

Imagine 2025

Themes, Opportunities & “The Law of Accelerating Returns”

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All values in U.S. dollars unless otherwise noted.

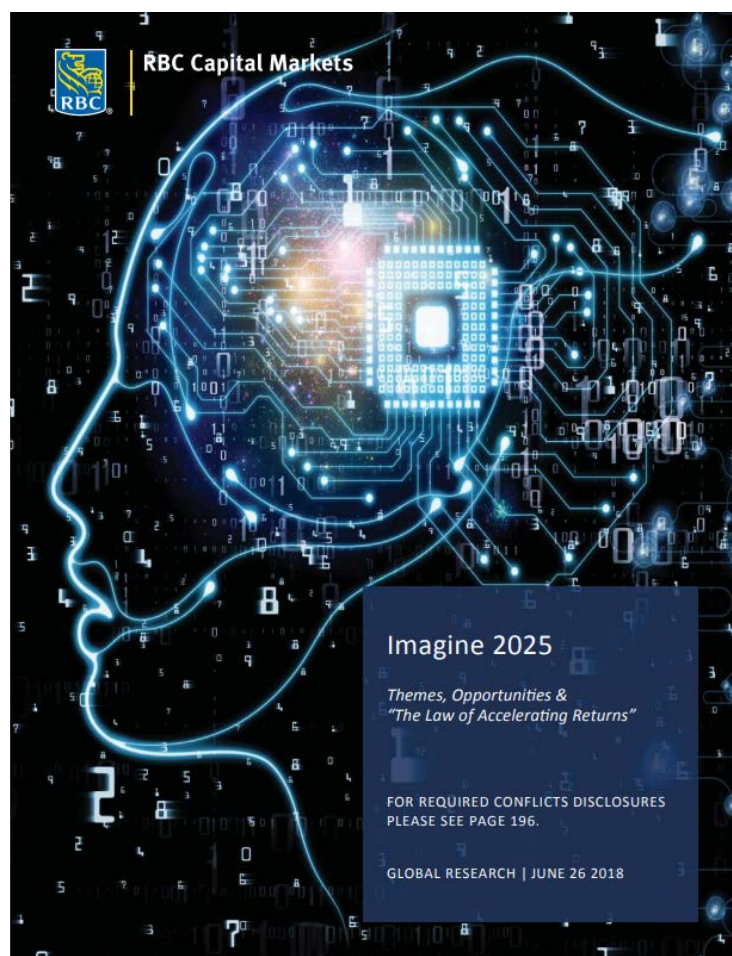
For Required Conflicts Disclosures, please see page 116.



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The RBC Imagine 2025 Study

- **Challenged and intrigued by Ray Kurzweil's theories of exponential change, RBC Capital Markets spent 6 months studying the global drivers of parabolic change over a seven-year investment horizon.**
 - As we look out to 2025, RBC Capital Markets sees Kurzweil's vision writ large. The probabilities for exponential change extend far beyond the bounds of the tech universe.
 - The realities of population growth, climate change, urbanization, resource shortages, and an evolving workforce enable us to envision non-linear outcomes across the social, economic, environmental, and political landscapes.



An unprecedented global, cross sector RBC Research Department collaboration of over 100 Analysts



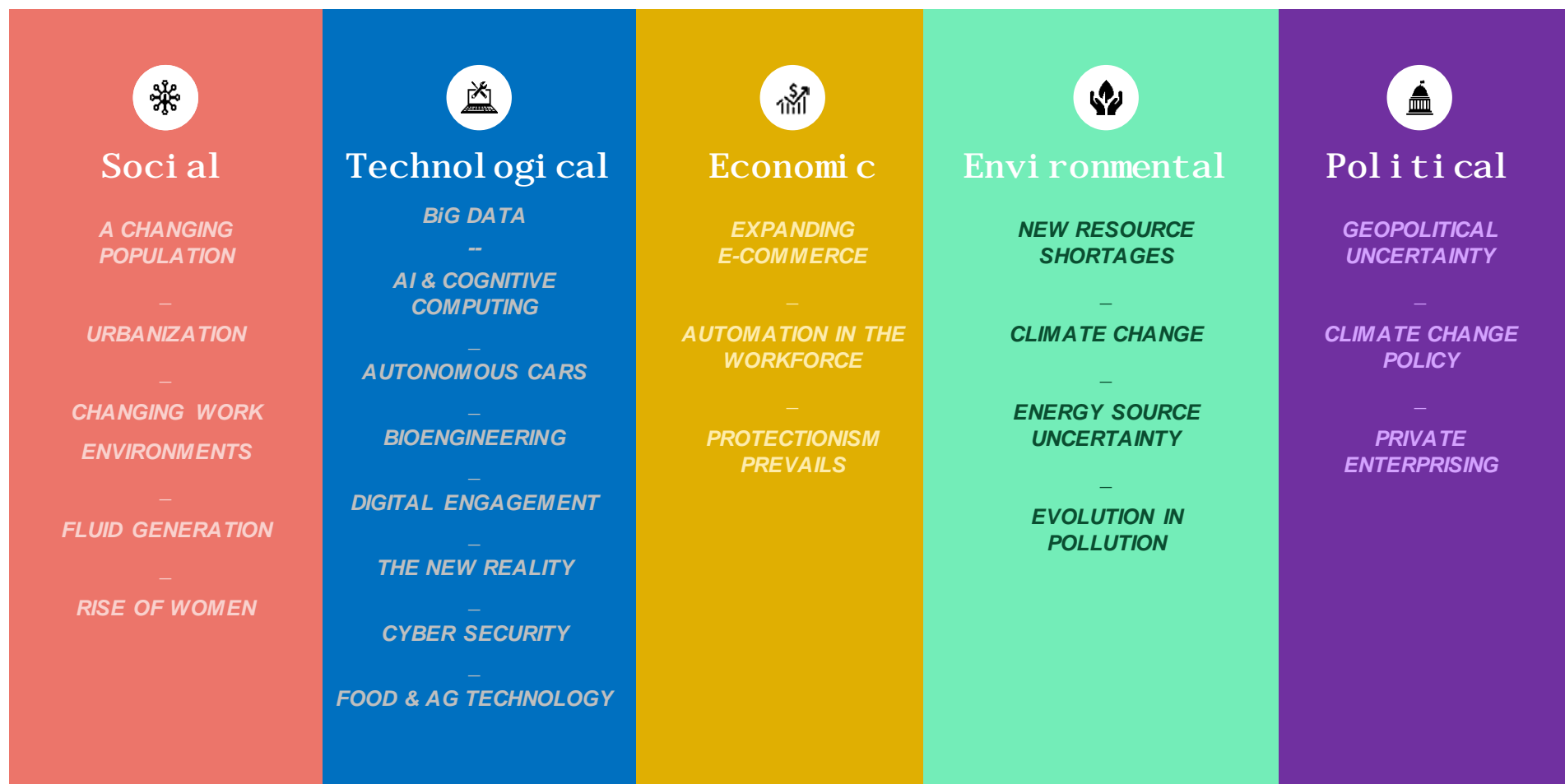
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Source: RBC Capital Markets, Google images

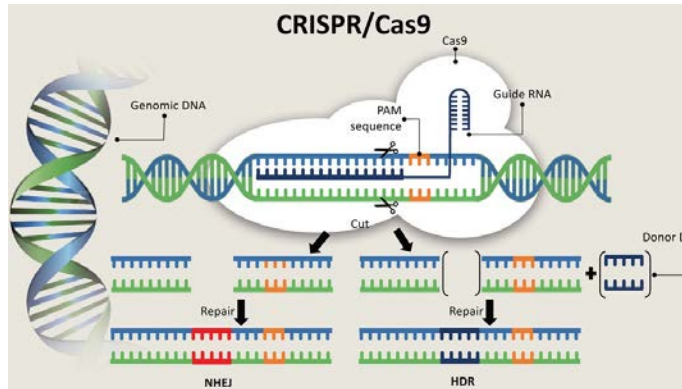
Step 1: Identified the change forces of the future

- Completed an Immersion Study with the Sterling Rice Group and identified 23 societal, technological, economic, environmental and political change forces that we believe will ripple across the world over the next seven years.



Step 2: Through the change forces, we systematically described six real-world future themes that we believe will become the “status quo” in 2025

The Calibrated and Augmented Self



The Artificial Intelligence Race



In Cloud We Trust



Collective Action



Escalating Uncertainties



Agility Imperative





Step 3: Translated these themes to a portfolio of actionable stock ideas

▪ Launching The IMAGINE 2025 Portfolio

- Most analysis is focused on the next quarter or 1-2 years, but *rarely* is time and effort taken to think about the next 7 years when assessing the valuation of a company.
- The most important assessment for our research team was to understand which companies across our collective coverage had the capabilities to adjust to a rapidly evolving future.

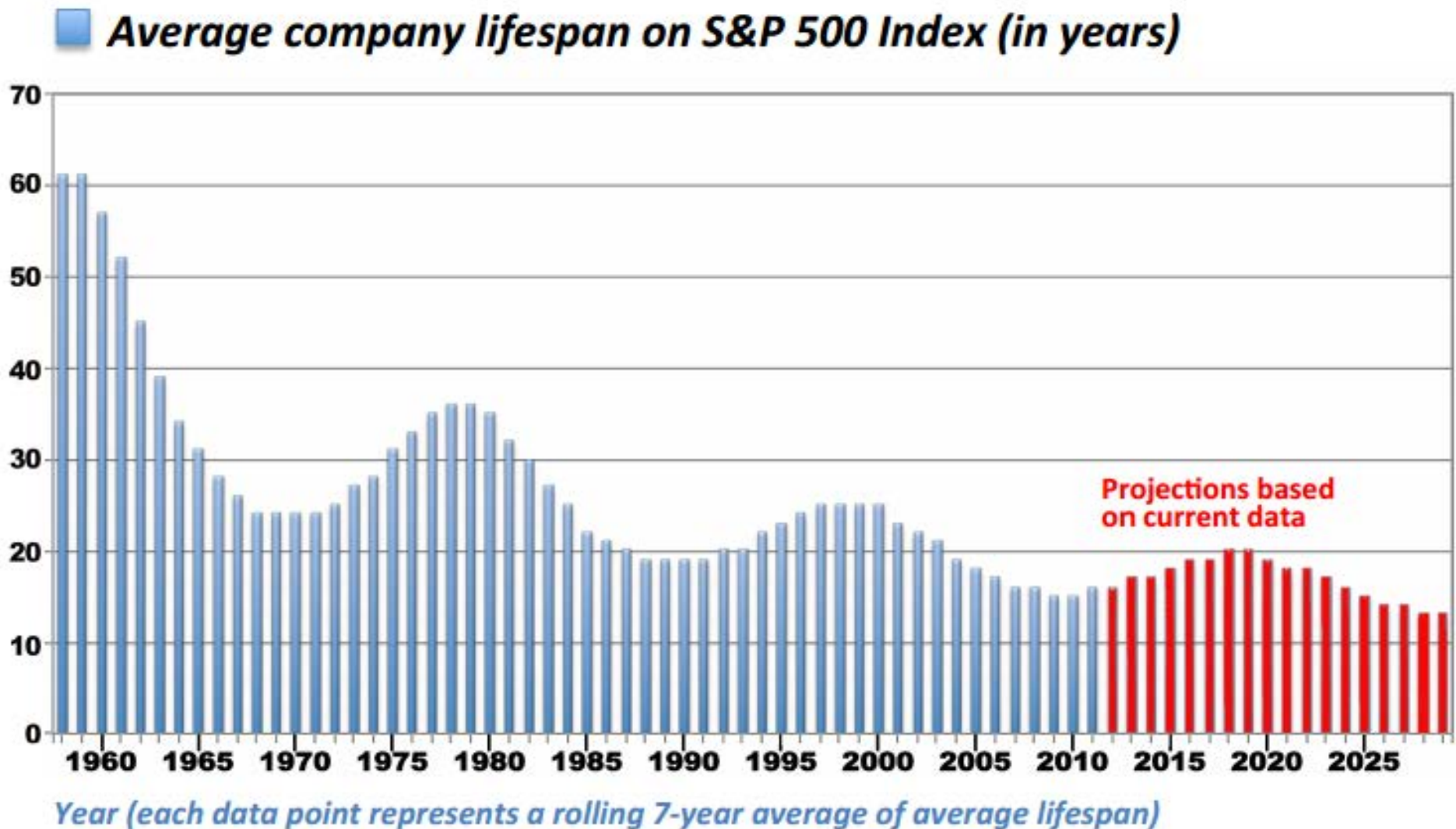
$$\text{Value} = \boxed{\frac{CF^1}{(1+dr)^1}} + \frac{CF^2}{(1+dr)^2} + \dots + \boxed{\frac{CF^n}{(1+dr)^n}}$$

 Too much focus.

 Not enough focus.

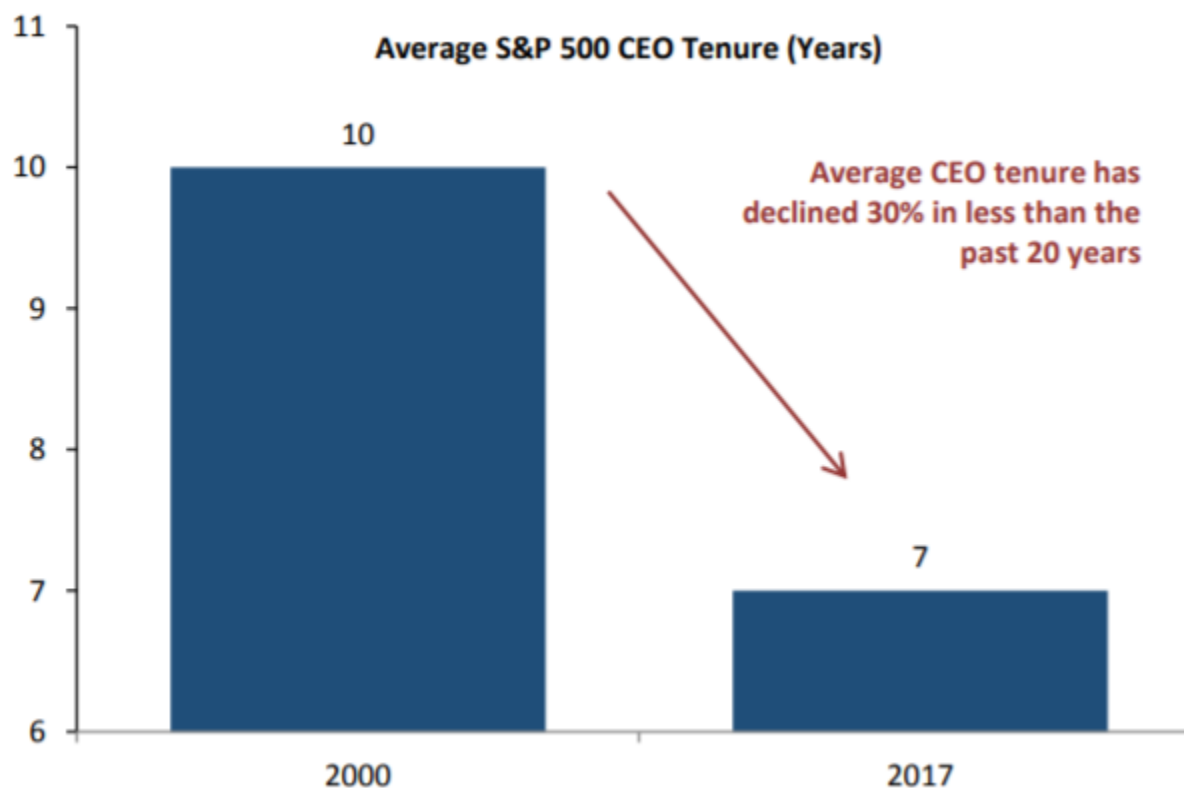
Sense of Urgency

Average lifespan of S&P 500 companies has declined from 61 years in 1955 to 17 years in 2015



Shorter CEO tenure = kick the can down the road?

- Increased turnover among CEOs not just in consumer but also across the S&P 500
- Material cost-savings plans to enable earnings delivery but at the expense of competitive advantage periods

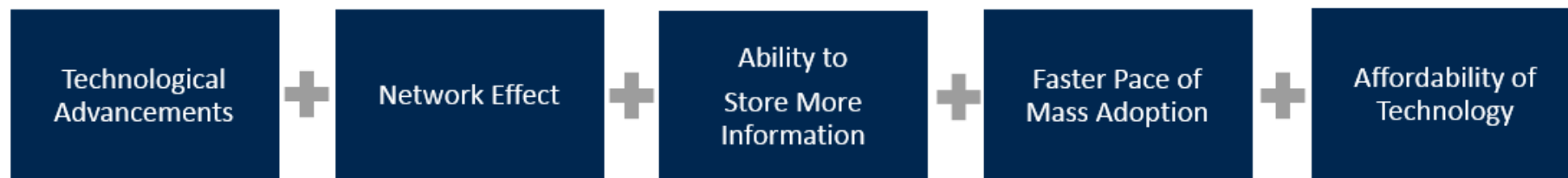


The Pace of Change is Accelerating

| Year Developed | Technology | Years until mass adoption |
|-------------------|--------------|------------------------------|
| 1872 | Electricity | 46 |
| 1876 | Telephone | 35 |
| 1897 | Radio | 31 |
| 1926 | Television | 26 |
| 1975 | PC | 16 |
| 1983 | Mobile Phone | 13 |
| 1991 | The Web | 7 |
| 2001 | iPod | 4 |
| 2006 | Facebook | 3 |
| 2007 | iPhone | 2.5 |

Source: RBC Capital Markets

What is driving faster pace of change? Moore's Law is bleeding into all aspects of life



"There is no hope for the fanciful idea of reaching the Moon because of insurmountable barriers to escaping the Earth's gravity."

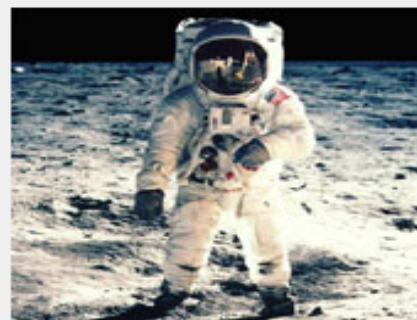
— Dr. Forest Ray Moulton, University of Chicago astronomer, 1932.

"All this writing about space travel is utter bilge."

— Sir Richard Woolley, Astronomer Royal of Britain, 1956

"To place a man in a multi-stage rocket and project him into the controlling gravitational field of the moon.... I am bold enough to say that such a man-made voyage will never occur regardless of all future advances."

— Dr. Lee De Forest, famous engineer, 1957



Buzz Aldrin, July, 1969

***First they ignore you,
then they laugh at you,
then they fight you,
then you win.***

Mohandas Gandhi

Today's pocket calculators have more computing power than the computers used for the Apollo moon missions.

Those computers cost \$3.5 M and were the size of a car.

Today, the iPhone is 32,600 times faster than the best Apollo-era computers and can perform instructions 120,000,000 times faster.

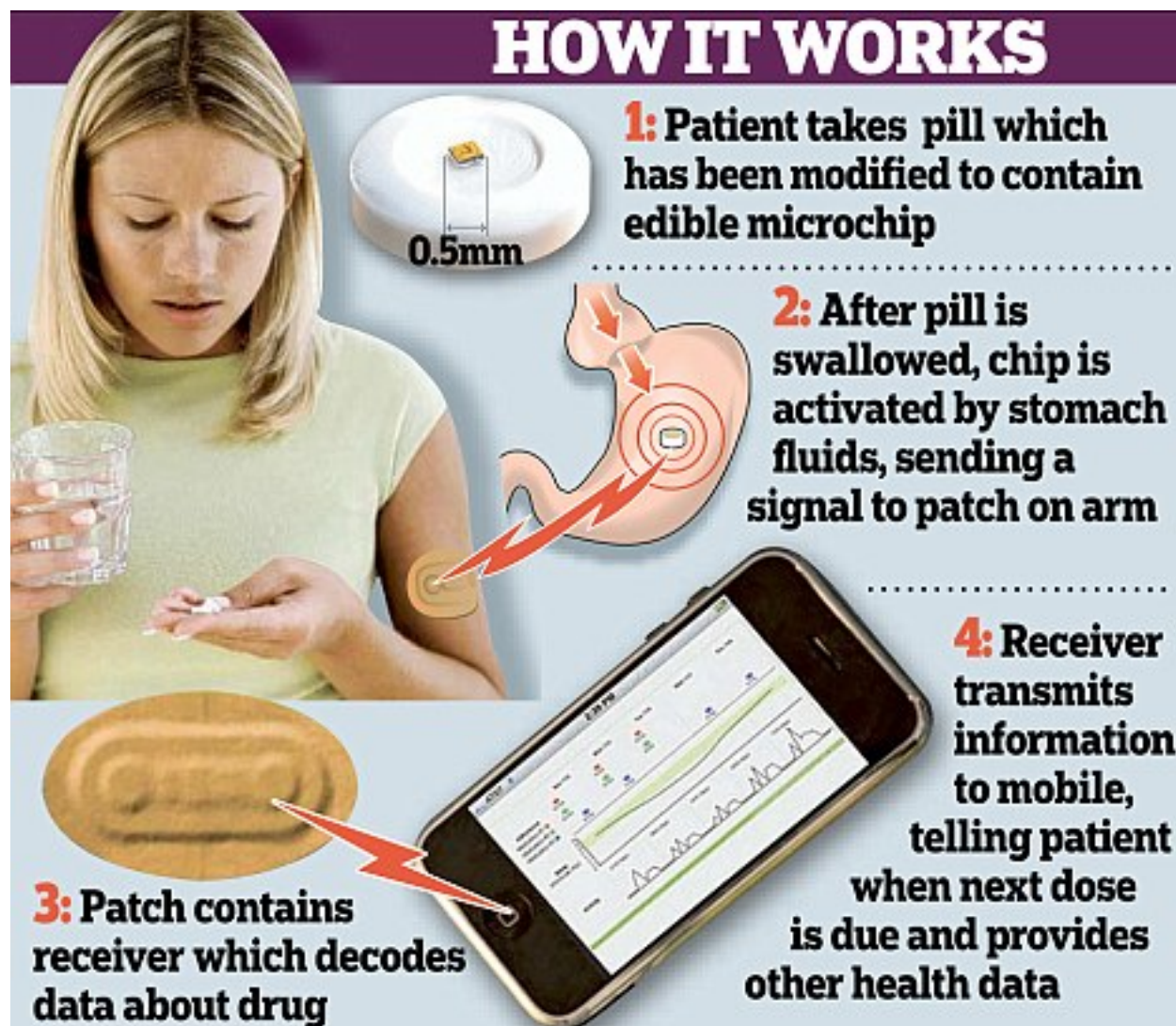
Put differently, the iPhone could be used to guide 120,000,000 Apollo era spacecraft to the moon, all at the same time.

Today's supercomputers are able to execute so many instructions per second that scientists do not even measure their speed in instructions per second.

**YOU could get personal care products
made just for you?**



**YOU could ingest a pill that
reminds you to take your
medication?**



That same pill could provide medicine at a doctor's command and call for an ambulance in the event of emergency?

In the future, medical devices on and within us will communicate directly with doctors and emergency services



Source: Sterling Rice Group, Alec Momont, Damdaar.com

***Using smart contact lenses
consumers could view a 3D
personalized store for shopping
anytime, anywhere?***

In the future, we will be able to use smart lenses to see the world and/or have bespoke, digital virtual experiences

Past



Present



Future



Using a wrist integrated smart device consumers could understand the direct implications for life expectancy, weight gain/loss from consuming different foods and beverages or pursuing different activities?

