
KOHL'S	\$24.2B	\$9.9B	(59%)
 macys	\$24.2B	\$13.0B	(46%)
NORDSTROM	\$12.4B	\$9.8B	(21%)
 sears	\$27.8B	\$1.3B	(95%)
 TARGET	\$51.3B	\$43.8B	(15%)
 Walmart	\$214.0B	\$219.3B	2%
 amazon	\$17.5B	\$351.8B	1,910%

Source: Yahoo Finance
*Peak Market Value 2006

5. Retailers must roll the “DICE”

<https://www.youtube.com/watch?v=NrmMk1Myrxc>





6. Who is Dan Kodsi and *why should I care?*





6. Who is Dan Kodsi and *why should I care?*

<https://www.youtube.com/watch?v=9MBHzx9AKQk>





6. Who is Dan Kodsí and *why should I care?*



7. Petroleum Economy *becomes* Solar Economy

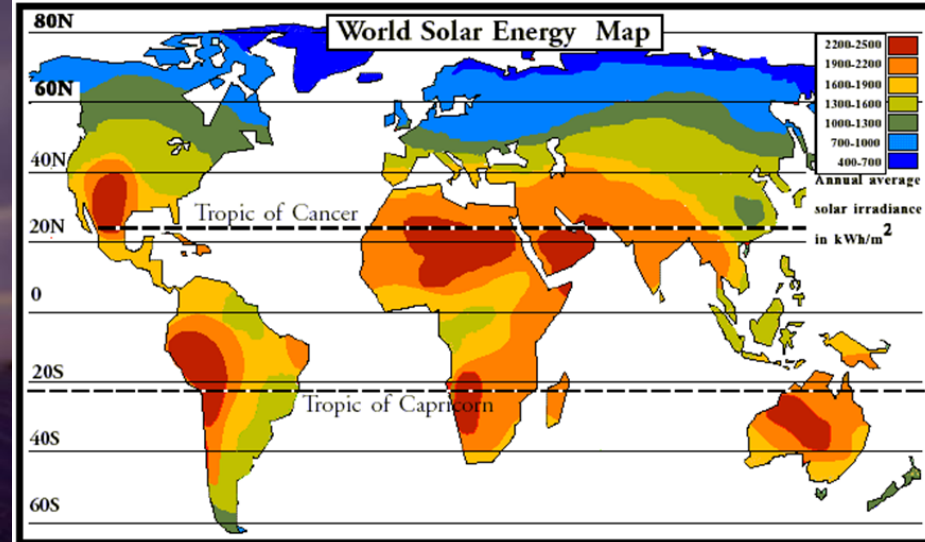


Goldman Sachs

1 HOUR = 1 YEAR

Enough solar energy falls on the earth in one hour to satisfy global energy needs for a year.

Source: National Geographic



Source: www.inforse.org

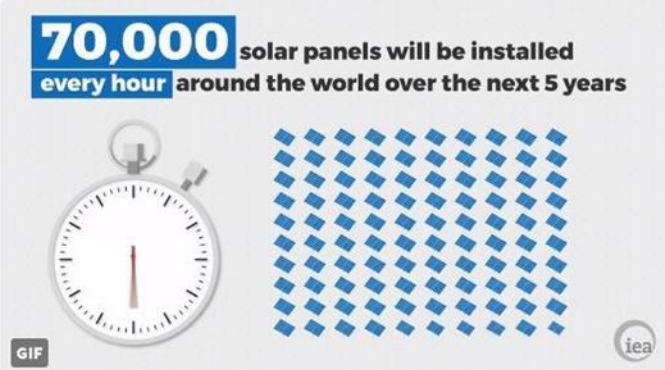




7. Petroleum Economy *becomes* Solar Economy

 IEA 
@IEA  Follow 

70,000 #solar panels will be installed every hour  around the world over the next 5 years. Read more  bit.ly/2E5uysE

70,000 solar panels will be installed every hour around the world over the next 5 years