In the future, humans will have a live feed of the life span impact certain activities, foods and drinks will have on themselves



Source: RBC Capital Markets. Google Images, Shape Magazine, iStock, Amazon.com, In Time

The proliferation of connected devices led to a decentralized ecosystem where all products from any manufacturer could communicate with one another? How would this change the competitive landscape and how would companies differentiate offerings?

CRISPR technology enables people to create designer babies? Does there develop a market to design the smartest, most athletic and best-looking humans?

AI precision farming ushers in the next global “green revolution” and cuts food costs in half? Will this accelerate the long-term decline in the percentage of income spent on food? Or will consumers use savings to trade up to more expensive and nutritious foods?

Security and policy-making does not keep up with the rapid AI technological development? What if a breach originates from the trusted hyper-scale sources and cascades from within?

We see a permanent escalation in global military tensions – Middle East, North Korea, South China Sea, Ukraine – which require a step function change in global military spending? What does it mean for allocations of public spending? Will we see a cut to entitlement spending leading to further unrest? Does it lead to more authoritarian rule globally?

Theme I: The Calibrated and Augmented Self

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The Calibrated and Augmented Self is based on the concept that the “average consumer” is vanishing as machine and quantum computing learn and predict behaviors, leading to hyper-personalized products and services, and the ability for mass customization with less friction. However, the Calibrated and Augmented Self will most likely come with privacy and ethical risks.

What Is Driving the Calibrated & Augmented Self?

- Over the past two decades, the proliferation of choice has trained consumers to expect more goods and services that mirror their specific needs and preferences.
- Our dialogue with company C-suites indicates a majority of companies understand the power of mass customization, however, the means to do so in a profitable way has not existed—until now.
- Big data, artificial intelligence, and advancements in technology are now enabling products, services, and experiences to cater specifically to an individual with lower levels of friction (at a very basic level).
- As we move forward, we believe the convergence of microcomputers, big data, wearable technologies, the moderating costs of genetic testing and advancements in 3D printing will all drive much more personalized offerings that will be available and affordable to the masses.

Footwear – Buy a Pair of “Fill in Your Name”



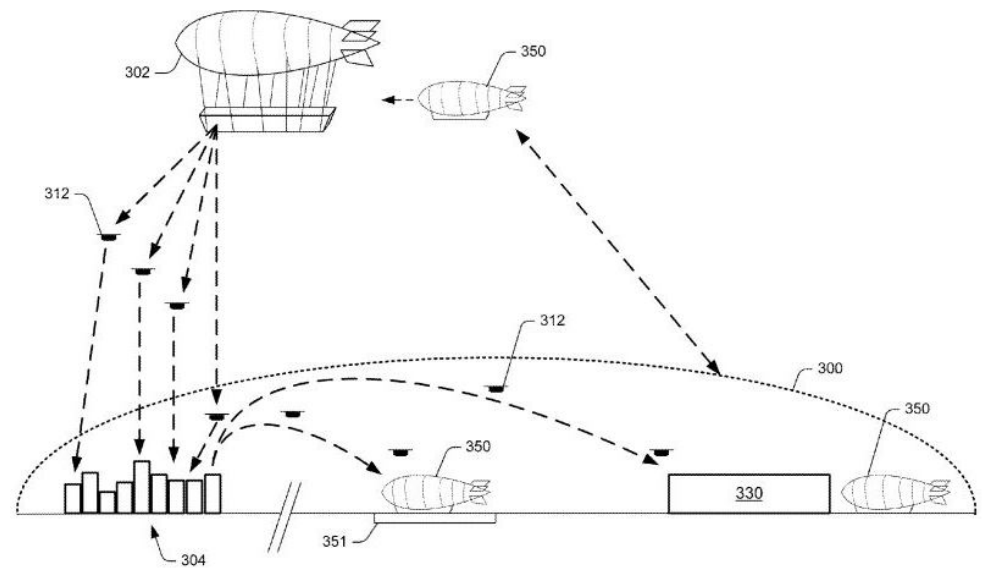
Source: Adidas

Apparel – Digital download a dress or suit?



Source: Racked.com, Danit Peleg and Ministry of Supply

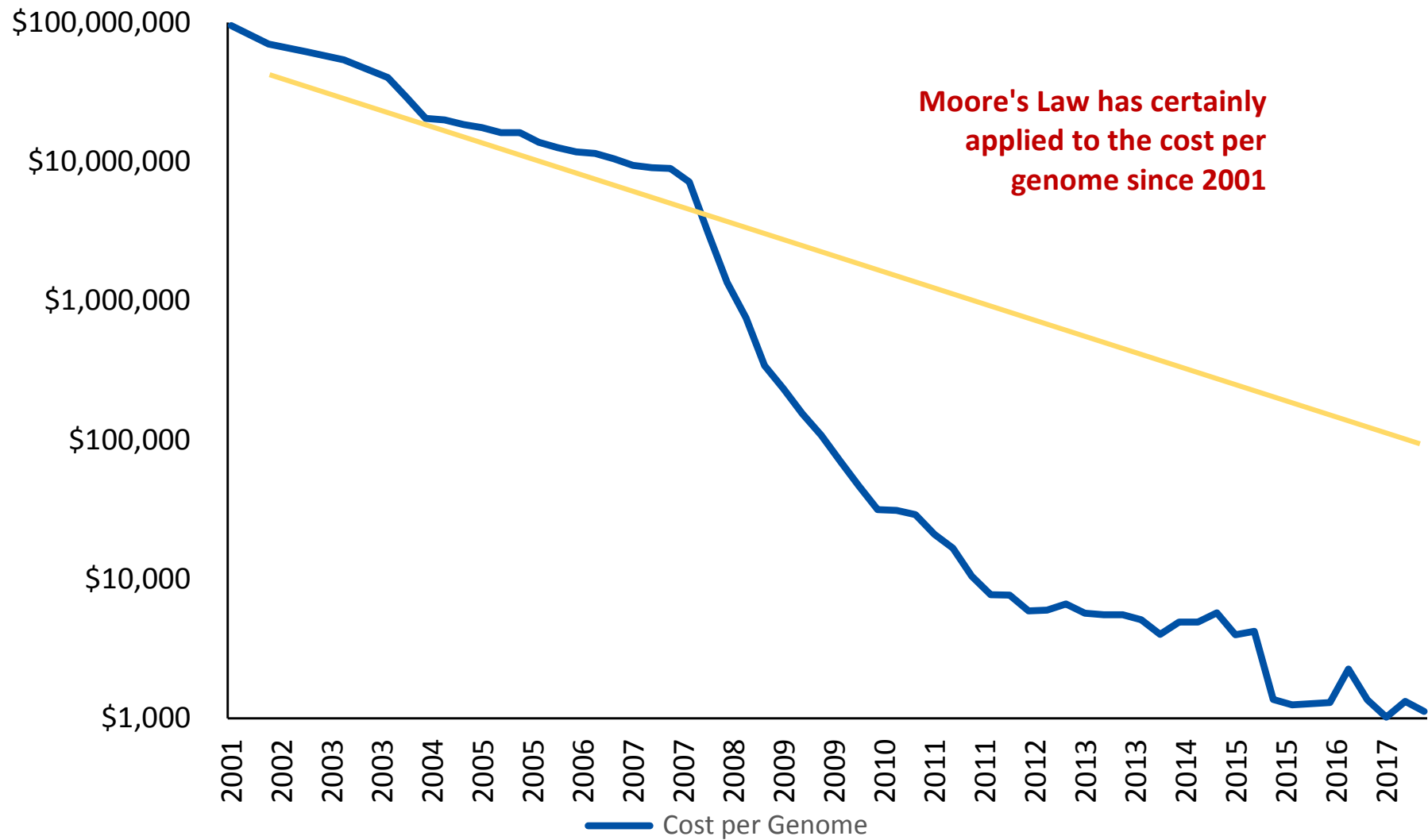
Completely eliminating the friction from retail



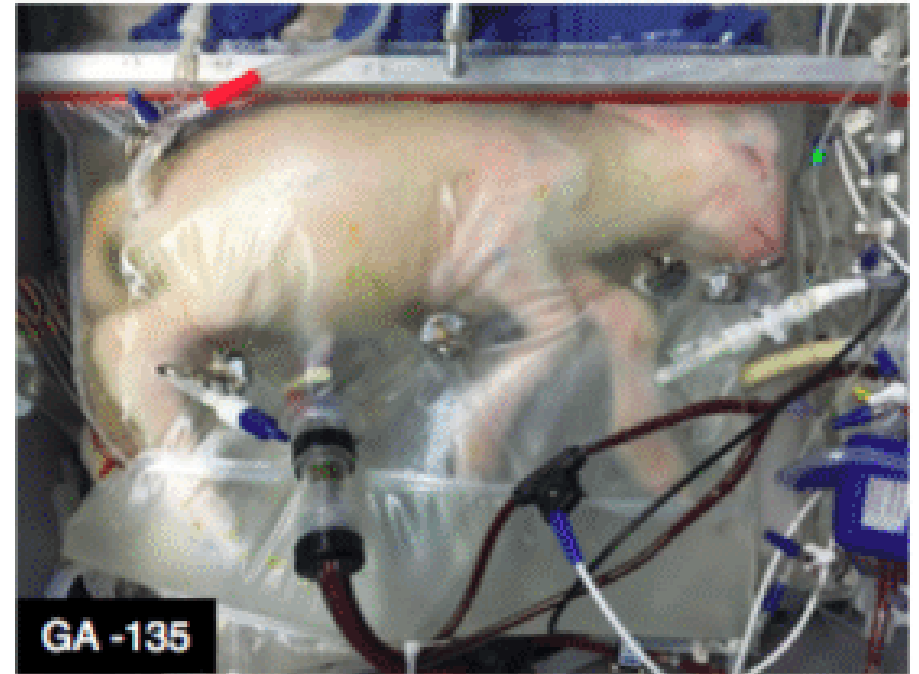
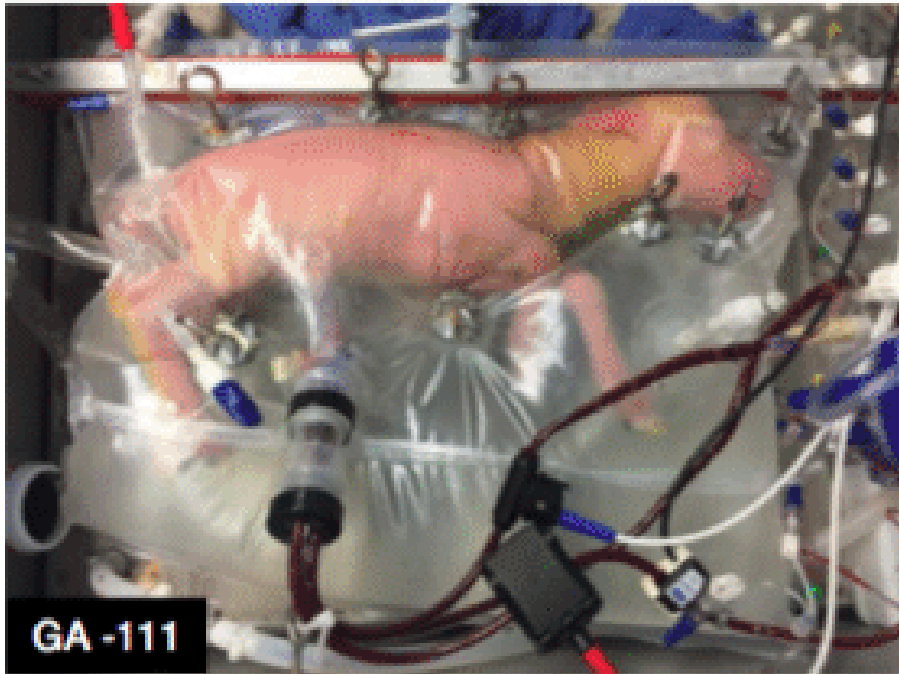
Dieting to be completely personalized and cooking automated



The ultimate pre-emptive medicine...CRISPR will enable consumers to design their own babies, and remove genetic diseases...



...that will be created outside the womb



Cyborg = the new human growth hormone?



In the 2018 NFL combine, Shaquem Griffin managed to bench press 225 pounds (102kg) an impressive 20 times.

Source: NFL Network, Google Images

- **What if** printing materials could be pumped into a home printer like a water tap? What if consumers could 3D print personalized products in their own home? What if the need for factories decreases?
- **What if** advancements in VR and AR offer a very real, 3D virtual experience for any place in the world? Would the demand for travel grow as users are inspired to visit those places or be curbed because people feel they have already visited the place?
- **What if** people become more reclusive because virtual reality gives them one less reason to leave their homes, positively impacting food delivery and negatively impacting the on-premise food and entertainment industries?
- **What if** advancements in gene editing enable the erasure of addiction? What would this mean for the use and abuse of recreational products like alcohol & tobacco as well as prescribed medications like opioids?

Theme II: The Artificial Intelligence Race

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We are on the precipice of the Artificial Intelligence (AI) era.

Software, enabled by machine learning (training algorithms on input data) and deep learning (using neural networks) that can replicate and eventually surpass human cognition.

It's helpful to think about AI technology in phases as a progression: narrow AI, general AI and superintelligence or "the singularity". Each stage of AI development has different implications for different industries and the world at large.

The three distinct phases of AI progression

- **Narrow AI**

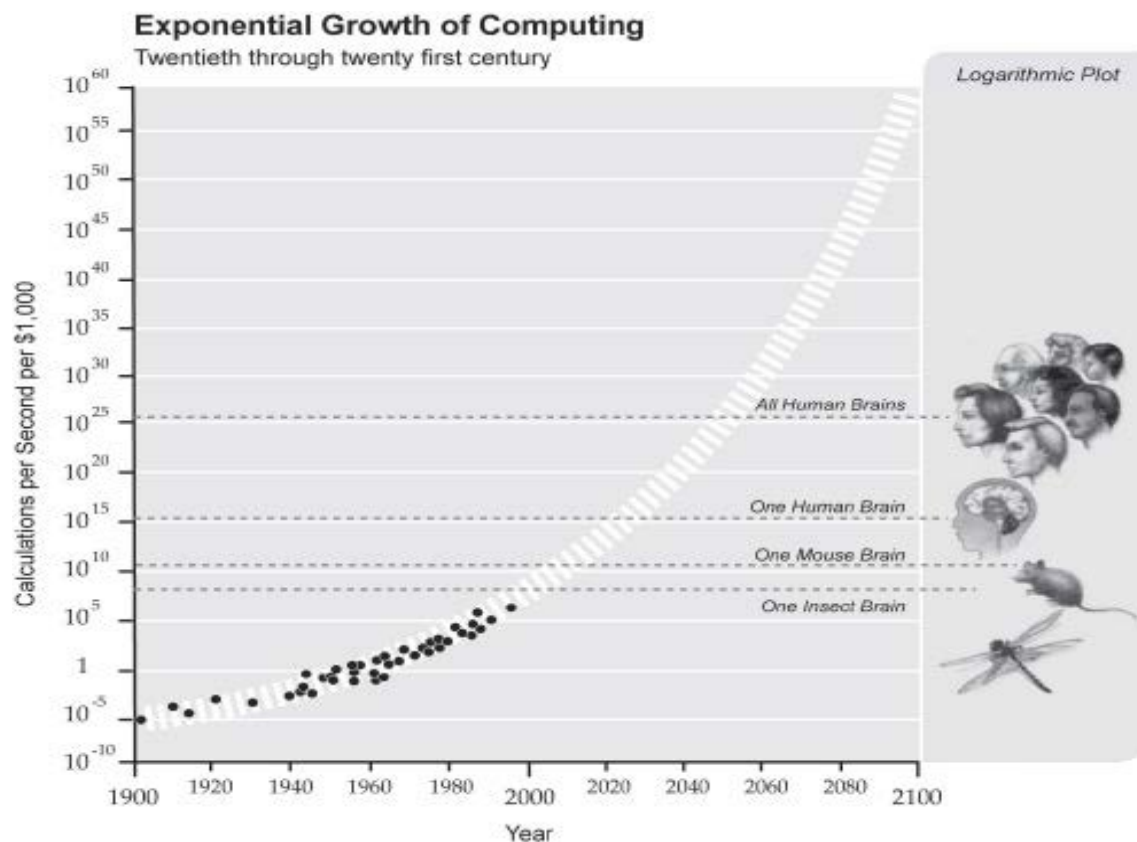
- The most immediate application of AI. The ability to automate a single activity that outperforms human efficiency.

- **General AI**

- Perform any intellectual task a human can and is sometimes referred to as human-level AI.

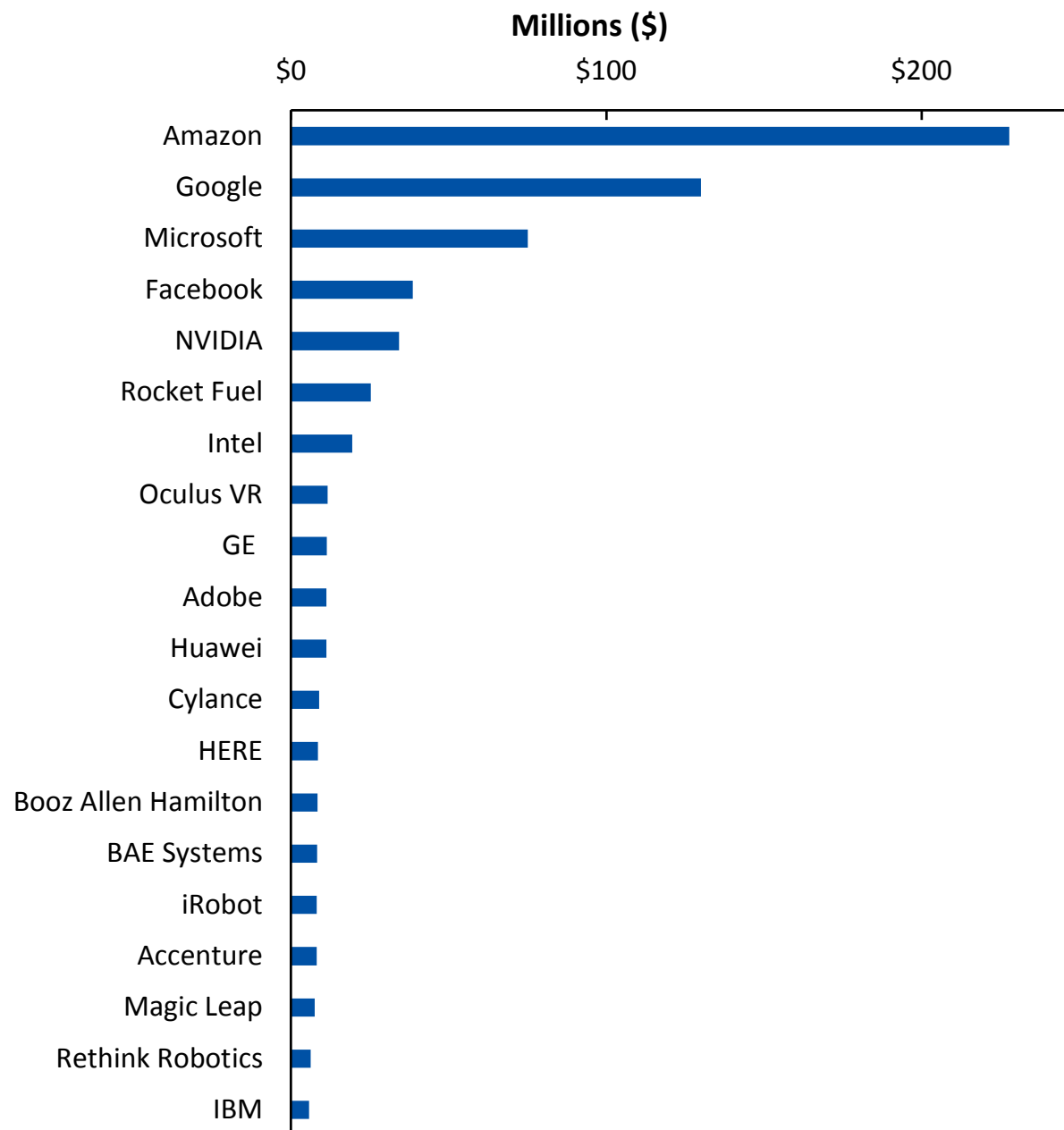
- **Super AI**

- Super-intelligence aka the Singularity, is achieved when AI becomes much smarter than humans.



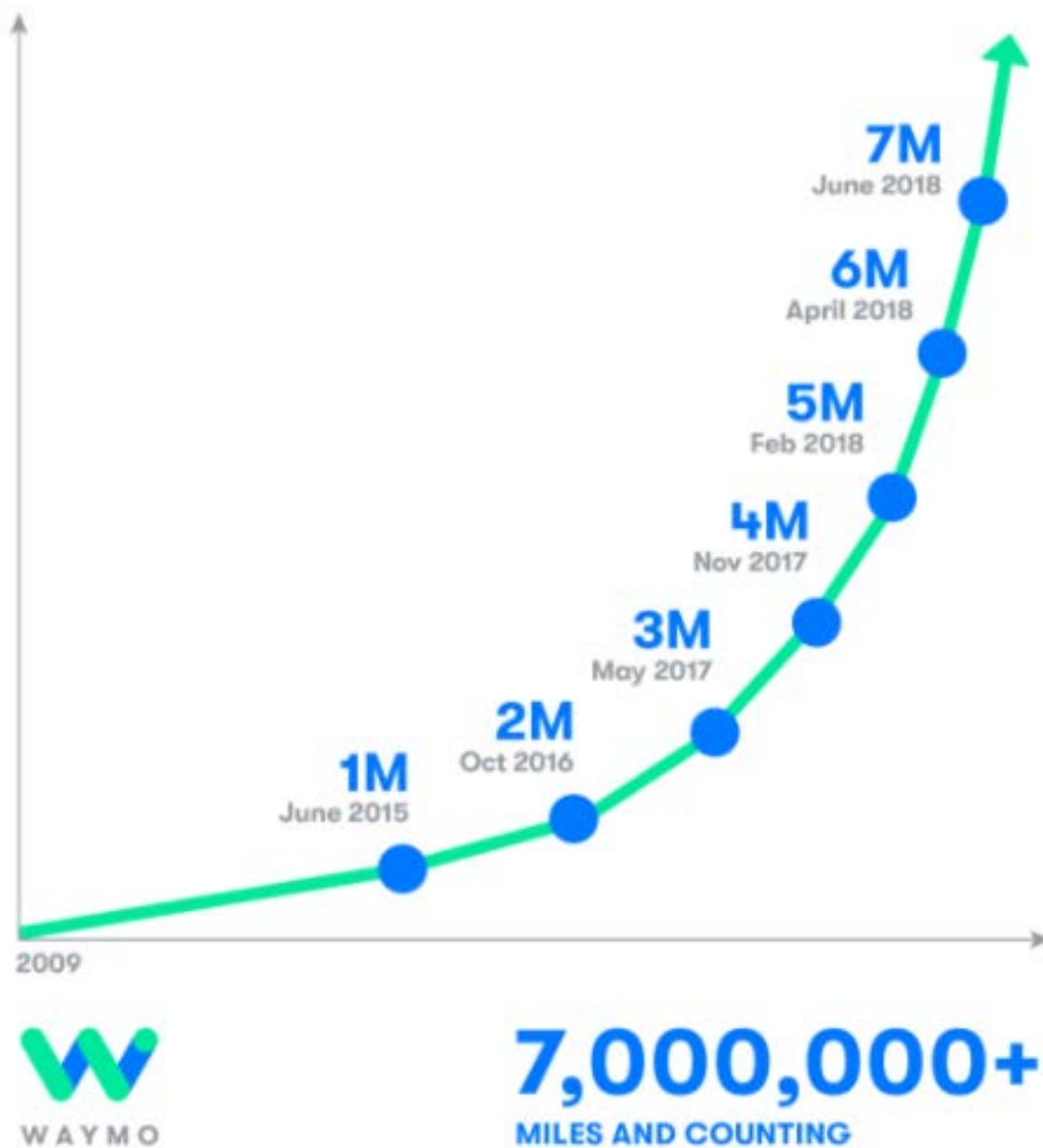
Source: *The Singularity Is Near: When Humans Transcend Biology* by Ray Kurzweil, p. 70; www.singularity.com

Companies are beginning to invest aggressively in AI talent



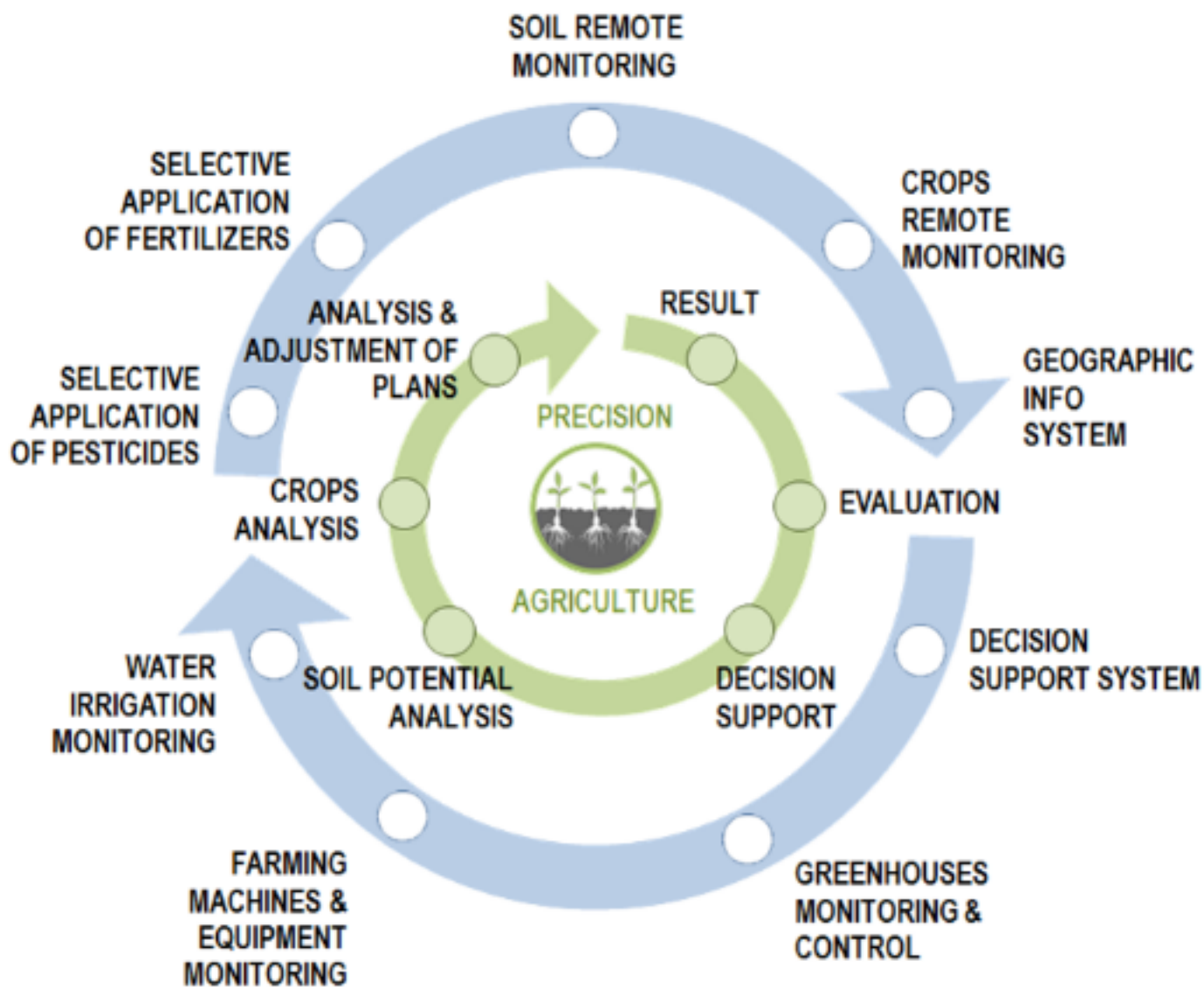
Source: Paysa

AI based autonomous driving can rapidly impact industry and society

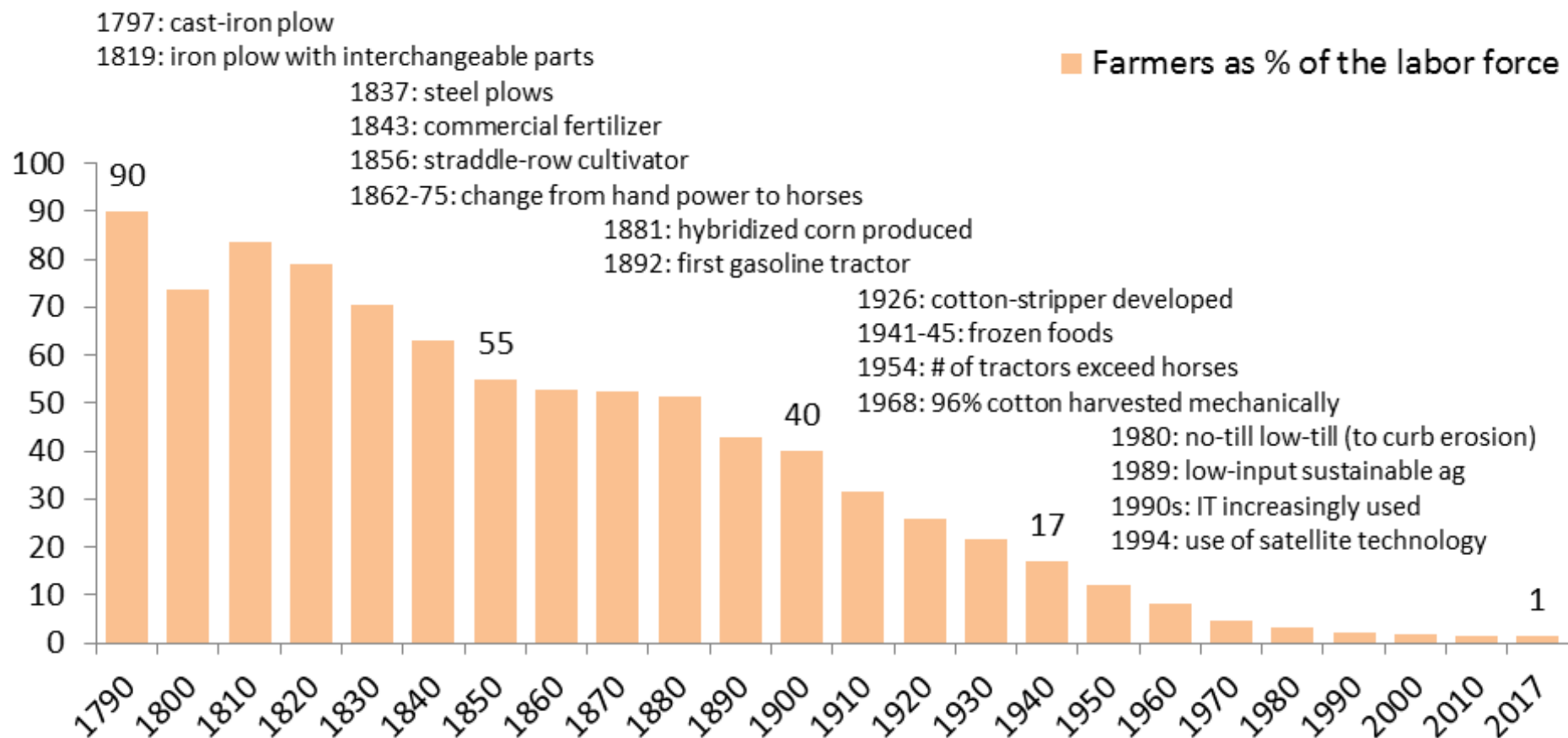


Source: Waymo

AI to further revolutionize farming



We have seen dramatic productivity advancements before



- With intelligence comes power. Just as the atomic race and the space race dictated global power in prior periods, so too can the AI race. China and Russia investing heavily in AI.
- But the AI race also seems to include more private enterprise, particularly in the United States with the likes of Google, Microsoft, Facebook and Amazon. This begs the question, does power increasingly shift away from governments and towards corporations?
- AI can be used for benefit or detriment. The “Infocalypse” – whereby the Internet and information ecosystem can reward misleading information or “fake news” – could be upon us.
- AI based surveillance holds promise for counter-terrorism and security as well as tracking missing persons. However, what if the power is used to impede human rights and civil liberties?

- **What if** everything we are surrounded by is made “smart”? Will humans live like “robots” and robots become more humanized? What if robots are made to look and sound like humans – will it become difficult to distinguish between humans and robots? And if it becomes difficult to distinguish between the two, will we have to re-think traditional norms of companionship and commitment?
- **What if** artificial intelligence advancements take the human element out of picking stocks? Will we have access to such extensive data that we will experience singularity between the empirical and analytical? Will this eliminate the need for traditional Analyst and Portfolio Manager roles?
- **What if** we lose our grip on AI? **What if** security and policy making does not keep up with the rapid AI technological development? **What if** a breach originates from the trusted hyper-scale sources and cascades from within?
- **What if** the question is really When, not If?

Theme III: In Cloud We Trust

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The adoption and utilization of cloud technology is rapidly changing the landscape of corporate IT as well as corporate competition across industries.

Access to, and utilization of, these tools increases the ability of small and new entrants to industries to keep giants on their toes.

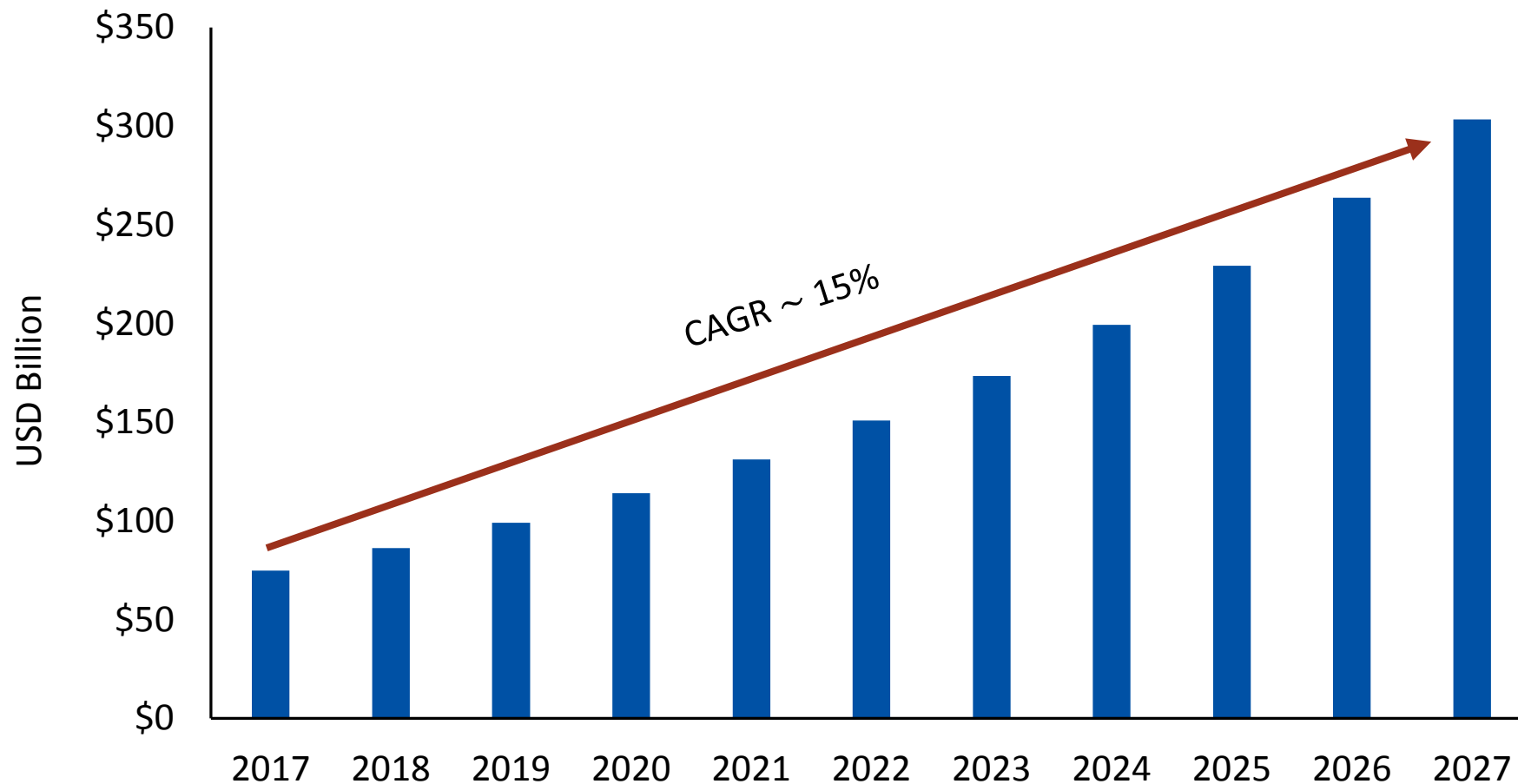
The democratization and affordability of cloud computing and storage is fueling the rate at which companies can start, scale, and succeed.

As basic cloud services become more affordable due to price competition, premium services such as advanced analytics, machine learning, and IoT services will provide high power tools and capabilities to businesses of all sizes.

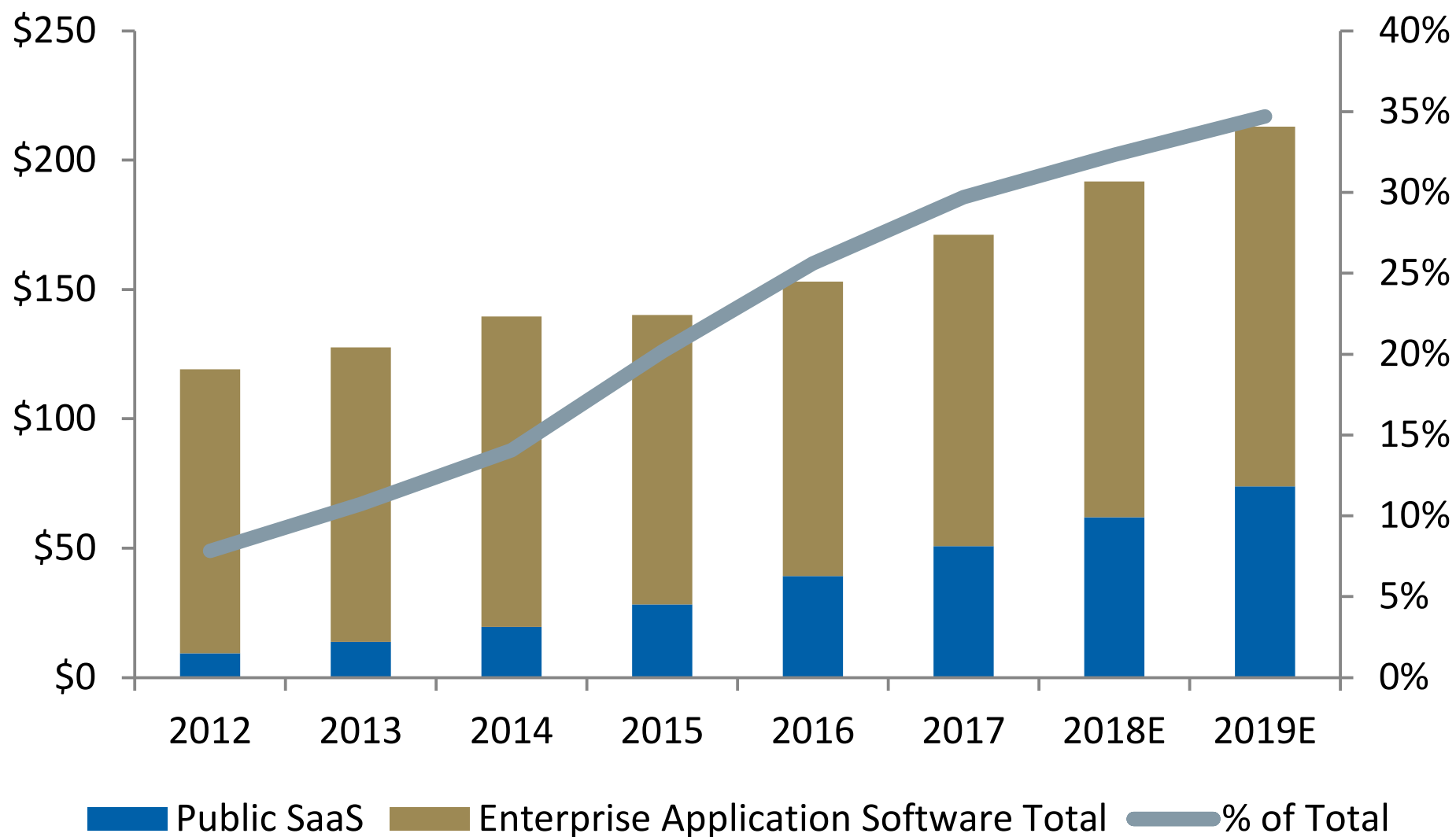
Consider the following:

- *Over the last two years, 90% of the world's data has been created.*
- *In an Internet minute, there are 38M Instant Messages, 3.7M Google searches, 2.4M Snapchats, 973,000 Facebook logins and 481,000 Tweets.*
- *The computational power of neural networks has increased 300,000X from AlexNet in 2013 to AlphaGoZero in 2017.*
- *Cisco estimates that data center storage will grow to 2.6 Zettabytes by 2021 . . . that's the equivalent of 10,000 books per person on the planet.*
- *Hyperscale data centers are expected to almost double by 2021 and will represent >50% of all data centers globally.*

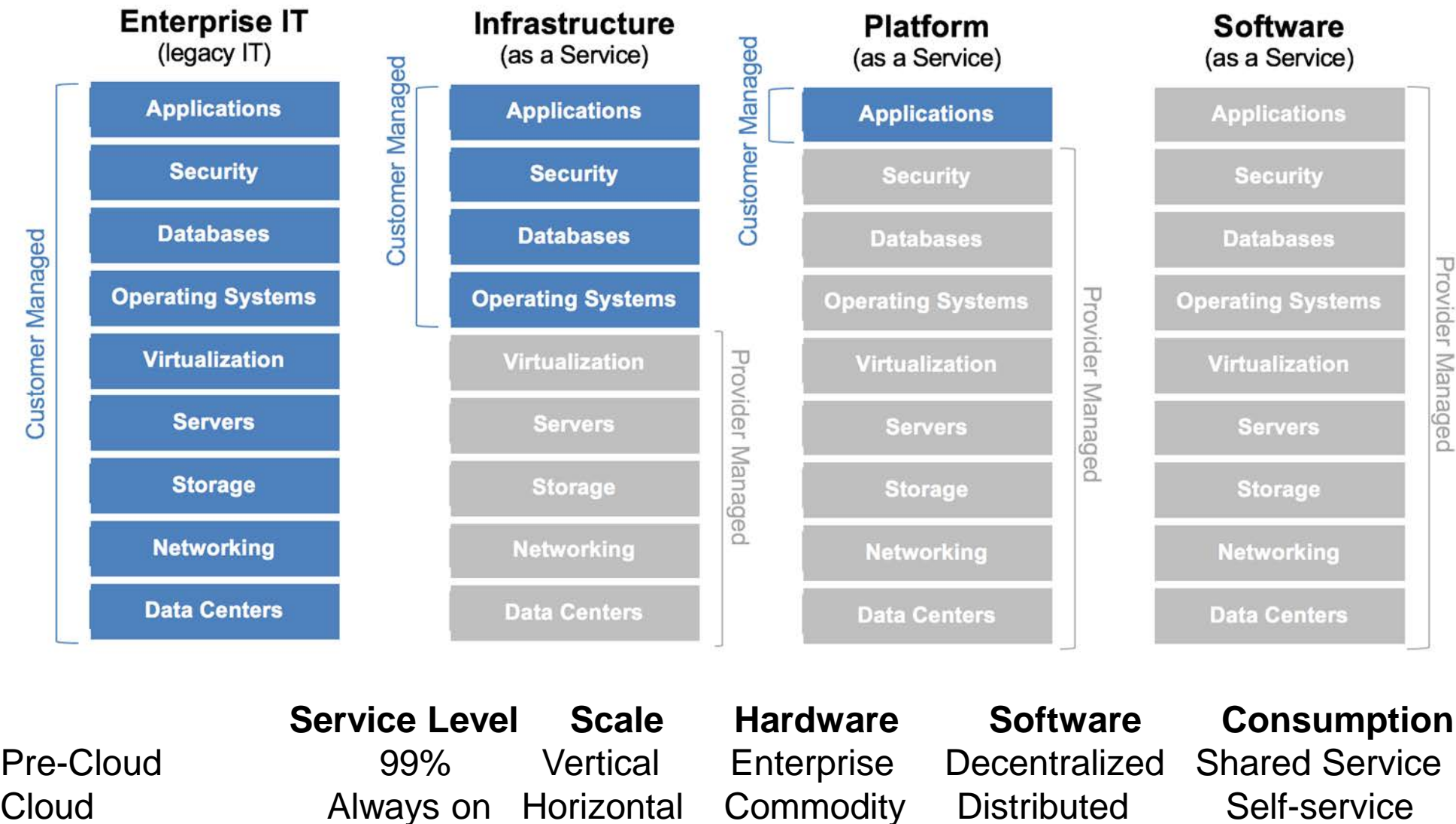
Global Cloud Computing Market Size, 2017-2027