12:01 PM - 4 Jan 2018



Solar accounts for 30% of all new electric generating capacity brought online in 2017

 Solar Energy Industries Association®

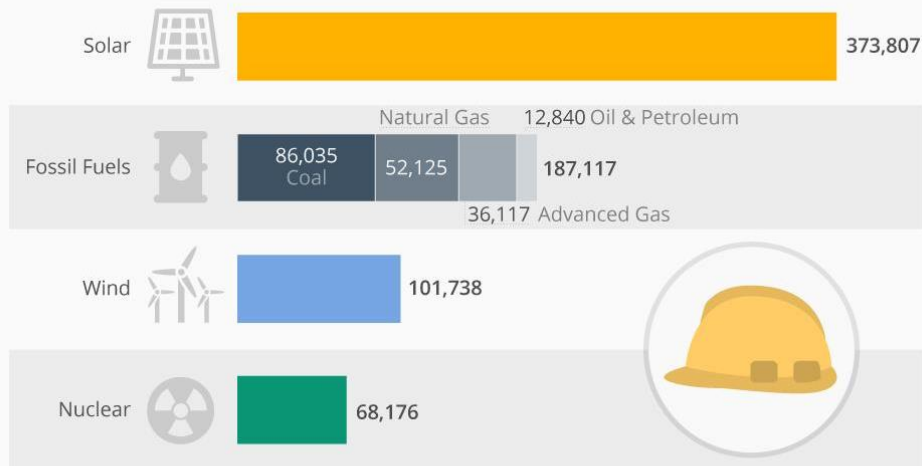
seia.org/smi



7. Petroleum Economy *becomes* Solar Economy

More Workers In Solar Than Fossil Fuel Power Generation

Employment in energy generation by source in the U.S. in 2016



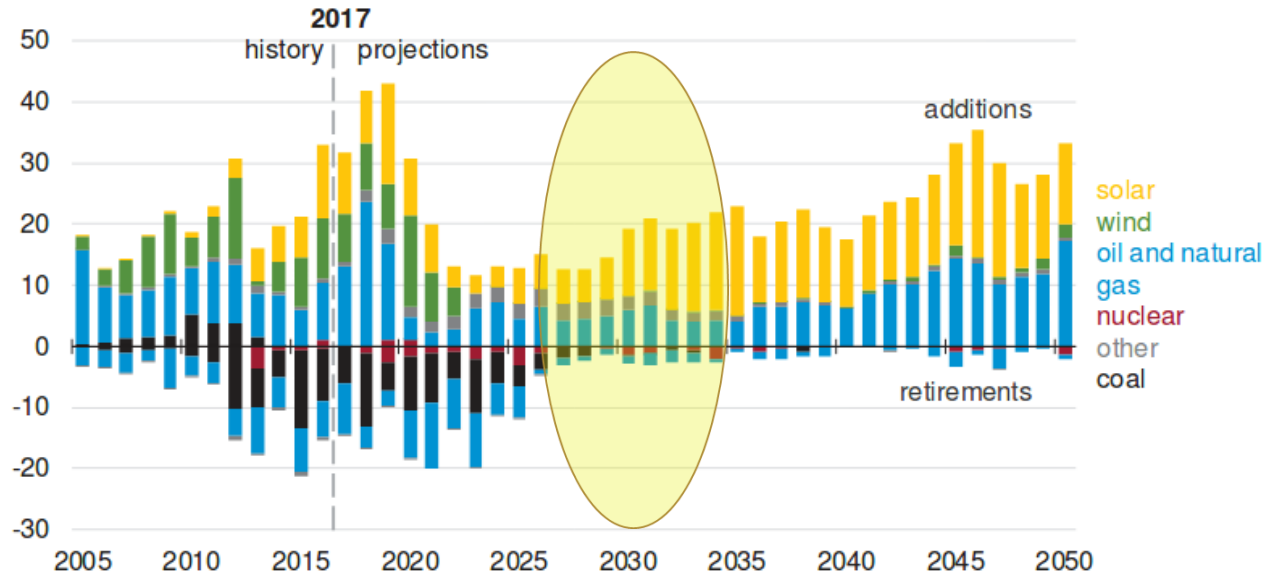
@StatistaCharts Source: U.S. Department of Energy