SaaS >30% of all Enterprise Software Spend

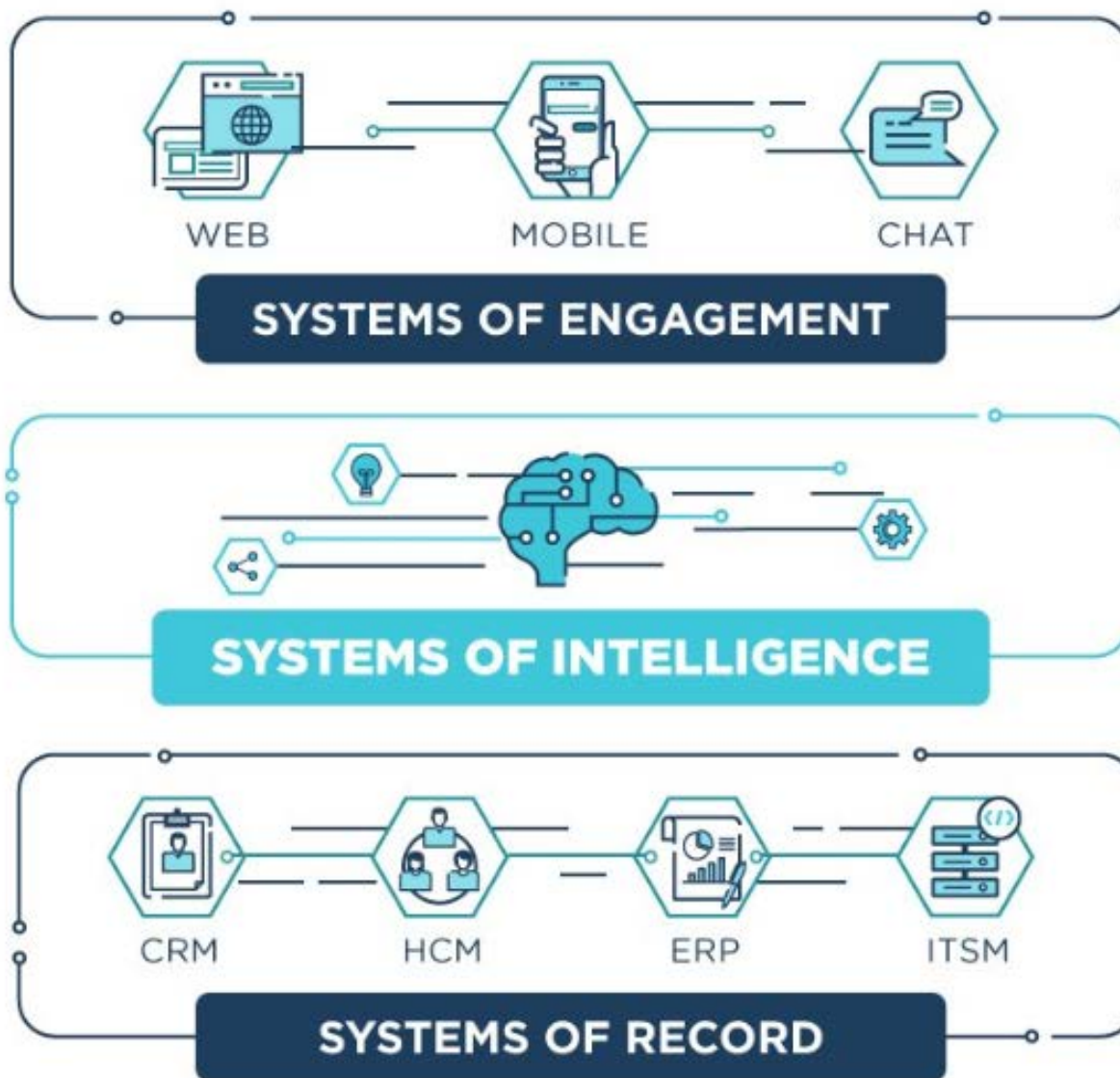


Gartner Forecast: Enterprise Software Markets, Worldwide, 2014-2021, 4Q17 Update
Source: Company reports, FactSet, Gartner, RBC Capital Markets estimates



Source: Cloudscaling.com, RBC Capital Markets

... and new processes facilitated by Compute Power and Data



Serverless Computing = *the ultimate pay for what you consume*

Multi-mode Databases = *for managing data cost-effectively at planetary scale*

Advanced Analytics = *natural language query against all your data*

Machine Learning = *building blocks of machine learning for non-experts*

Internet of Things = *the rails upon which everyone can build IoT workloads*

Examples



AWS Lambda



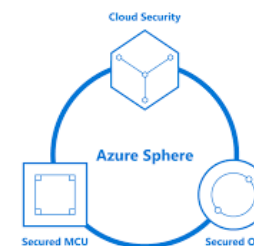
Azure Cosmos DB



AWS Athena



GCP Auto ML



Azure Sphere

- **What if** there was a cyber event so vast that it shut down extensive portions of business, communications, utilities or infrastructure for days or weeks or longer? Would insurance be able to respond to the losses? Would governments have to step in to backstop? What if the event was perpetrated by a terrorist group or foreign government – would losses be excluded as an act of war?
- **What if** governments around the globe decide that having the world's compute sitting in the hands of 3 or 4 companies is not acceptable. Regulation could come down hard, forcing a split-up of hyperscale companies into regional players and potentially forcing some other high-bar regulatory restrictions. Could IaaS companies become regionally regulated utilities?
- **What if** apps become the bargaining chip and the hyper-scale war becomes a knife fight? Could O365 and Windows become available only to businesses who use Azure? Could Google buy Salesforce and force migrations, throttling usage for non GCP users? Could Amazon buy Adobe and bundle AWS storage and an Alexa interface with every Creative Cloud subscription? Would bidding wars erupt for key application leaders, and App software vendors find unique/exclusive captive homes within the larger respective players in a fight for market share?
- **What if** data shortage becomes an issue? If data growth sustains the rampant pace we have seen and supply additions do not scale as they historically have, will we see a fundamental re-evaluation of data storage costs as the delta between data growth and capacity growth widens?

Theme IV: Collective Action

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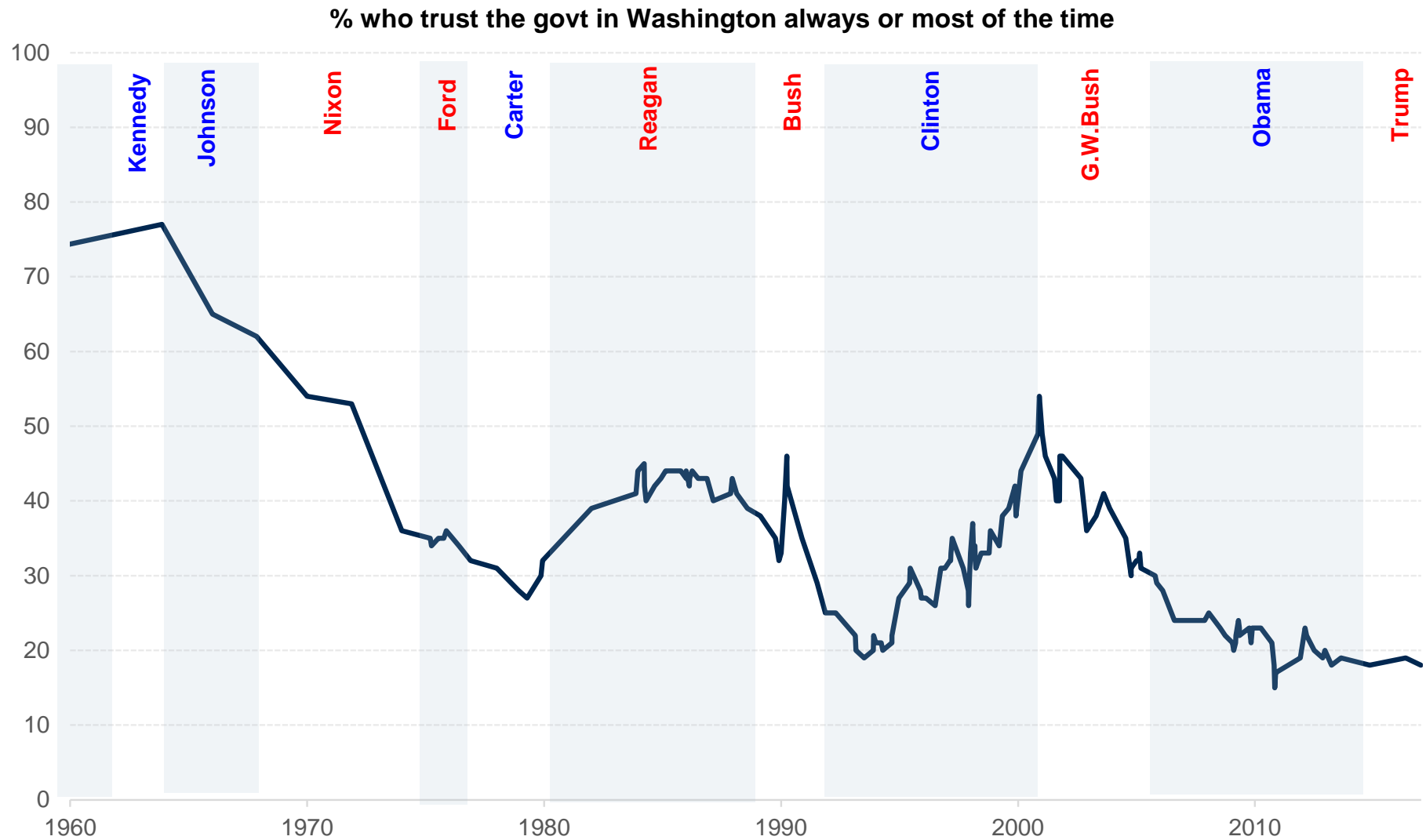
RBC Capital Markets

The power to act collectively has never been greater given technology and the viral speed with which social sharing can occur. As a result, long-held beliefs in traditional institutions, social norms, and commerce are being challenged.

Trust in one's peers vs. legacy institutions is quickly taking hold, as is the idea of decentralized organizations vs. centralized ones. As a result, we believe the pace of disruptive change will accelerate, but also believe increased collaboration between historical adversaries could increase, as incumbents seek to partner for survival via self-cannibalization and disruptors seek change at scale.

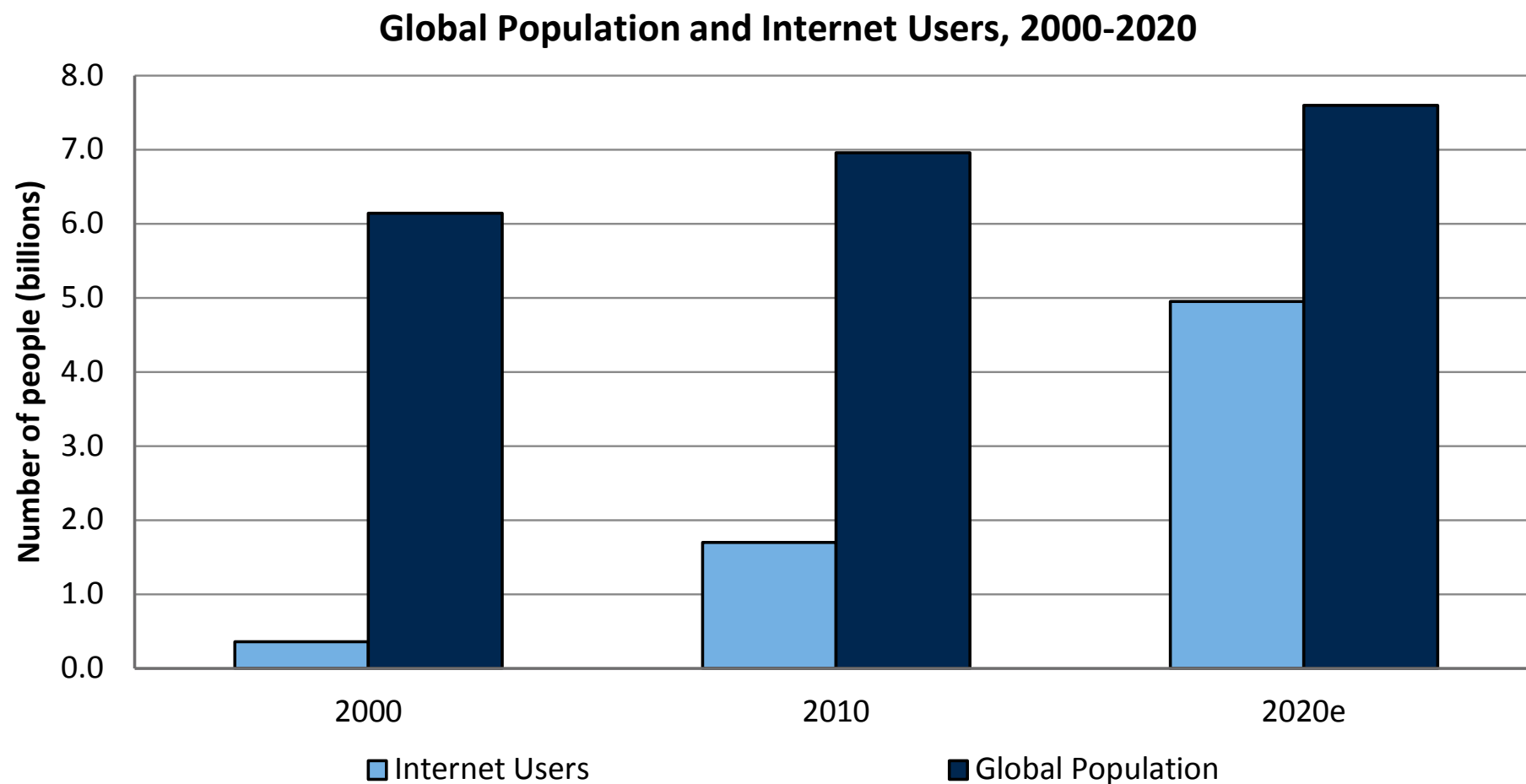
In either case by 2025, we believe, as history has taught us, collective action will have transformed industries, evolved business models, and challenged the status quo.

It all comes down to trust...lack of trust in government is just one example

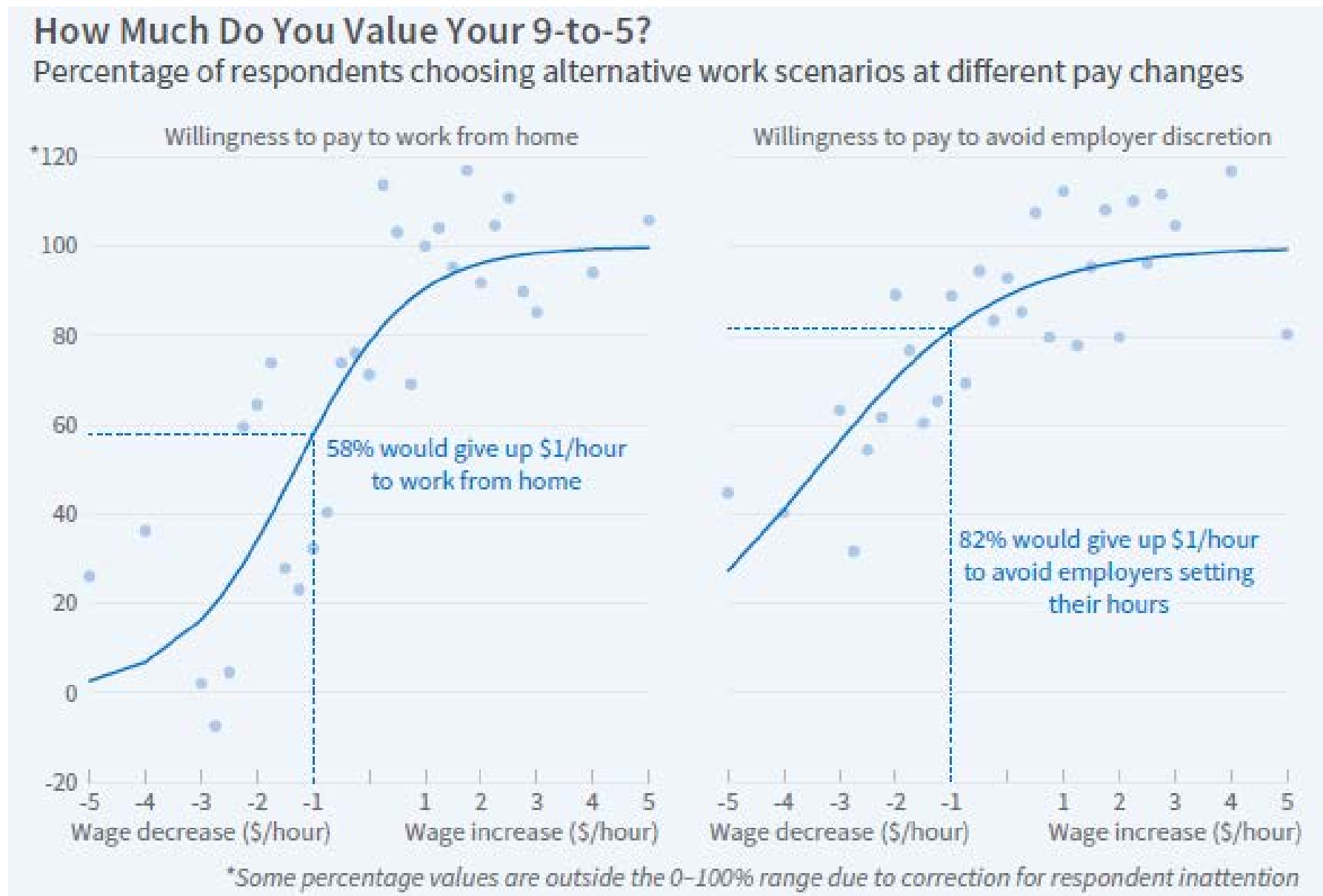


Source: PEW Research Center

And importantly, the world is increasingly connected and informed



Gig economy is on the rise...



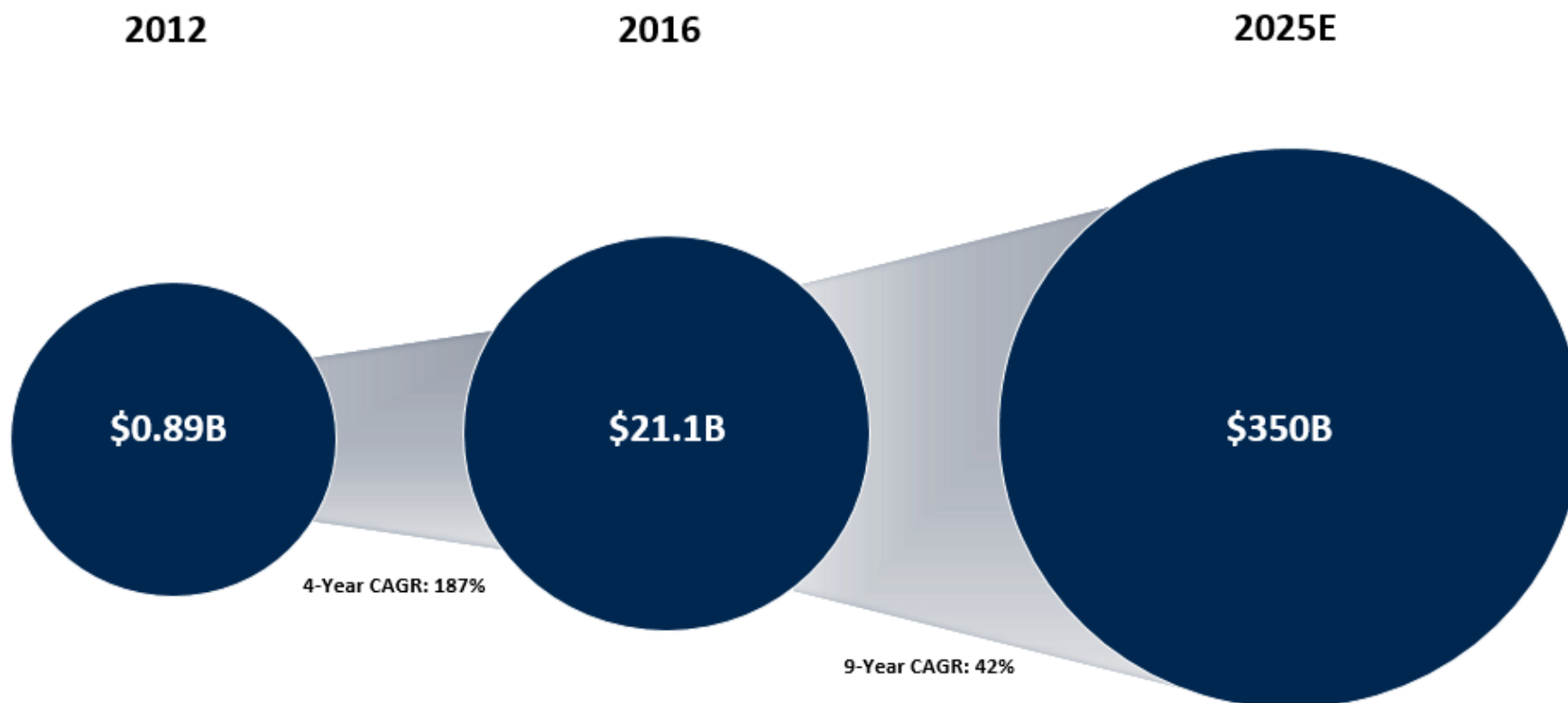
Source: National Bureau of Economic Research, "The Rise and Nature of Alternative Work Arrangements in the United States, 1995-2015" (December 2016)

...so is the sharing economy...Weren't we told not to open the door for strangers?



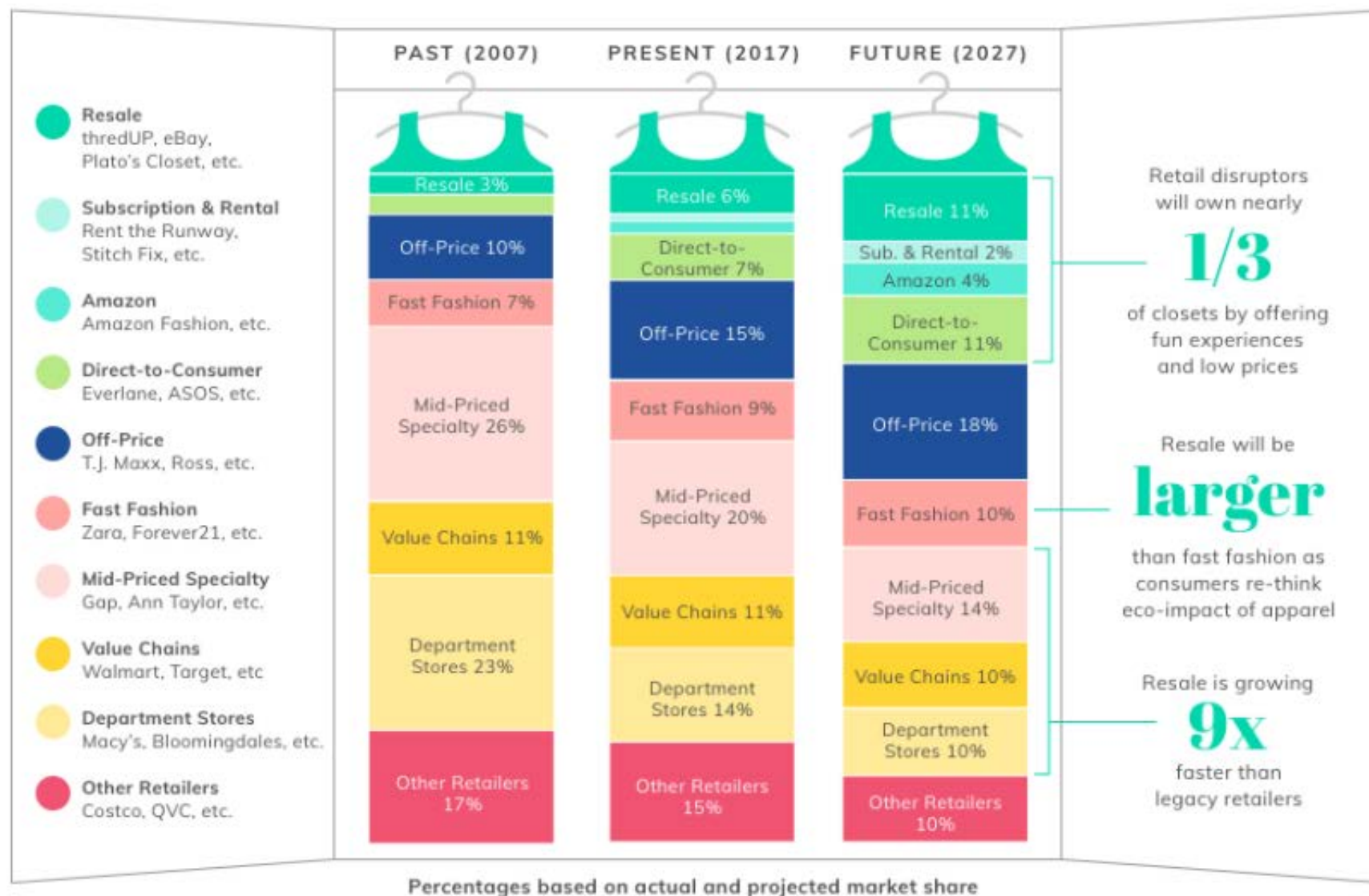
Source: Couch Surfing

Peer to peer consumer and business market growing at 40%+ CAGR



Source: Cambridge Centre for Alternative Finance, Polsky Center for Entrepreneurship and Innovation, Medici Insights

Meet the Closet of the Future



Source: Thread Up

Peer reviews are critical for driving sales of new brands and products



Jumpstart content for new product launches.

The first months after a new product is launched can be critical. When you hit the ground running with authentic ratings and reviews, you give consumers the confidence they need to purchase your products on day one.



Key General Data Protection Regulation (GDPR) components

| Area | Definition | Requirement |
|--------------------------|--|---|
| Consent | Freely given, specific, informed and unambiguous indication of the data subject's agreement to the processing of personal data relating to him or her. | Consent can be written or oral statement, it can even be ticking a box when visiting a website; but silent consent, inactivity and pre-ticked boxes do not constitute consent. |
| Personal data definition | Any information relating to an identified or identifiable natural person. | This will include unique identifiers including IP address and cookies. This makes cookie use subject to the same consent requirements. |
| Right to access | The person, whose data is collected, has the right to obtain confirmation of whether personal data is being processed and for what purposes. | Right to access must be provided free of charge unless the request is repetitive, excessive or unfounded. |
| Right to be forgotten | The right to be forgotten mean the right to demand the erasure of data. | The data subject has the right to be forgotten for which he/she no longer consents to data processing or which are no longer necessary to process. |
| Breach notification | Security breaches must be reported. | Controller obliged to report the breach to supervisory authorities unless the personal data breach is unlikely to result in a risk to the rights and freedoms of natural persons. |
| Privacy by design | Controllers must implement appropriate technical and organizational measures to meet the GDPR requirements. | Controllers are required to hold and process only data that is necessary for the completion of duties, and limit access to personal data to those doing the processing. |
| Data portability | Right to transfer data means that the data subject at any time should be allowed to receive, in machine-readable format, the personal data concerning herself. | Organizations, on request, must be able to deliver a person's data in a suitable format. |
| Data protection officers | A contractor, new hire or a member of the organization's staff. | All organizations are obliged to have a DPO |

What If...

- **What if** self-sovereign IDs become the norm? Will large scale consumer data derived models be required to directly compensate consumers to gain access to data? Will banks become “token vaults” holding consumers’ digital tokens / currencies as a new demand deposit account or will they be disintermediated as new digital token wallets become the on ramps to gain access to a decentralized network of value?
- **What if** there is a meaningful distributed ledger hack on top of the already vertical breaches? How do consumers and enterprises respond when all types of networks can be breached?
- **What if** banks become regulated utilities, whereby the brands no longer matter, as the services and technology offered become totally homogeneous, as new technologies massively outpace the innovation curve of banks?
- **What if** the shift towards distributed work spaces creates a massive shift toward home offices, what would be the impact to commercial real-estate, small businesses supporting urbanized footprints and the demands for at-home delivery?
- **What if** 5G makes mobile broadband ubiquitous relatively quickly, taking traditional cable/sat distributors out of the media ecosystem? Without this intermediary pushing Pay TV packages to consumers will this accelerate the trend towards à la carte? Is this good or bad for Media?

Theme V: Escalating Uncertainties

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RBC Capital Markets

Preparing for the ultimate black swan



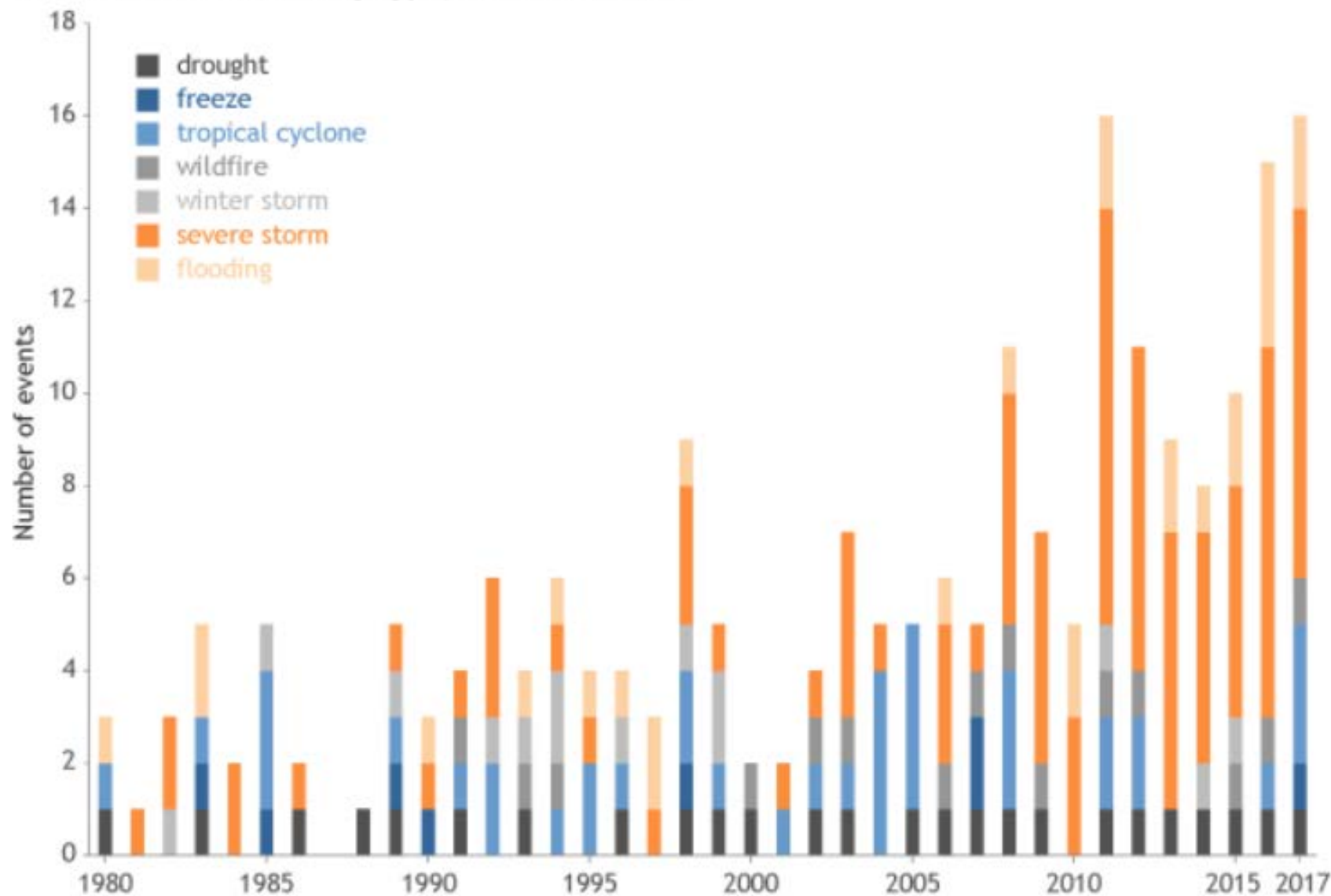
Source: Sterling Rice Group

Even as we struggle with a staggering amount of change, we can envision a future where this rate of change goes parabolic, making our present concerns seem quaint, heightening uncertainty, and expanding the list of threats and challenges posed to the world's nations, institutions, and corporations. The sheer scale of change has significant economic, environmental and resource considerations.

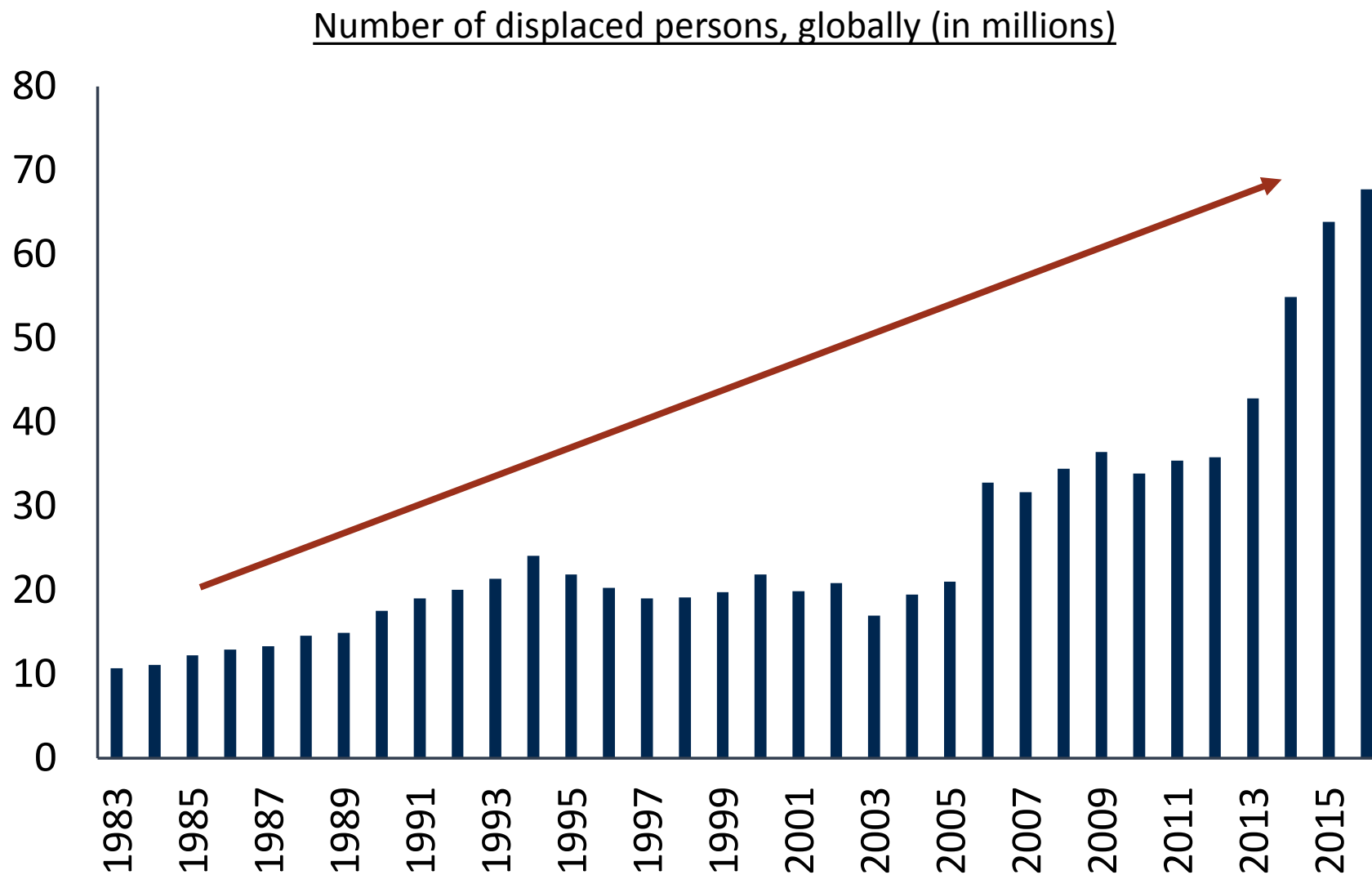
We have already seen the shoots of violent extremism and economic and political nationalism as nations react differently to shifting societal realities. As we look forward, we see the potential for two paths – an adherence to the post-war tenets of globalization, inclusion and joint solutions, or a hard turn towards nationalism and isolation in all its forms.

These uncertainties create the opportunity for innovative solutions to global conflicts and resource allocation, but equally increase the potential for a fragmentation of global institutions, military and economic threats, and a chasm between the haves and have-nots.

Billion-dollar disasters by type, from 1980-2017



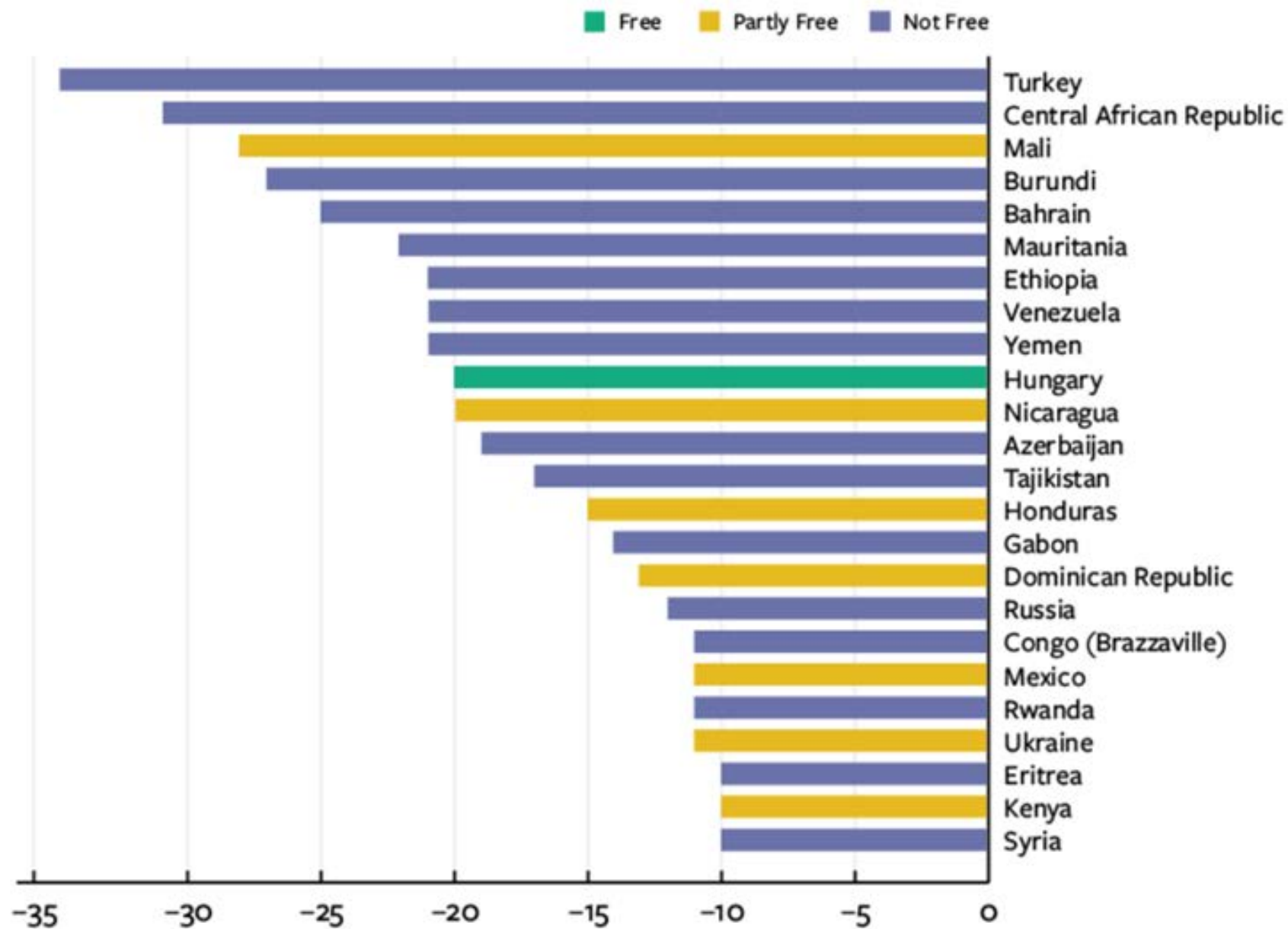
Source: NOAA, NCEI



Nationalism and Authoritarianism are on the rise

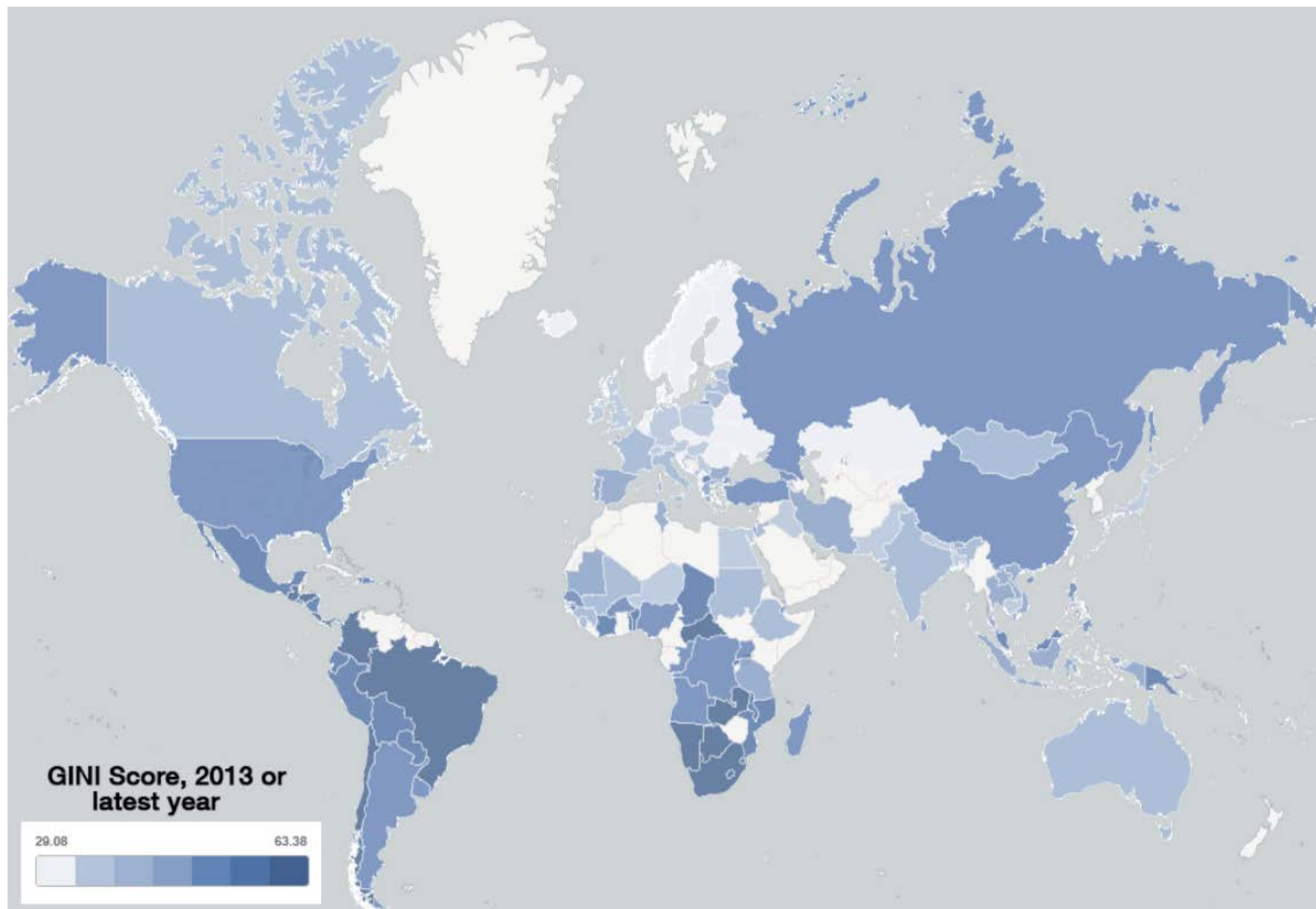


Countries with the largest declines in freedom over the past decade



Source: Freedom House

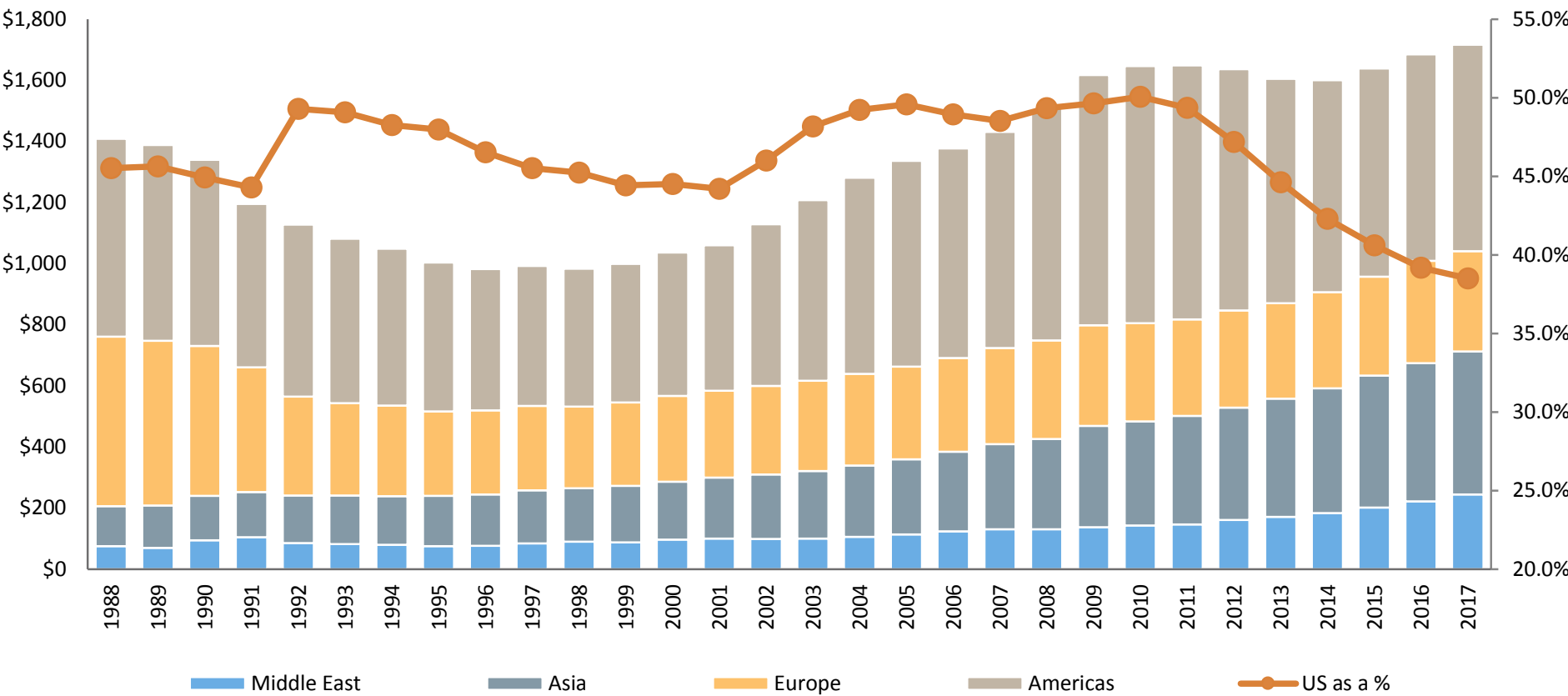
Democracy and extreme inequality thought to be incompatible (darker indicates higher inequality)



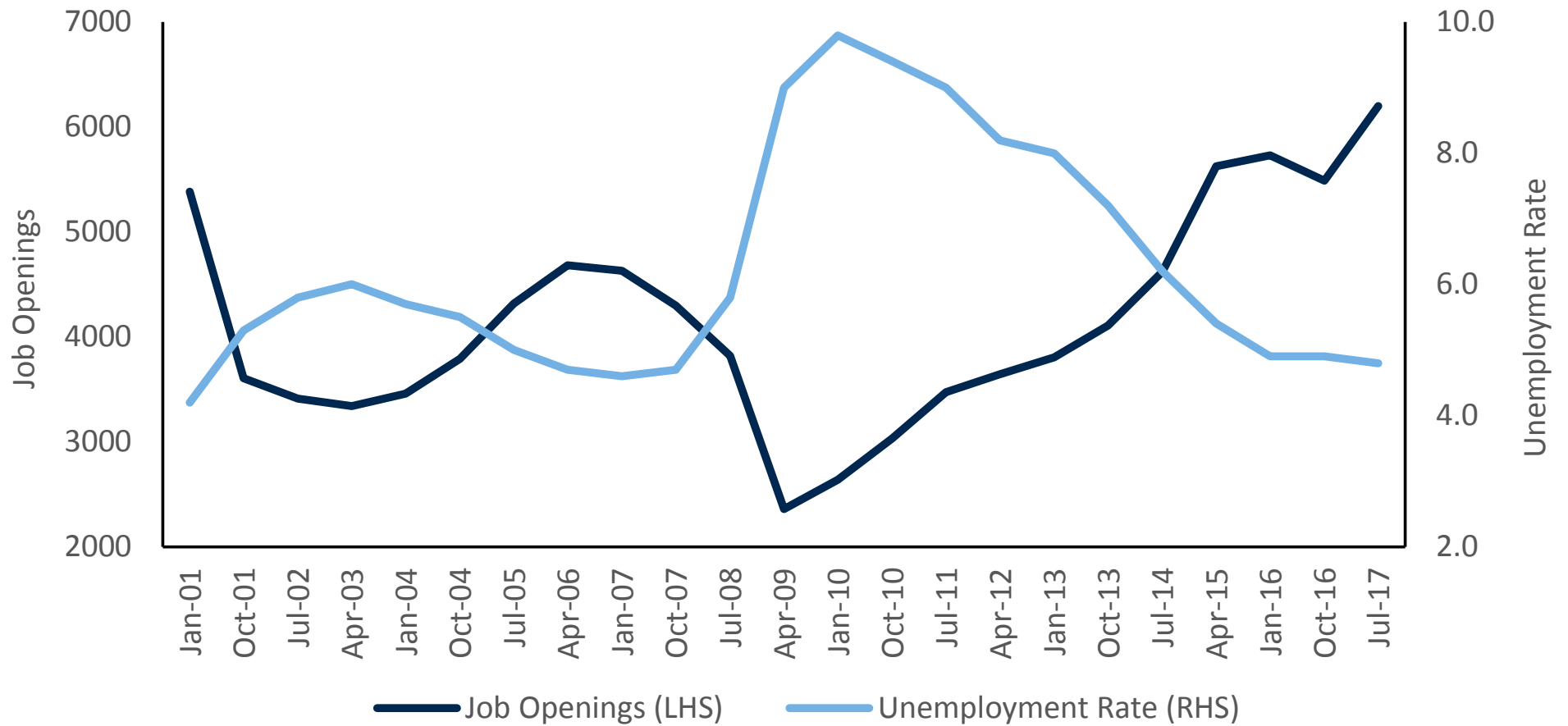
Source: World Economic Forum, World Bank

Global defense spending starting to increase

Global Defense Spending



Job openings vs the unemployment rate



What If...