Forbes **statista**



7. Petroleum Economy *becomes* Solar Economy

Annual electricity generating capacity additions and retirements (Reference case)
gigawatts



Source: Quora



7. Petroleum Economy *becomes* Solar Economy

Country	Ban announced	Ban commences	Scope	Selectivity
Britain	2017	2040 ^[4]	Gasoline or diesel	New vehicle sales
China	-	"in the near future" ^[5]	Gasoline and diesel	Production
China	2018	2018 ^[6]	Gasoline and diesel	533 specific models
France	2017	2040 ^[7]	Gasoline or diesel	New vehicle sales
France (Paris)	2016	2025 ^[8]	Diesel	All vehicles
Germany	-	"2030" ^[9]	Combustion engine	New vehicle sales
India	2017	2030 ^[10]	Gasoline or diesel	New vehicle sales
Ireland	2018	2030 ^[11]	Gasoline or diesel	New vehicle sales
Israel	2018	2030 ^[12]	Gasoline or diesel	New vehicle sales
Italy (Rome)	2018	2024 ^[13]	Diesel	All vehicles
The Netherlands	2017	2030 ^[14]	All vehicles emission free	New vehicle sales
Norway	2016	2025 ^[15]	Gasoline or diesel	New vehicle sales
Scotland	2017	2032 ^[16]	Gasoline or diesel	New vehicle sales
Taiwan	2018	2040 ^[17]	Gasoline or diesel	New vehicle sales
USA (California)	2017	2040 ^[18]	Gasoline or diesel	New vehicle sales
Spain (Madrid)	2016	2025 ^[19]	Diesel	All vehicles
Greece (Athens)	2016	2025 ^[20]	Diesel	All vehicles
Mexico (Mexico City)	2016	2025 ^[21]	Diesel	All vehicles

Source: [Wikipedia](#)



7. Petroleum Economy *becomes* Solar Economy

- [General Motors is Going All Electric](#)
- [Global Carmakers to Invest \\$90B in EV's](#)
- [Volvo First Major Automaker to Go All-Electric](#)
- [Ford Goes 'All In' on Electric Cars](#)
- [All Car Makers Go All In With Electric Cars](#)
- [Europe Automakers Prepare for an Electric Future](#)



8. Convergence = Singularity = *Reinvention*

***“By the time we get to the 2040’s, we’ll be able to multiply human intelligence a billionfold, a profound change that’s singular in nature.*”**

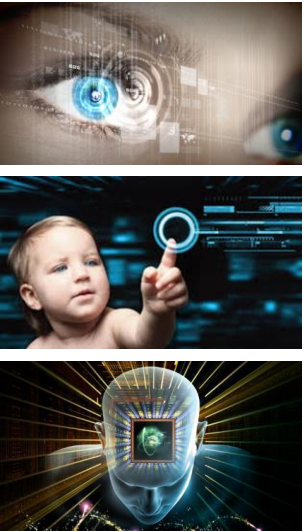
Computers are going to keep getting smaller & smaller. Ultimately, they will go inside our bodies & brains & make us healthier, make us smarter.”

-- Ray Kurzweil



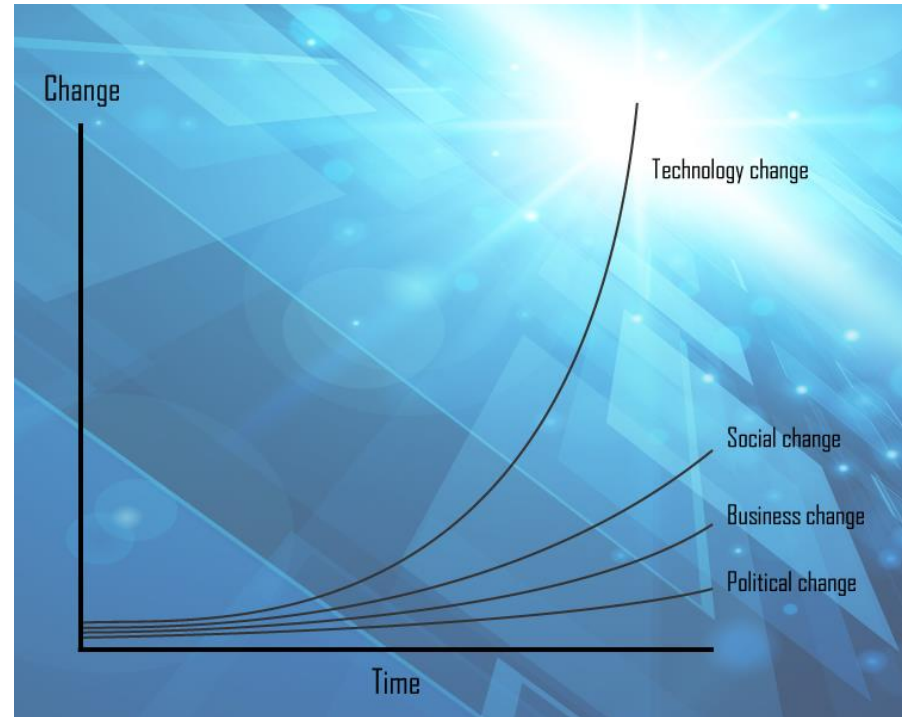
8. Convergence = Singularity = *Reinvention*

- \$1,000 = Computing @ 1Bx all humans combined
- Anything, anywhere, anytime
- Perfect info / perfect markets
- Cancer & infectious diseases eradicated
- Abundance meets opportunity
- Profound implications... existential?
- Age / Homestead / Geopolitical / Socio-economic / UBI



9. “X Factors” abound

- Infrastructure Access
- Global/Local Politics
- Force Majeure
- Economic Cycles
- Cost/Access to Capital
- Data Standards
- Legal Precedence
- Climate Change
- David vs Goliath
- Other / TBD





10. Abundance everywhere, but... *danger lurks*

“Cyber crime is the greatest threat to every company in the world.”

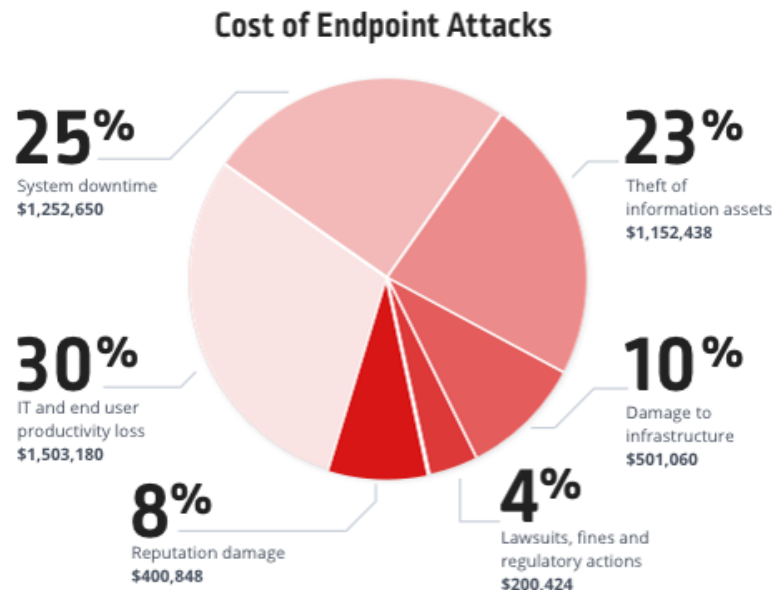
**-- Ginni Rometty, IBM CEO
(later echoed by Warren Buffet)**



10. Abundance everywhere, but... *danger lurks*

The total cost of a successful cyber attack is over \$5 million, or \$301 per employee.