- What does economic growth mean? It means people need or want things they cannot produce on their own. Enter specialization of labor – I pay you money for your services or wares. **What if** robot servants, in-home 3D printing, backyard farms, and virtual reality vacations negate the need for specialization of labor? Will the global economy collapse as people stop trading with one another? Is this the singularity that awaits us? $GDP = \$0$?
- **What if** the use of alternative energy fuels causes lower oil prices, creating civil unrest in economies that rely primarily on hydrocarbon revenues (Venezuela, Saudi Arabia, Russia, etc)?
- **What if** carbon levels and temperatures continue to accelerate at unprecedented levels that causes a population shift to more northern regions around the globe where infrastructure is not able to handle the move?
- **What if** American cultural hegemony ends and India, China, and other faster-growing nations begin exporting their values and taboos around the world rather than vice-versa?
- **What if** cities hit critical levels of density, will we see a proliferation of urban sprawl? **What if** we begin building our cities down instead of up? What does it mean for our traditional infrastructure needs? What are the implications for the traditional power grid and electric utilities? What does it mean for communications infrastructure? What does it mean for positioning in the machinery / construction industry? Also, who pays for this shift, is it government-subsidized or does the burden fall on private enterprise?

Theme VI: Agility Imperative

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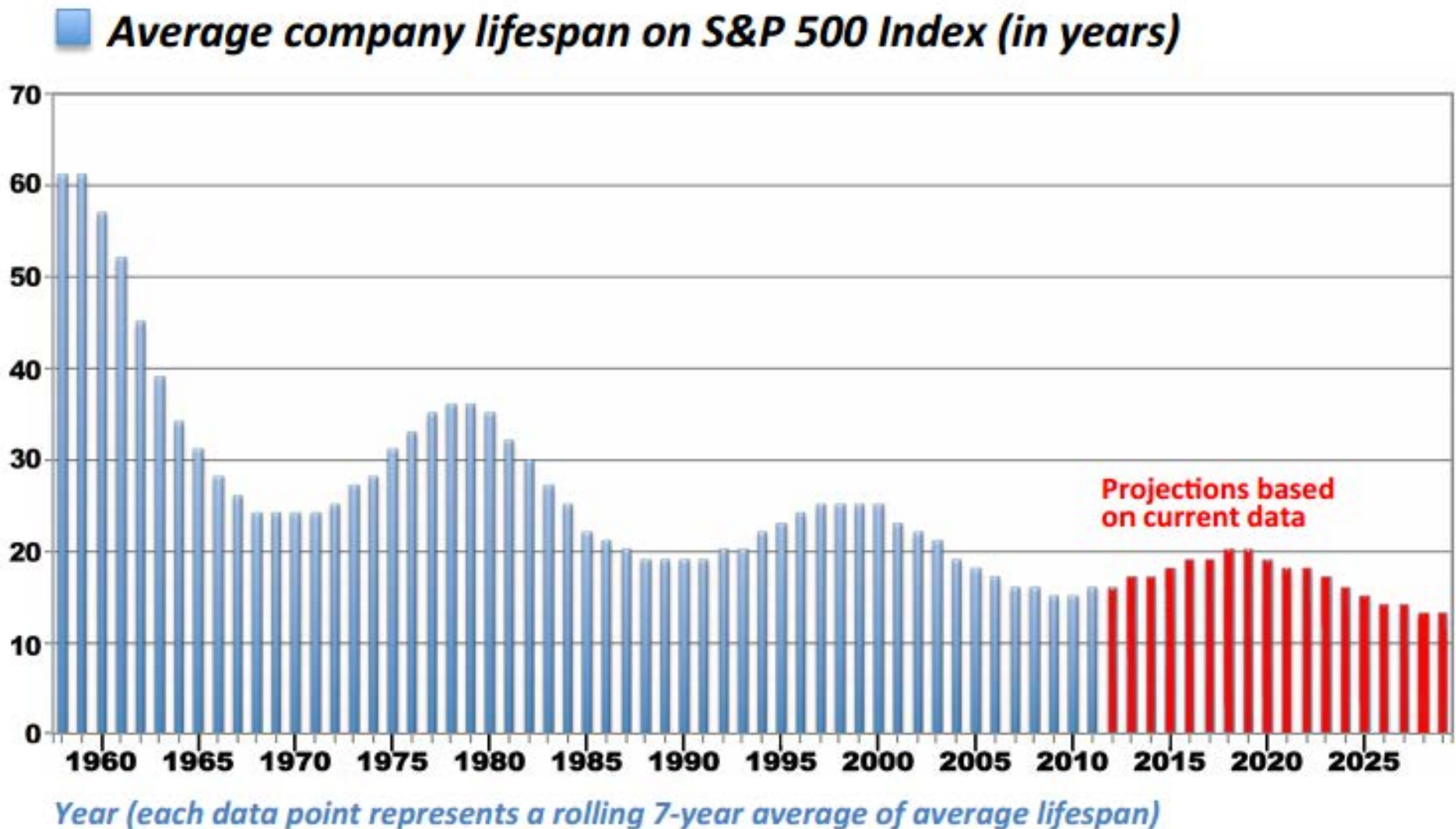


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The Agility Imperative is based on the increasing need for companies to be flexible and able to quickly adapt to the societal change forces. An asset base and existing brand equity will no longer be enough to carry companies through changing times, or to sustain dominance and relevance in a category.

In fact, it may lead to their extinction. Companies will have to change their structures and culture to adapt.

Average lifespan of S&P 500 companies has declined from 61 years in 1955 to 17 years in 2015

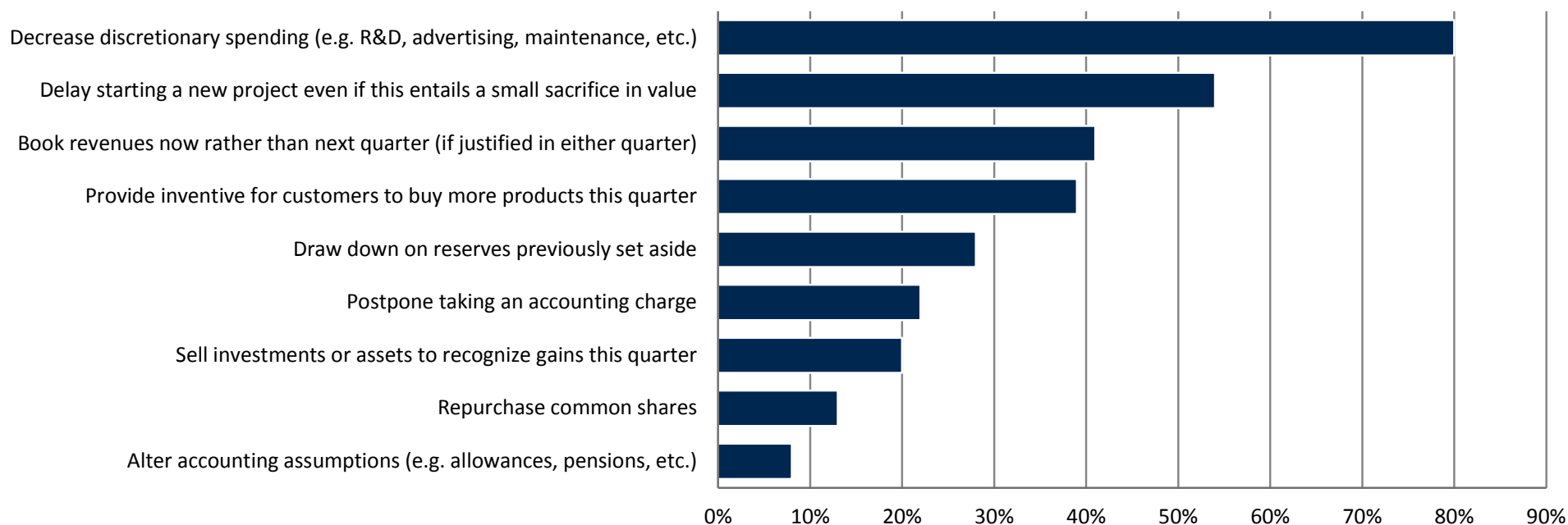


Survey Says...

- According to a KPMG survey of CEOs, almost six out of 10 business leaders are concerned that their organizations do not have the sensory capabilities and innovative processes to respond to rapid disruption.
- According to an Accenture study, 52% of corporate employees surveyed said they had pursued what they thought to be an innovative or entrepreneurial idea but only 20% said they believed that management was supportive of such new ideas.

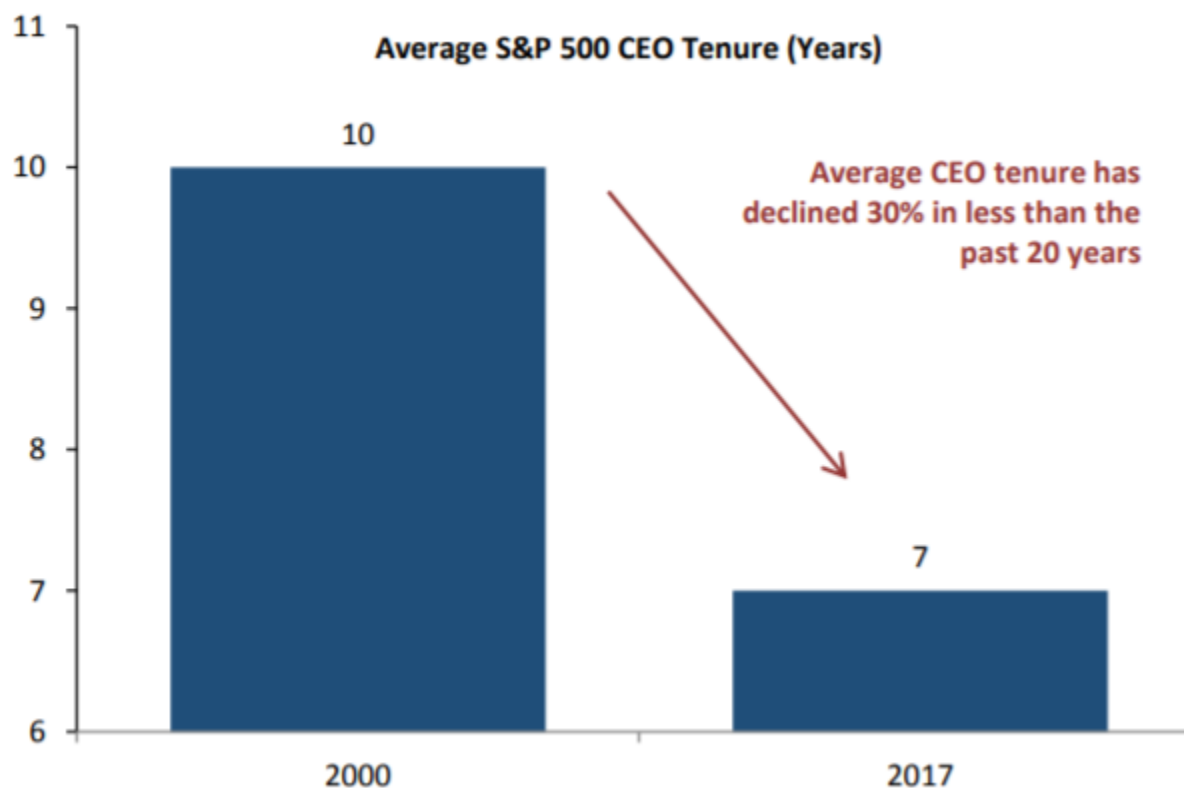
Not investing enough for the long-run. Near the end of the quarter, companies are likely to pull back strategic reinvestments

**Near the end of the quarter, it looks like your company might come in below the desired earnings target.
Within what is permitted by GAAP, which of the following choices might your company make?**



Shorter CEO tenure = kick the can down the road?

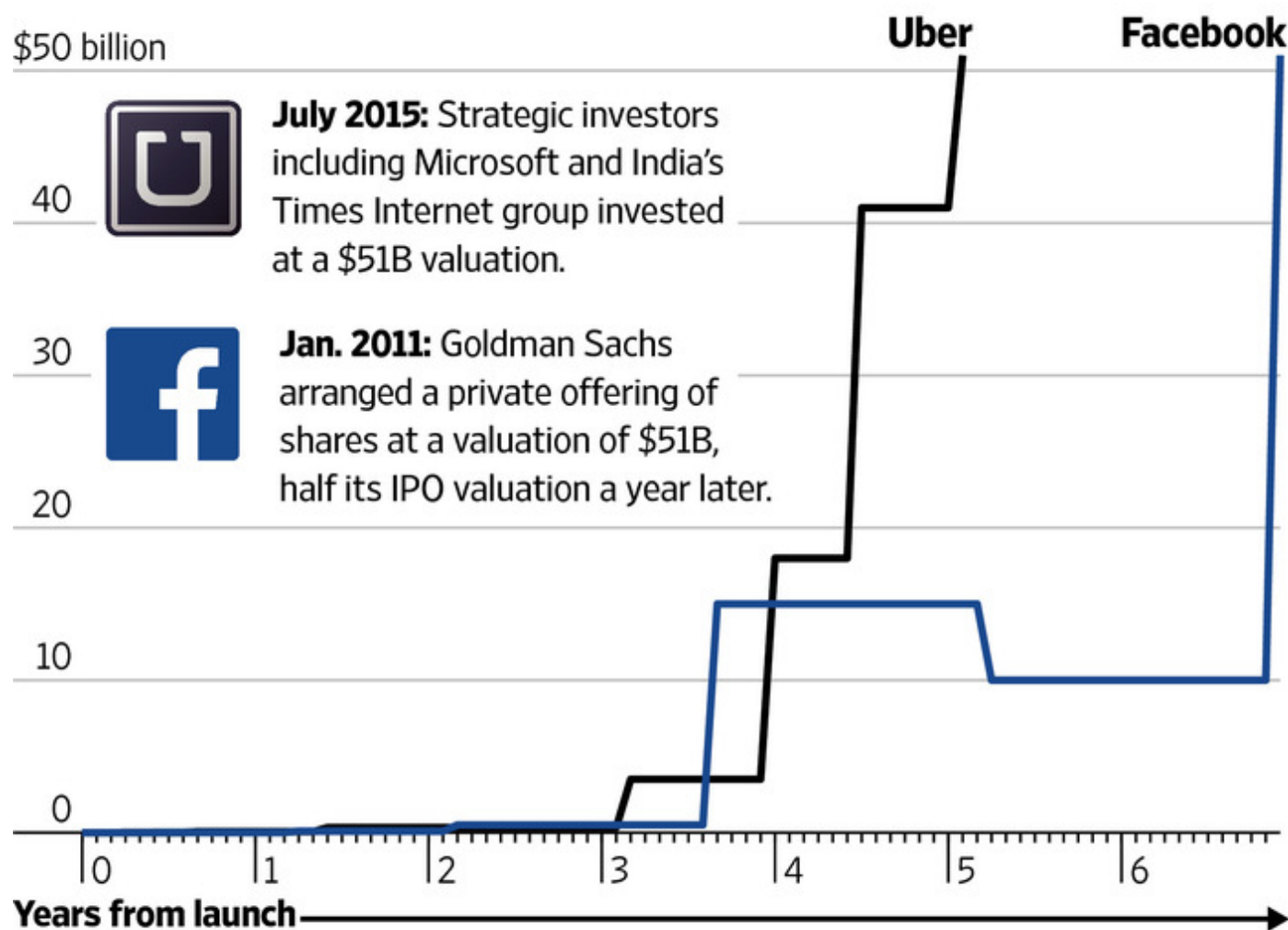
- Increased turnover among CEOs not just in consumer but also across the S&P 500
- Material cost-savings plans to enable earnings delivery but at the expense of competitive advantage periods



Agility Is a Must...Not a Nice to Have

Because network effects and feedback loops are making fewer winners and more losers

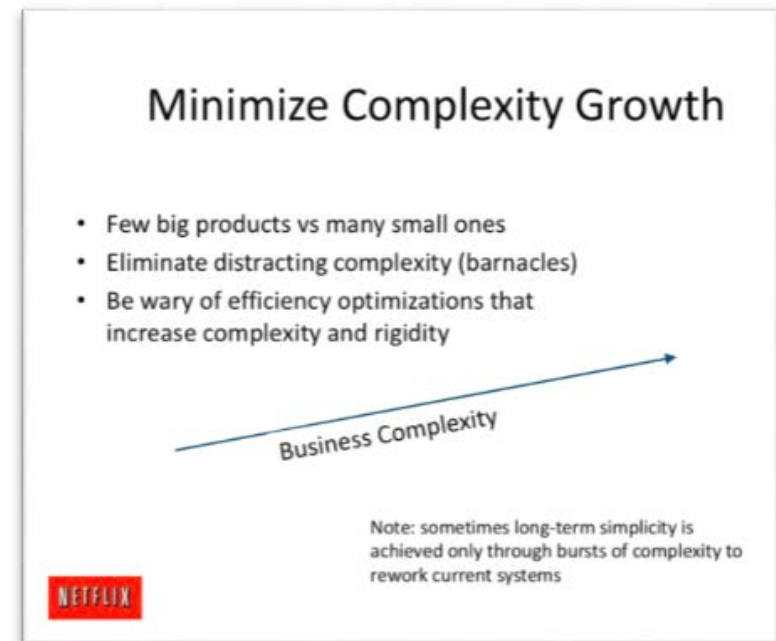
- Businesses and brands that are considered to be the best may enter a flywheel of success too difficult for competitors to dislodge or penetrate.



The Four Agility Mandates

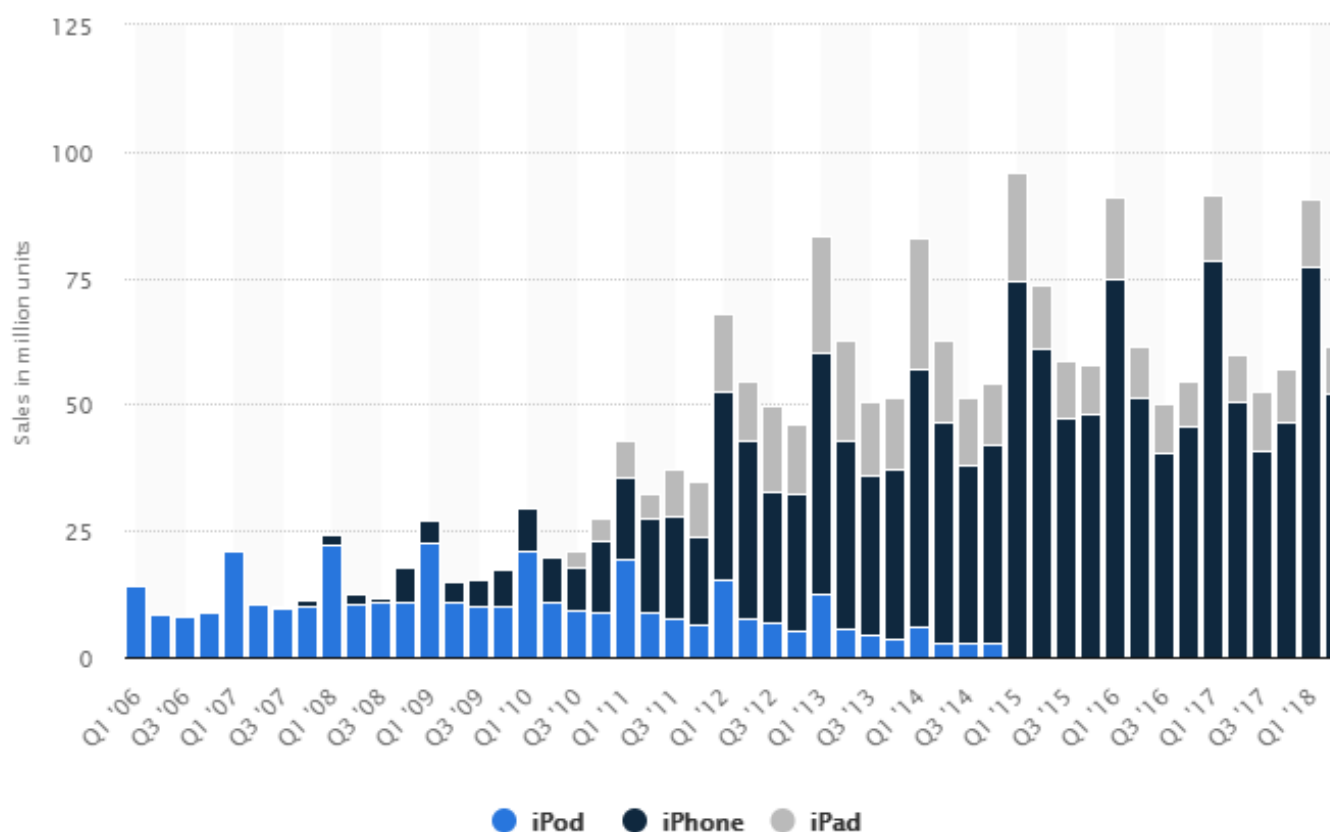
1) Make people believe

- The brain drain towards the best companies is accelerating as the global labor force is increasingly open to all. This underscores the need to create compelling and inspiring cultures and incentives. **Netflix** is refreshingly clear about its mission – to entertain the world – and it pays top dollar to attract only the highest performers.



2) Consider a new business model

- The right business model can create a path to success and also encourage agility. At times, the best future business model may require investment (e.g. a near-term EPS sacrifice) or otherwise seem like a risky bet. **Apple** was not the first to bring digital music players to market when it introduced the iPod in 2003.



Source: Company Filings, Statista, RBC Capital Markets

3) Seek allies

- Food and restaurant companies are in the convenient meals and snacks business – not the medical diagnostics or transportation businesses. But over the next 5-10 years these two sectors may augment eating patterns more than any particular type of food.
- **Campbell Soup** invested in Habit, a company that invites consumers to send blood samples for DNA testing, and ultimately prescribes a custom diet based on the results. Delivery aggregators like **UberEats**, **GrubHub** and **DoorDash** all strive to be the dominant delivery platform, but won't get there without the right foodservice allies.
- Amazon and Whole Foods is another example.

4) Lighten up

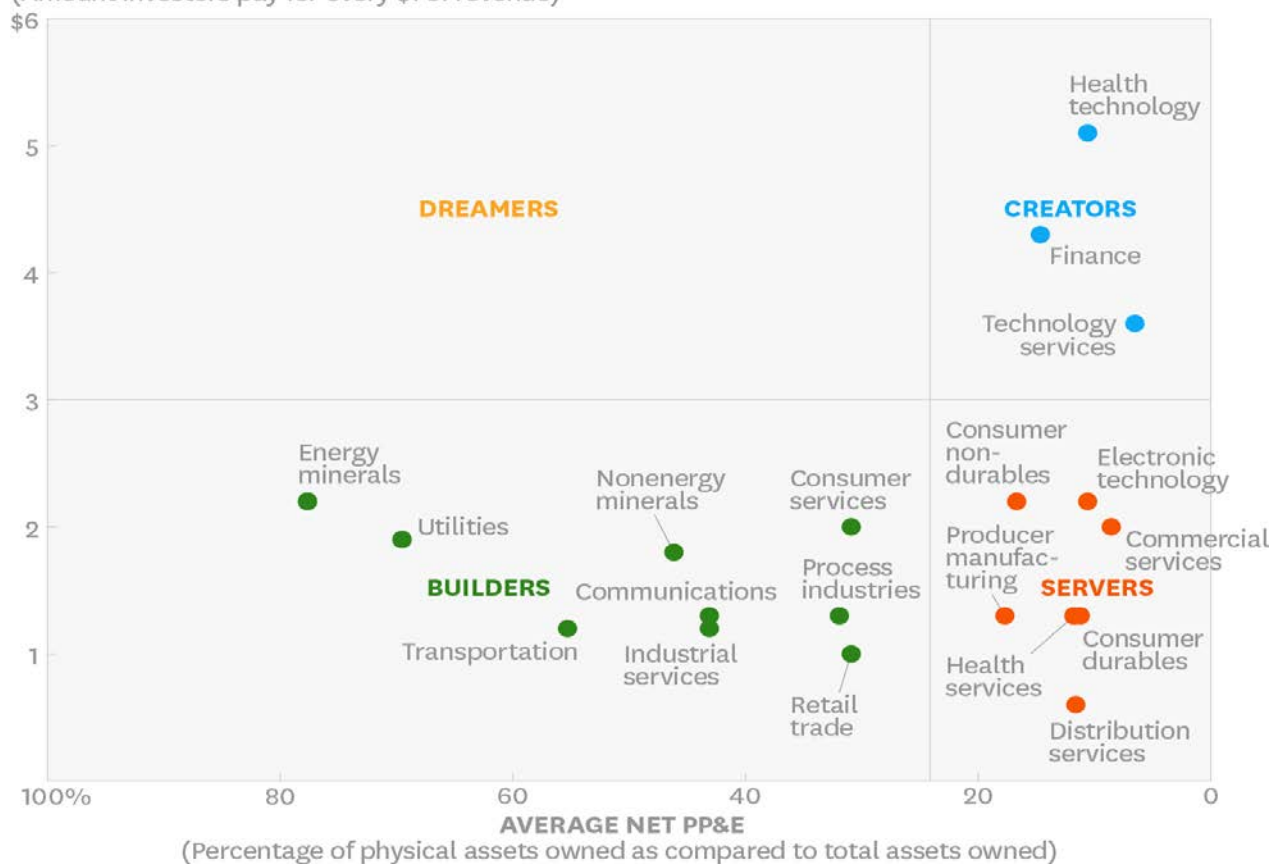
- Ownership of physical assets has become less important and we believe this trend will continue. Asset-lite models thrive in the ever-increasing digital world and the shared and gig economies.

How Investors Value Industries Based on Physical Assets

Companies with fewer physical assets (Net PP&E) are valued more highly.

AVERAGE MULTIPLE

(Amount investors pay for every \$1 of revenue)



Source: Harvard Business Review, based on data from the 2015 S&P1500 Index and FactSet

- **What if** stores merely become distribution centers and all commerce shifts online? What does that mean for promotional activity and marketing? Do promotions which we know as ubiquitous today become more personalized, cross category and moment specific?
- **What if** AI and Blockchain were used to record all real estate transactions where the transactions were conducted under smart contracts? Would the number of real estate attorneys decline? Would there be a need for an escrow agent and what does it mean for the title insurance industry?
- **What if** retail stores or restaurants paid for an autonomous ride to ensure the consumer comes to their establishments. Does this high-ROI spend upend more traditional advertising?
- **What if** having fully-connected manufacturing and infrastructure facilities increases the risk of cybersecurity hacks from competitors or foreign agents? How will companies reallocate capital and business decisions to better prioritize software security?
- **What if** the proliferation of connected devices led to a decentralized ecosystem where all products from any manufacturer could communicate with one another? How would this change the competitive landscape and how would companies differentiate offerings? What is the value proposition for consumers?

In Conclusion:

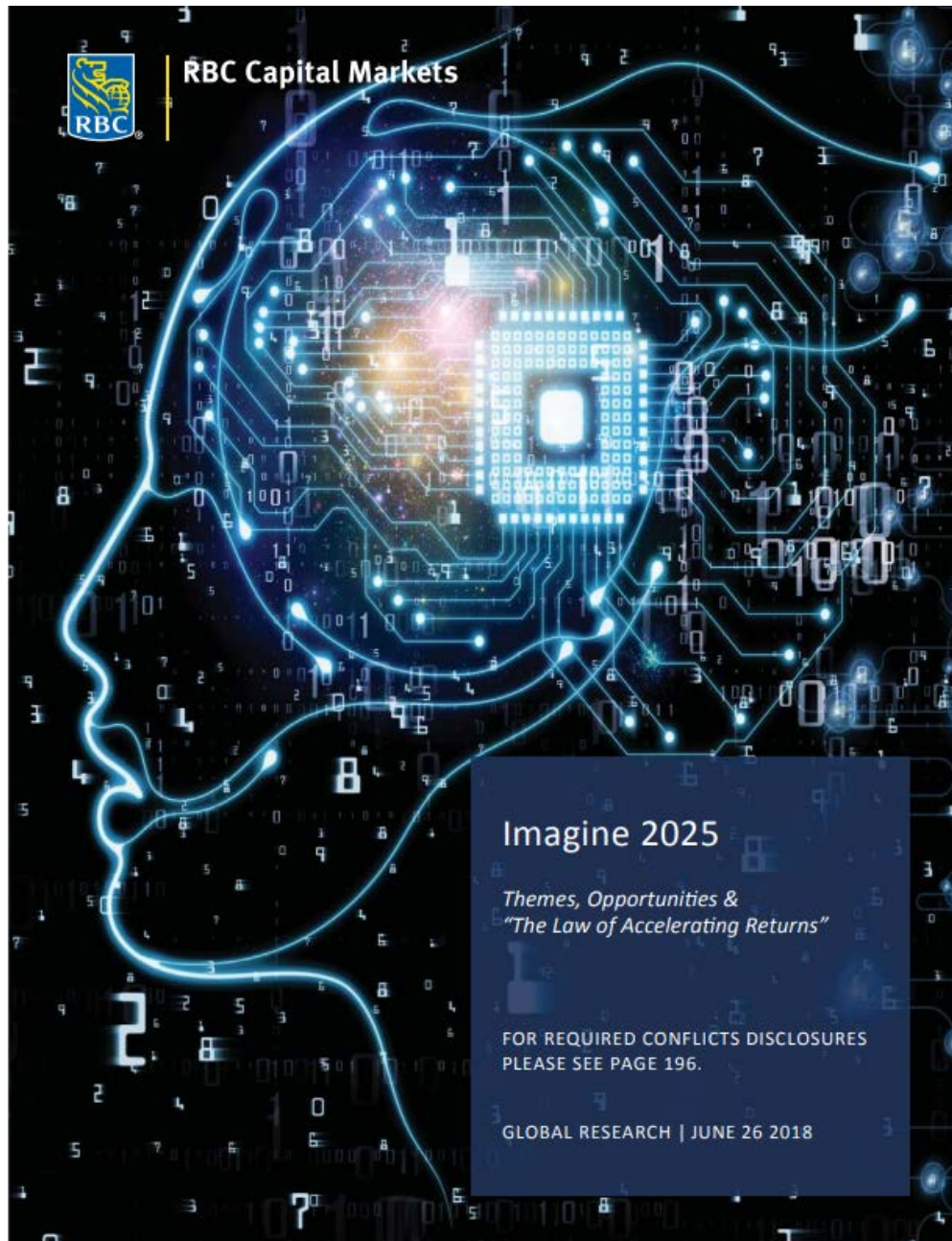
Where we would invest

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- **Industrials:** Albemarle, Aptiv, Canadian National Railway, Cargojet, Deere, First Quantum Minerals, General Motors, Hexagon AB, Magna, Northrop Grumman, Nutrien Ltd, Raytheon, Roper Technologies, SNC-Lavalin Group, Tesla, WSP Global and Xylem.
- **Technology:** Alphabet, Amazon.com, Apple, Facebook, Mastercard, Micron Technology, Microsoft, Netflix, Nextdc Limited, NVIDIA, PayPal, salesforce.com, ServiceNow, Splunk, Synopsys and Visa.
- **Financials:** Americold Realty Trust, Beazley, Brookfield Asset Management, Chubb Limited, ING Groep NV, JPMorgan Chase & Co, Prologis, SVB Financial Group and Toronto-Dominion Bank.
- **Healthcare:** Celgene, CVS Health, Gilead Sciences, Intuitive Surgical, iRhythm Technologies, SAGE Therapeutics and UnitedHealth Group.
- **Telecom and Media:** American Tower, Cellnex Telecom, Digital Realty Trust, GDS Holdings, TELUS, Vodafone Group and Walt Disney.
- **Consumer:** adidas AG, Estee Lauder, Kroger, Loblaw, LVMH, McDonald's, Walmart and Yum! Brands.
- **Energy:** Brookfield Renewable Energy Partners, Halliburton, NextEra Energy, Orsted and Schlumberger.



Appendix I: The Imagine 2025 Portfolio



RBC Capital Markets

The Imagine 2025 Portfolio – USA – Technology

| Analyst | Sector | Company | Ticker | IMAGINE 2025 Portfolio Justification |
|-----------|--|-------------------|--------|--|
| Steves | Communication Equipment & Semiconductors | Synopsys | SNPS | The only player who benefits from AI spending despite the winner. While winners and losers may change in 7 years (difficult to predict) we know that EDA tools are needed to design the products. |
| | | NVIDIA | NVDA | Leader in AI and have not seen a strong competitor despite TPU concerns. Also, tied to secular growth vectors of gaming and auto, believe will be the winner for self driving vehicles |
| Mahaney | Internet | Amazon.com | AMZN | AMZN, along with GOOGL, have invested the most in AI competencies and have the Big Data access and Compute Power infrastructure to benefit the most from AI and ML deployments. AMZN also faces the most large TAMs among the Internet companies -- Retail, Cloud, Advertising, Shipping & Logistics, Business Supplies, etc... |
| | | Alphabet | GOOGL | GOOGL, along with AMZN, has invested the most in AI competencies and has the Big Data access and Compute Power infrastructure to most benefit from AI and ML deployments. GOOGL also benefits from an extremely strong position in its core Advertising market and appears very well positioned against the Cloud and emerging Autonomous Vehicle opportunities. |
| | | Facebook | FB | We believe FB has made substantial progress in their AI and machine learning efforts, as it takes advantage of its scale and resources. The amount of user data FB can leverage -- and we point to its 2B+ users on FB platform alone, gives the company a unique advantage. FB leverages AI/ML in text analysis, ad targeting, demographic categorization, and newsfeed sorting, to name a few. |
| | | Netflix | NFLX | We view NFLX to be on par with most major Internet companies, in terms of its AI/ML development. Given its 120MM subscriber base, NFLX has the data and resources to leverage AI technology. Today NFLX uses AI technology for content promotion and targeting, content price optimization, programmatic marketing, and improving streaming quality, to name a few. One of the company's experiments include creating software-edited trailers that are personalized for each subscriber, increasing the likelihood of those viewers to watch the movie. |
| Daryanani | IT Hardware & Semiconductors | Micron Technology | MU | All roads in IMAGINE 2025 result in data creation. To the extent that transpires we see MU with their DRAM * NAND portfolio as well positioned. |
| | | Apple | AAPL | We see AAPL being well positioned to ramp up with their services offering, seeing a strong hardware cycle via. AR/VR narrative and potential for them to win across multiple themes. |

The Imagine 2025 Portfolio – USA – Technology continued

| Analyst | Sector | Company | Ticker | IMAGINE 2025 Portfolio Justification |
|-----------|------------------------------------|----------------|--------|---|
| Hedberg | Software | ServiceNow | NOW | We think NOW is exposed to large and growing areas of spend in several next-gen areas including automation and machine learning. We also believe a lack of real competition and a highly profitable model sets NOW apart. |
| | | Splunk | SPLK | We think SPLK is well positioned as a hybrid-cloud data management platform that can leverage massive data-sets and harness machine learning trends better than most. Along with growth that can remain at elevated levels, improving margins puts SPLK in a good position in our mind. |
| MacMillan | Software | Microsoft | MSFT | Leading hyperscale hybrid cloud platform with big runway of growth in AI, IoT, Gaming and other services. |
| | | salesforce.com | CRM | Leading provider of CRM software and becoming a platform for development, engagement and extensions into other process automation. |
| Perlin | Payments, Processors & IT Services | Visa | V | Identified and is at the center of, new payment flows that represent more than \$200T in volume, which is 4x the current addressable market. As new markets and technologies such as B2B, IoT, and Push Payments proliferate, all driven by many of the “change forces” facing society and technology, we believe V stand as beacons of “Trust” around the world, which will enable them to capture a disproportionate amount of share in these new payment flows. |
| | | Mastercard | MA | Identified and is at the center of, new payment flows that represent more than \$200T in volume, which is 4x the current addressable market. As new markets and technologies such as B2B, IoT, and Push Payments proliferate, all driven by many of the “change forces” facing society and technology, we believe MA stand as beacons of “Trust” around the world, which will enable them to capture a disproportionate amount of share in these new payment flows. |
| | | PayPal | PYPL | PayPal – Is a champion of democratized finance around the globe, while also capitalizing on the digitization of retail and financial services. PYPL brings scale and a unique two-sided model (relationships with both consumers and merchants), which allows them to control the entire consumer experience. We believe its growing platform of assets will open up the ~2B people around the world who lack financial services. |

The Imagine 2025 Portfolio – USA – Industrials, Energy Services and Utilities

| Analyst | Sector | Company | Ticker | IMAGINE 2025 Portfolio Justification |
|-------------|---------------------------------------|--------------------|--------|--|
| McConnell | Aerospace & Defense | Northrop Grumman | NOC | Northrop Grumman is a leader in the critical defense niches that should become increasingly important in a world focused on Great Power competition as the US seeks to reassert its technological dominance in defense markets after significant advances from near peer adversaries, particularly China. Northrop's capabilities in stealth bombers, intercontinental ballistic missiles, satellites, cyber, and autonomous systems will be of increasing importance in this environment, and it has a sector-best management team to lead it through this period of uncertainty. |
| | | Raytheon | RTN | Raytheon is a leader in international defense markets, with a product set in missiles and missile defense that is increasingly important to customers and potential customers in Asia Pacific, Europe, and the Middle East, in addition to the US. Raytheon has the highest R&D of any of the defense primes, positioning it as a leader in next-generation niches including hypersonic weapons, lasers, and cyber. |
| Spak | Autos | General Motors | GM | GM is an automotive leader in the robo-taxi opportunity. This opportunity allows them to shift from selling units to miles. Selling miles could be a larger TAM with higher profit, and reduced cyclicity. These factors could lead to a re-rating. ☐ |
| | | Tesla | TSLA | A leader in electric vehicles with a strong focus on artificial intelligence. The company also has a growing opportunity in the disruption of the grid with solar plus storage. |
| | | Aptiv | APT | The company has positioned the portfolio to be a key supplier for signal and power architecture need in vehicles of the future, autonomous driving and connectivity. Aptiv is also adopting new business models and is one of the first companies to show real-world monetization of their autonomous vehicle investment. ☐ |
| Viswanathan | Chemicals | Albemarle | ALB | Electric vehicle play. #1 global producer of lithium which will be used heavily in electric vehicle batteries for at least the next decade. |
| Dray | Electrical Equipment & Multi-Industry | Roper Technologies | ROP | Roper is unique to the Multi-Industry space given its focus on asset-light, high free cash flow businesses with recurring revenues, and more than half of its earnings from SaaS. The robust free cash flow and negative working capital provide Roper with plenty of optionality for future investments. |
| | | Xylem | XYL | With one of the highest technology offerings in the water sector, Xylem is favorably positioned to the global megatrend of water quality, scarcity, and safety. In our view, Xylem has the early lead/first-mover advantage in the new market for smart water systems. |
| Weber | Machinery | Deere | DE | We expect the trend toward "smart farming" -- including AI/machine learning -- to accelerate as farmers search for ways to maximize productivity/yield, improve crop quality, and reduce costs/improve machine uptime in the face of relatively low commodity prices and stressed natural resources (land/water). We see Deere as well positioned for this trend. |
| Hallead | Oil Services | Schlumberger | SLB | SLB has the broadest global footprint, technology portfolio and customer base. Its market position enables the company to identify changes in the market and its financial wherewithal enables it to invest in R&D or M&A to capitalize on those changes. |
| | | Halliburton | HAL | HAL has a broad global footprint, technology portfolio and customer base. Its market position enables the company to identify changes in the market and its financial wherewithal enables it to invest in R&D or M&A to capitalize on those changes. |
| Tucker | Utilities | NextEra Energy | NEE | Within our coverage universe, NextEra Energy (NEE) remains the leading clean energy name. NEE is one of the world's largest producers of wind and solar energy, and we see its deregulated segment investing ~\$17-19 billion between 2018 and 2020. We expect NEE to maintain its leadership within the renewables market and to capitalize on the burgeoning battery storage market, which should help further solidify its position as a best-in-class renewables developer. |

The Imagine 2025 Portfolio – USA – Healthcare

| Analyst | Sector | Company | Ticker | IMAGINE 2025 Portfolio Justification |
|----------|--------------------------------------|---------------------|--------|---|
| Abrahams | Biotechnology | Gilead Sciences | GILD | Three facets of GILD's pipeline lead us to view them as a leader among biotech companies through 2025: 1) GILD's HIV drugs should continue to address a high unmet need, especially considering their therapies provide safe and effective long-term disease control; 2) the company is a pioneer in up-and-coming cell therapy innovation, which should lead to long-term pipeline diversification; and 3) the company's increasing focus on AI partnerships with technology companies should enable margin expansion, increased R&D productivity, and differentiation in an increasingly competitive drug development space. |
| | | Celgene | CELG | CELG's oncology pipeline should continue to grow as cancer becomes more prevalent among an aging population. Additionally, the company's leading position on the forefront of novel cell therapy techniques, epigenetics, immune therapies, and targeted biology puts them in a strong position to develop a large next-generation oncology franchise in the future. And finally, the company's partnership-based strategy to drug development should allow them to aggressively pursue AI-based drug discovery strategies that will be necessary to stay competitive. |
| | | SAGE Therapeutics | SAGE | SAGE's innovative approach to neurological disease has the potential to position them as a prolific leader in the space. Their lead drug, SAGE-217, could ultimately revolutionize the treatment paradigm for depression and form the core backbone of a neurology franchise long-term in numerous psychiatric indications. Additionally, their growing neurology pipeline targeting age-related diseases could yield additional transformative therapies in diseases like Parkinson's and Alzheimer's. |
| Morgan | Healthcare Services and Managed Care | UnitedHealth Group | UNH | UNH is a change agent built to lower the cost of healthcare delivery in the U.S, with the national scale, diversification, and strong cash flows to help navigate through unpredictable changes. Through the Optum segment, the company has deep analytical capabilities and resources that we believe will give it a seat at the table to shape the direction of future reimbursement models. In addition, ongoing investments in technology and analytic capabilities using the benefits from Tax Reform should help cement UNH's leadership position. |
| Hill | Healthcare Technology & Distribution | CVS Health | CVS | We continue to believe that CVS is the best positioned name in our coverage universe to capitalize on the trend towards vertically-integrated, consumer-directed value-based care. We find the current valuation of CVS shares compelling given what should be a multi-year, double-digit EPS growth profile. |
| Novarro | MedTech | iRythm Technologies | IRTC | We believe IRTC is well positioned with its superior monitoring technology. The company's Zio AT is a real-time, wearable monitoring device that connects via Bluetooth and a wireless hub to collect heart rhythm data to send to a physician. Also, IRTC's cloud-based machine-learning algorithms can transpose 40,000-50,000 pages of electrocardiogram data into a digestible 10-15 page report for the physician to make actionable recommendations. These reports allow a physician to better treat cardiovascular disease. |
| | | Intuitive Surgical | ISRG | ISRG is the leader in the robotic surgical market with its da Vinci robot. ISRG continues to invest in advancing new robotic systems and instrument technologies to fuel adoption of minimally invasive surgeries, which currently represent less than 40 percent of total worldwide surgical procedures. We expect future product/software development for ISRG to focus on using augmented reality, fluorescent chemicals, intelligent instrumentation, big data, and AI to aid surgeons in the OR. Additionally, we expect ISRG to continue development of its flexible catheter platform to better diagnose and treat lung cancer and other types of cancers. |