-- Ponemon Institute



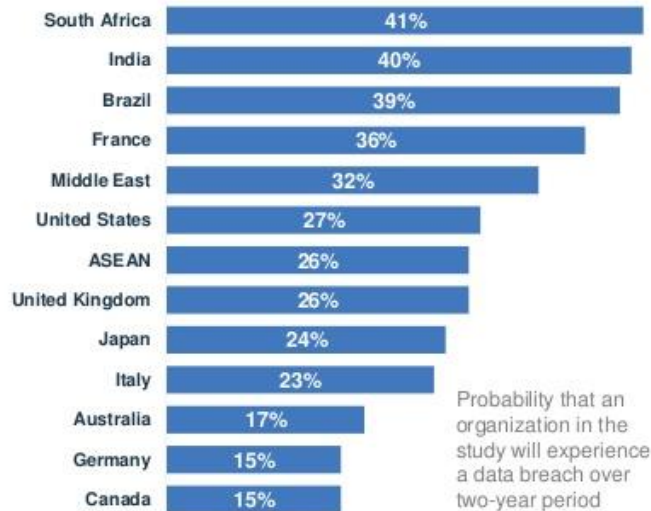


10. Abundance everywhere, but... *danger lurks*

The odds are much greater that you will experience a data breach



Experiencing a
data breach?
1 in 4
(Global average 28%)

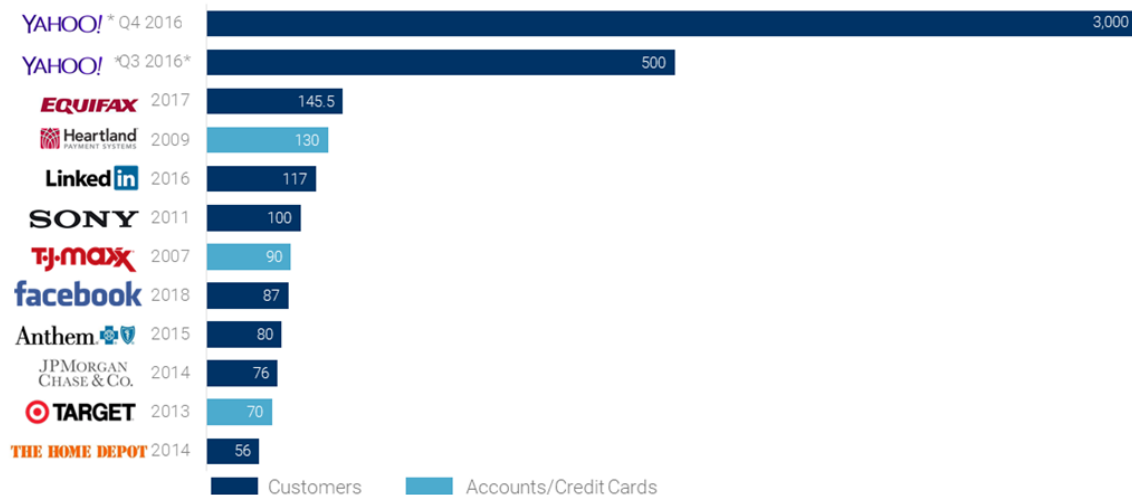




10. Abundance everywhere, but... *danger lurks*

Largest disclosed company breaches or leaks

2009 – 2018 In (M)



CBINSIGHTS

*Believed to be separate incidents
Source: The companies



“It is not the strongest of the species that survive, nor the most intelligent, but the most responsive to change.”

-- Charles Darwin



“You need to get to the future, ahead of your customers, and be ready to greet them when they arrive.”

-- Mark Benioff, CEO, Salesforce.com

Thanks for being here!

For more information, please contact me:

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