Source: RBC Capital Markets

The Imagine 2025 Portfolio – USA – Consumer, Media and Telecom

| Analyst | Sector | Company | Ticker | IMAGINE 2025 Portfolio Justification |
|------------|---|----------------------|--------|---|
| Kirk | Food Retail | Kroger | KR | Kroger is far ahead in the consumer analytics, which began with its dunnhumby JV 15 years ago. Today, it has a very rich and powerful customer data base that drives marketing spend efficiency. Retailers have an emerging advantage over CPG counterparts due to more robust data on personalized consumption. Kroger is best positioned to become a preferred partner of CPG's, which results in sourcing concession or greater relative promotional dollars. |
| Ciccarelli | Hardlines/Broadlines Retail | Walmart | WMT | Walmart has continued to transform its business to better compete with Amazon, including accelerating their own e-commerce efforts and adding services and technology to improve customer service. |
| Modi | HPC, Beverages and Tobacco | Estee Lauder | EL | Going forward, we believe Estee Lauder can sustain above average growth for the following reasons: 1) the company is positively levered to key change forces such as "the rise of women", "a changing population (e.g. aging), "urbanization" and "virtual reality", 2) the company is on the cutting edge of leveraging big data for consumer insights to provide locally relevant product choices/assortment, 3) we see ample opportunity for the company to leverage technology (especially virtual reality), and global connectivity (social media presents a big opportunity) making for a sustainable long-term growth opportunity and 4) eCommerce represents over 20% of the company's profitability, which is significantly higher than most consumer staples companies. |
| Cahall | Media | Walt Disney | DIS | We believe Disney has world-class content with brands that are uniquely deep and global. It uses multiple assets for monetization including films, TV content, toys and vacations. As content evolves DIS will survive and thrive through a focus on storytelling and multi-asset engagement. |
| Palmer | Restaurants and Packaged Food | Yum! Brands | YUM | Yum Brands has been proactive in creating the business structure and alliances that are allowing it to focus on global growth along with the conveniences that consumers are growing to expect. More specifically, Yum Brands set itself up for success when it sold many company restaurants (including the spin-off and licensing of Yum China), began global brand reporting (better for visibility and accountability) and formed a strategic alliance with GrubHub (to extend its delivery capabilities to Taco Bell and KFC US). These changes has helped Yum Brands become a better brand manager by allowing franchisees/licensees to focus on operations. In addition, Yum Brands seems poised for accelerating global unit growth, which may be the major area of improvement for Yum Brands through 2025. We estimate Yum Brands can deliver mid-teens annual total return, long-term. |
| | | McDonald's | MCD | McDonald's is undergoing far-reaching steps to position itself for a new generation of shopping patterns and eating values. These steps include asset upgrades, core food improvements, and technology investments (to enable digital ordering, delivery and personalize marketing). These steps position McDonald's to maintain dietary relevance with American families while maintaining convenience advantages as delivery slowly eclipses the drive-thru as the most convenient restaurant format. In addition, the company has refranchised restaurants to become more asset light, pushed more restaurants into the best franchisee operator hands, and is in the process of streamlining its corporate reporting structure to move more quickly. We estimate that McDonald's can deliver roughly 11%-13% annual total return long-term. |
| Atkin | Telecommunications Services & Communications Infrastructure | GDS Holdings | GDS | The company should benefit from increasing cloud adoption in China and faces comparatively less competition than datacenter operators in other regions. We believe it will see stronger demand and less competitive supply than non-China peers. |
| | | American Tower | AMT | The company should benefit from steadily increasing network deployment activity in each of its major regions (U.S., Latin American, EMEA, and Asia) vs. current levels as mobile operators spend to improve coverage and capacity. |
| | | Digital Realty Trust | DLR | We expect the company to benefit from increasing levels of cloud adoption and enterprise IT outsourcing in each of its major regions (U.S., Europe, and AsiaPac) while deploying capital in a disciplined manner. |

Source: RBC Capital Markets

The Imagine 2025 Portfolio – USA - Financials

| Analyst | Sector | Company | Ticker | IMAGINE 2025 Portfolio Justification |
|----------|--|------------------------|--------|--|
| Cassidy | Banks | JPMorgan Chase & Co | JPM | JPM is the premier global bank that is a market share leader in nearly all of its businesses. Its Universal Bank model gives it unprecedented diversify of revenue which will lead to stable revenue and earnings growth through an economic cycle. |
| Arfstrom | Financials - SMID Cap Regional Banks | SVB Financial Group | SIVB | SIVB has remained ahead of the curve in terms of new product offerings and willingness to invest in its businesses and new initiatives. Furthermore, given the target client base and geographic footprint, it has a front row seat to the innovations occurring in Silicon Valley which allow it to be more nimble and responsive in adapting its business model and products for changing times. |
| Dwelle | Insurance | Chubb Limited | CB | A leader in data and analytics and a track record of using these tools to support industry leading margins. Actively invests in new technologies to enhance and defend their leadership. |
| Carroll | REITs | Prologis | PLD | PLD is the largest and one of the most sophisticated companies in the industrial real estate sector. We believe this space will continue to benefit from the on-going growth in e-commerce sales. |
| | | Americold Realty Trust | COLD | COLD is the largest owner of temperature-controlled warehouses. We believe this space offers attractive organic growth and consolidation opportunities for sophisticated players. |

The Imagine 2025 Portfolio – Canada – Industrials, Autos, Transportation and Mining

| Analyst | Sector | Company | Ticker | IMAGINE 2025 Portfolio Justification |
|------------|----------------------------------|---------------------------|--------|---|
| Arthur | Auto & Diversified Industrials | Magna | MGA | Magna is investing heavily and partnering to deliver technologies for 'the car of the future' - electrification, autonomous driving, lightweighting, efficient, etc. While doing so, the business continues to grow globally with improving margins, generating strong cashflow (over \$6B in FCF expected 2018-20E). Valuation is attractive at ~5.5x 2018E EV/EBITDA. |
| Wong | Fertilizer, Mining and Materials | Nutrien Ltd | NTR | Company is well-positioned as a global and vertically integrated ag retail, distributor, and fertilizer producer that has invested significantly into precision agriculture platform and proprietary crop chemicals. As environmental impacts become a greater focus, Nutrien's Retail business can work with farmers to help navigate increasingly complex regulations. Management has also started to turn focus towards Brazil, which we view as a significant growth area for agriculture over next 10 years. |
| Spronck | Industrials Products | WSP Global | WSP CN | Engineering firm with a focus on designing for the future. Expertise in skyscraper design, rail transit, aviation and modern infrastructure, is well positioned to capture end-market demand from global population growth and urbanization trends. Additionally, we expect WSP to continue to participate in the consolidation trends we see developing over the next decade. |
| | | SNC-Lavalin Group | SNC CN | SNC-Lavalin has design-to-build capabilities in clean power, rail transit, nuclear, and renewable energy – segments we see strong long-term growth trends. Additionally, SNC-Lavalin is able to participate in the ownership of assets as more governments globally employ private-public partnerships (PPP) to help finance large infrastructure projects. |
| Crittenden | Mining | First Quantum Minerals | FM CN | First Quantum is transforming into one of the world's largest copper producers and could become a takeover candidate as the copper market moves into a structure deficit in 2020-2025. |
| Spracklin | Transportation and Industrials | Cargojet | CJT CN | Tangible growth opportunities: CJT is seeing demand growth in virtually all of its areas, including B2B and ecommerce driven B2C. Strong market position: CJT is uniquely positioned in the time-sensitive overnight cargo segment, with ~95% market share and ~75% contracted volumes. Set-up for operating leverage: With reduced headcount and optimized fleet, daytime revenue would come on with incremental expenses and wider margins. |
| | | Canadian National Railway | CNR CN | Our constructive outlook on CNR sector is based on the following strengths: (1) unparalleled three coast network with access to key volume gateways (Prince Rupert, Gulf Coast); (2) long-term pricing growth; (3) best-in-class service and operations (4) commitment to implementing technology (automation, data analytics). |

The Imagine 2025 Portfolio – Canada – Banks, Consumer, Energy, Real Estate and Telecom

| Analyst | Sector | Company | Ticker | IMAGINE 2025 Portfolio Justification |
|------------|--|-------------------------------|--------|---|
| Mihelic | Banks & Lifecos | Toronto-Dominion Bank | TD.TO | TD has a large North American footprint with a relatively large technology budget - scale being an operative word to describe TD's technology position. They have a strong presence in AI and seem more committed to technology advancement than other banks. |
| Nattel | Large Cap Consumer Staples and Discretionary | Loblaw Companies | L.TO | Loblaw leads the Canadian retail landscape in terms of both loyalty and eCommerce and is hyper-focused on driving both improving profitability and rising returns on capital/FCF conversion, key drivers of valuation. Loblaw already enjoys the leading market position in food and drug retail, the deepest loyalty program in Canada and by year-end, coast-to-coast eCommerce capabilities across channels. Additionally, Loblaw's leadership team is actively planning for digitalization of health care in Canada with a view to combining the various assets to take the leadership position in the new market reality. In our view as Loblaw pulls away from the competitive set in terms of offering/how the Company goes to market, investors will increasingly differentiate between Loblaw and the competitive set. |
| Ng | Contracted IPPs | Brookfield Renewable Partners | BEP | With the significant decline in renewable energy costs, we see renewable development opportunities in new geographies. Brookfield Renewable owns and operates a renewable energy portfolio that is mostly hydro-weighted (the most attractive form of renewable energy in our view), and has an global operating footprint (e.g., Canada, the U.S., Brazil, Colombia, Western Europe, China, and India). We expect the company will continue to accretively grow its global portfolio via M&A and organic project developments. |
| Downey | Real estate | Brookfield Asset Management | BAM | We expect the growth in unlisted assets to continue to outpace growth in listed investments. In its capacity as an alternative asset manager, BAM appears to be gaining share within a growing industry. Over and above the growth in fee bearing capital and fee related earnings, we expect BAM to earn (and compound) a solid return on the capital that is has invested on its own account in global property, renewable power, infrastructure and private equity. |
| McReynolds | Telecom and Media | TELUS | T.TO | Highest growth and capital returns in Canadian telecom and media. Best exposure to big trends: (1) wireless/Internet/VR-driven data growth (2) 5G-driven IoT (3) future industry consolidation. |

The Imagine 2025 Portfolio – UK, Europe and Australia – All Industries

| Analyst | Sector | Company | Ticker | IMAGINE 2025 Portfolio Justification |
|-----------|-------------------------|-----------------------------------|----------------|---|
| Reingen | Banks | ING Groep NV | INGA NA | At the forefront of investing into the digital universal banking model across different products and leveraging the offering over different regions and business segments. |
| Dadhanian | Premium Consumer Brands | adidas AG | ADS | Sporting goods is a secular growth category supported by structural (increasing sports participation and health education) and cyclical (casualization trends, Athleisure) drivers. Concentrated market share and high barriers to entry in footwear support incumbents, allowing for further marketing spend and reinvestment into innovation. Finally, business models are evolving from legacy wholesale to increasingly direct-to-consumer led by proliferation of omni-channel routes to market, allowing brand owners to capture greater share of value chain profitability over the mid-long term. |
| Dann | Telecom | Cellnex Telecom Vodafone Group | CLNX VOD LN | Communications infrastructure as a neutral host should see rising adoption and pricing power. Diversified large cap with market leading IoT platform. |
| Musk | Utilities | Orsted | ORSTED | Ørsted, in our view, is the clear leader in the growing offshore wind industry. We see Ørsted as having a clear trajectory to move net capacity under ownership from 2.4GW at year-end 2017 to 8.8GW by 2025, and this is broadly consistent with the company's plans to develop gross capacity of 11-12GW by 2025. This capacity growth helps to deliver EBITDA CAGR for operational Wind Power of ~17% over 2017A-23E. |
| Hossain | Insurance | Beazley | BEZ:LN | Beazley has the highest exposure in percentage terms to the fast growing cyber insurance market. |
| Fujimori | Luxury Goods | LVMH | MC.PA | LVMH has leading market position across all product luxury categories, best in class management and is investing to become the biggest sector winner in digital by 2025. Most balanced and diversified portfolio in the luxury sector with unique marketing investment firepower. |
| Rizvi | Industrial Goods | Hexagon AB | HEXA.B | HEXAB has long been among the leaders in preparing for Industry 4.0 within the industrial space in our view. The group's core offerings of sensors and software are well aligned to the 'Internet of Things'. The recent introduction of its Smart Convergence Platform which brings edge intelligence across its hardware portfolio is an example of this. |
| Mason | Australian Technology | Nextdc Limited | NXT | Strong exposure to hyper-scale cloud adoption Technology leader globally Long term land scarcity in key markets. |

Appendix II: Change Forces Tensions



RBC Capital Markets

| ← SOCIAL CHANGE FORCE TENSIONS → | | |
|--|--|--|
| Change Force | Opportunities | Challenges |
| A Changing Population | People will live longer, healthier lives. | Rapid population growth in developing countries creates pressure on resources. |
| Urbanization | Urbanization drives tech and social innovation, changing, cities into hyper-connected metropolitan centers. | Urbanization drives higher real estate prices, job competition, and pollution. Those in lowest income brackets increasingly marginalized. |
| Fluid Generation | Younger populations are more racially diverse, and more open- and globally-minded. | Younger generations demand values-driven business structures. |
| Rise of Women | Women will continue to enter and rise higher in the workforce, fueling economic growth. | Failures to change legacy workplace, social, and cultural barriers will hinder growth and ability to retain talent. |
| Changing Definition of Work & Working | The balance of power shifts from stability of employers to the unique skillsets and demands of the workforce | A shift in norms, will require changes in corporate culture that current management may be uncomfortable with, leading to recruiting and retention issues. |

| ← POLITICAL CHANGE FORCE TENSIONS → | | |
|-------------------------------------|--|--|
| Change Force | Opportunities | Challenges |
| Geopolitical Uncertainty | Governments lead with international collaboration to solve cross-border challenges, effectively bridge gaps and promote unity. | Fear and skepticism rise, increasing nationalist sentiments and further dividing nations. |
| Climate Change Policy | Nations enforce strict regulation and businesses innovate to find new, more efficient solutions. | Nations limit climate change regulation to reduce costs for its consumers and protect domestic industries. |
| Private Enterprising | Space innovation will be iterative with the presence of competition via private companies, leading to quick improvements and less time between trips and milestones. | Privatization will result in deregulation of the industry, allowing conflicting agendas to arise as programs are created to either explore or exploit space. |

Technological Change Forces Tensions

| ← TECHNOLOGICAL CHANGE FORCE TENSIONS → | | |
|---|---|---|
| Change Force | Opportunities | Challenges |
| Big Data Gets Bigger, Faster | Big data helps personalize life, creating customized, tailored experiences, saving time and increasing efficiency. | If left unchecked, or in the wrong hands, we risk losing control of personal privacy and human empathy in the world's most important decisions. |
| AI & Cognitive Computing | Robotics become integrated into everyday life, improving collaboration and skillsets while minimizing the rate of human error. | Cognitive robotics outpace the need for human assistance and make human contributions obsolete. |
| Autonomous Cars | Automated transportation lowers costs overall, reduces accidents, and economizes the roads for everyone. | Car hacking becomes a real-life threat, and the world becomes reliant on a small number of companies to travel even short distances affordably. |
| Bioengineering | Widespread CRISPR applications in agriculture hold promise to improve yields and superior attributes. | Ethics of bioengineering will be questioned and challenged morally and legally. |
| Digital Engagement & Attention Economy | The online experience becomes more personalized as advertisers and other companies demand our attention. | The growing presence of second and third screens captivate attention more than the real world. |
| The New Reality | VR could revolutionize the way we learn, work, and spend our time with new potential to see the world (and beyond) without leaving the home. | With VR eliminating the need to travel, relationships with immediate family members, friends and colleagues risk becoming less personal leading to potential breakdowns in trust. |
| Cyber Security | Companies and online platforms will step up security measures, allowing customer data to flow freely between users, improving online experiences. | Continual high-tech hacking and security breaches, leave millions vulnerable and distrustful. |
| Food & Agriculture Technology | Food production costs will decline dramatically as crop yields improve and technology becomes more efficient. | Bioengineered lab meat alternatives are deemed inferior to natural production. |

Source: RBC Capital Markets, Sterling Rice Group

| ← ECONOMIC CHANGE FORCE TENSIONS → | | |
|------------------------------------|--|--|
| Change Force | Opportunities | Challenges |
| Expanding E-Commerce | Consumers begin to satisfy all their retail shopping needs online and continue to marginalize excess retail space. | Online-only retailers acquire brick-and-mortar stores to augment brand experience. |
| Automation in the Workforce | Automation performs mundane tasks, freeing time to think creatively and solve problems computers cannot. | Massive job loss leads to increased unemployment and existential challenges for individuals and governments. |
| Protectionism Prevails | Governments and trade organizations work together to promote business and development. | Global commerce becomes restricted by protectionist policies and trade agreements begin to fail. |

Environmental Change Force Tensions

| ← ENVIRONMENTAL CHANGE FORCE TENSIONS → | | |
|---|---|--|
| Change Force | Opportunities | Challenges |
| New Resource Shortages | New innovations in desalination and vertical farming alleviate the increasing demand for natural resources. | Shortages in water cause it to become the new oil, starting a new arena of hydro-politics. |
| Energy Source Uncertainty | Advancements in renewable energies make them more efficient and affordable, sparking a new growth boom. | Economies stall as oil revenue decreases. |
| Climate Change | Mitigation and adaptation reduce the flow of heat-trapped greenhouse gases and adapting to life in changing climate while innovation and regulation find new solutions. | Severe weather events devastate and overwhelm societies unprepared and unable to prepare for them. |
| Evolution in Pollution | Innovation and new technologies drive efforts to clean up the ocean and improve conservation of resources. | Toxic zones develop around the world, widening the gap between haves and have-nots. |

Source: RBC Capital Markets, Sterling Rice Group

Appendix III: Future Themes



RBC Capital Markets

Future Themes One-Liners

- 1) **The Calibrated and Augmented Self** - The technology enabled convergence of mass personalization, greater convenience and enhanced performance will drive human life optimization...
- 2) **The Artificial Intelligence Race** - Machine learning (training algorithms on input data) and deep learning (using neural networks) that can replicate and eventually surpass human cognition...
- 3) **Collective Action** - Increased collaboration between historical adversaries could increase, as incumbents seek to partner for survival via self-cannibalization and disruptors seek change at scale...
- 4) **Escalating Uncertainties** - Heightening uncertainty and driving the list of threats and challenges posed to the world's nations, institutions, and corporations...
- 5) **Agility Imperative** - The increasing need for companies to be flexible and able to quickly adapt to the societal change forces...
- 6) **In Cloud We Trust** - The adoption and utilization of cloud technology is rapidly changing the landscape of corporate IT as well as corporate competition across industries...

Companies mentioned

adidas AG (XETRA: ADS GR; €186.20; Outperform)
Albemarle Corporation (NYSE: ALB US; \$91.96; Outperform)
Alphabet Inc. (NASDAQ: GOOGL US; \$1,139.28; Outperform)
Amazon.com, Inc. (NASDAQ: AMZN US; \$1,663.15; Outperform)
American Tower Corporation (NYSE: AMT US; \$142.15; Outperform)
Americold Realty Trust (NYSE: COLD US; \$22.54; Outperform)
Apple Inc. (NASDAQ: AAPL US; \$182.17; Outperform)
Aptiv PLC (NYSE: APTV US; \$95.12; Outperform)
Beazley PLC (LSE: BEZ LN; GBp582.50; Outperform)
Brookfield Asset Management Inc. (NYSE: BAM; \$39.90; Outperform)
Brookfield Renewable Partners L.P. (NYSE: BEP US; \$30.00; Sector Perform)
Canadian National Railway Company (TSX: CNR CN; C\$105.26; Outperform)
Cargojet Inc. (TSX: CJT CN; C\$64.30; Outperform)
Celgene Corporation (NASDAQ: CELG US; \$78.53; Outperform)
Cellnex Telecom, S.A. (SIBE: CLNX SM; €22.27; Outperform)
Chubb Limited (NYSE: CB US; \$125.11; Outperform)
CVS Health Corporation (NYSE: CVS US; \$71.43; Outperform)
Deere & Company (NYSE: DE US; \$139.65; Outperform)
Digital Realty Trust, Inc. (NYSE: DLR US; \$108.05; Outperform)
Facebook, Inc. (NASDAQ: FB US; \$196.35; Outperform)
First Quantum Minerals Ltd. (TSX: FM CN; C\$19.40; Outperform)
GDS Holdings Limited (NASDAQ: GDS US; \$40.34; Outperform)
General Motors Company (NYSE: GM US; \$40.61; Outperform)
Gilead Sciences, Inc. (NASDAQ: GILD US; \$71.14; Outperform)
Halliburton Company (NYSE: HAL; \$45.24; Outperform)
Hexagon AB (OMX: HEXAB SS; SEK501.00; Outperform)
ING Groep N.V. (NXT AM: INGA NA; €12.49; Outperform)
Intuitive Surgical, Inc. (NASDAQ: ISRG US; \$473.48; Sector Perform)
iRhythm Technologies, Inc. (NASDAQ: IRTC US; \$76.61; Outperform)
JPMorgan Chase & Co. (NYSE: JPM US; \$104.79; Outperform)
Loblaw Companies Limited (TSX: L CN; C\$67.43; Outperform)
LVMH Moët Hennessy Louis Vuitton SE (NXT PA: MC FP; €278.90; Outperform)
Magna International Inc. (NYSE: MGA US; \$61.24; Outperform)
MasterCard Incorporated (NYSE: MA US; \$194.98; Outperform)
McDonald's Corporation (NYSE: MCD US; \$159.81; Outperform)
Micron Technology, Inc. (NASDAQ: MU US; \$53.16; Outperform)
Microsoft Corporation (NASDAQ: MSFT US; \$98.39; Outperform)
Netflix, Inc. (NASDAQ: NFLX US; \$384.48; Outperform)
NEXTDC Ltd (ASX: NXT AU; AUD7.83; Outperform)
NextEra Energy Inc. (NYSE: NEE; \$166.40; Outperform)
Northrop Grumman Corporation (NYSE: NOC US; \$313.72; Outperform)
Nutrien Ltd. (NYSE: NTR US; \$53.96; Outperform)
NVIDIA Corporation (NASDAQ: NVDA US; \$239.12; Outperform)
Oersted A/S (CSE: ORSTED DC; DKK375.00; Outperform)
PayPal Holdings, Inc. (NASDAQ: PYPL US; \$82.19; Outperform)
Prologis, Inc. (NYSE: PLD US; \$64.14; Outperform)
Raytheon Company (NYSE: RTN US; \$193.52; Outperform)
Roper Technologies, Inc. (NYSE: ROP US; \$273.13; Outperform)
Sage Therapeutics, Inc. (NASDAQ: SAGE US; \$146.84; Outperform)
salesforce.com, inc. (NYSE: CRM US; \$133.19; Outperform)
Schlumberger Limited (NYSE: SLB; \$65.43; Outperform)
ServiceNow, Inc. (NYSE: NOW US; \$171.39; Top Pick)
SNC-Lavalin Group Inc. (TSX: SNC CN; C\$58.90; Outperform)
Splunk Inc. (NASDAQ: SPLK US; \$101.23; Outperform)
SVB Financial Group (NASDAQ: SIVB US; \$302.16; Outperform)
Synopsis, Inc. (NASDAQ: SNPS US; \$86.52; Top Pick)
TELUS Corporation (TSX: T CN; C\$46.27; Outperform)
Tesla Inc. (NASDAQ: TSLA US; \$333.01; Sector Perform)
The Estée Lauder Companies Inc. (NYSE: EL US; \$145.62; Outperform)
The Kroger Co. (NYSE: KR US; \$29.33; Outperform)
The Toronto-Dominion Bank (TSX: TD CN; C\$76.30; Sector Perform)
The Walt Disney Company (NYSE: DIS US; \$104.45; Top Pick)
UnitedHealth Group Inc. (NYSE: UNH US; \$250.71; Outperform)
Visa Inc. (NYSE: V US; \$130.93; Outperform)
Vodafone Group Plc (LSE: VOD LN; GBp184.18; Outperform)
Walmart Inc. (NYSE: WMT US; \$86.47; Sector Perform)
WSP Global Inc. (TSX: WSP CN; C\$71.05; Outperform)
Xylem Inc. (NYSE: XYL US; \$66.27; Outperform)
Yum! Brands, Inc. (NYSE: YUM US; \$78.59; Outperform)

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