

*17th March 2018*

# Uncertain Age of Acceleration

*By Jim Mellon*

*Private Session – Master Investor*

If we are to make reality endurable, we  
must all nourish a fantasy or two.

*-Marcel Proust*





# Report Card



Source: Bloomberg





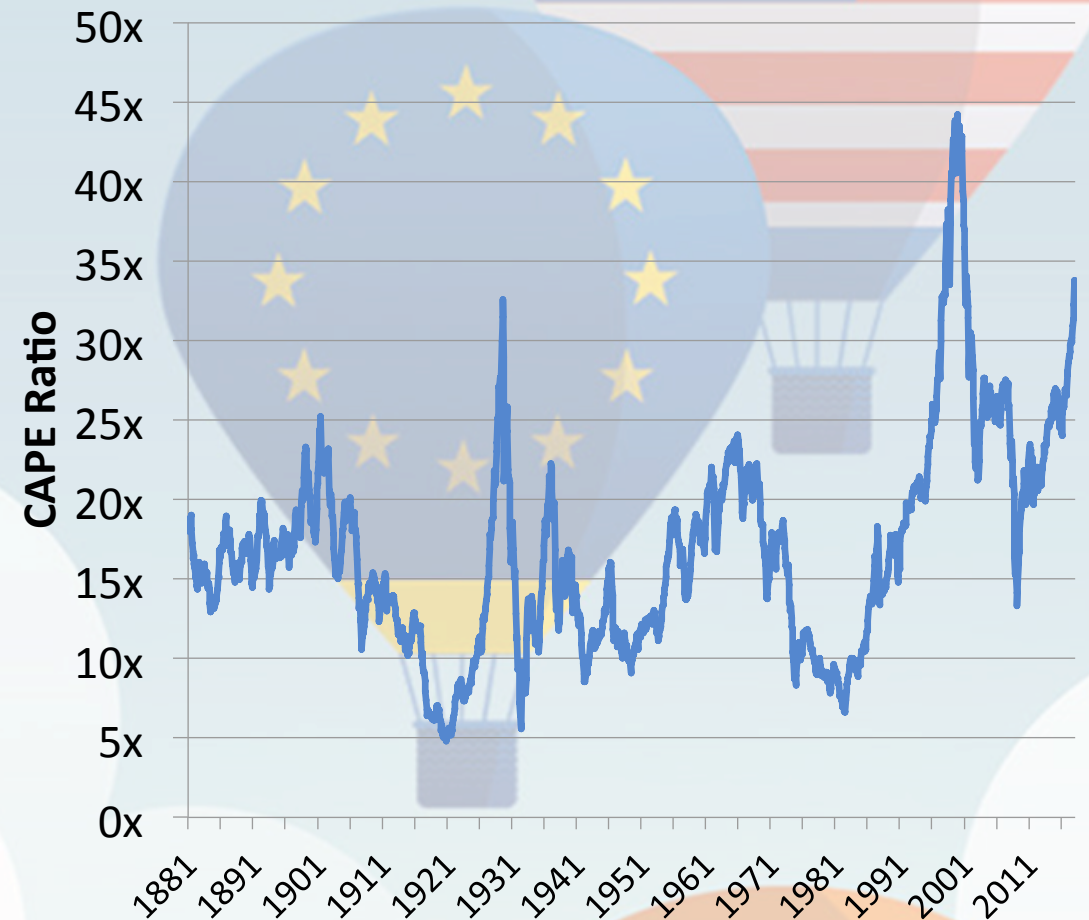




# Global Equity Markets



## US Markets - Shiller CAPE



Source: Bloomberg

# Near Term Macro View

## Economies running hot:

- Global synchronised growth
- US tax cuts – bad timing
- Rising wages
- Commodity prices up

## Bear market in bonds:

- Central bank tightening – BoJ, ECB & BoE
- Rising yields
- Upside risks to inflation

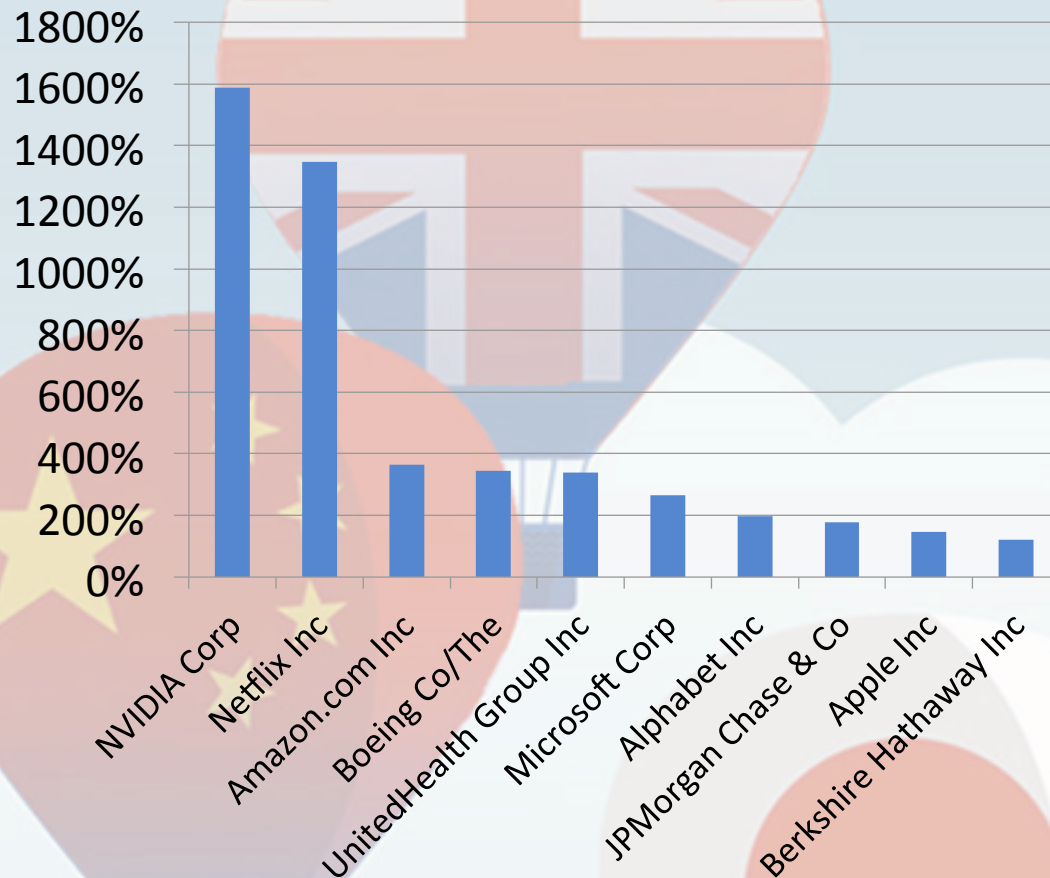
Source: Bloomberg

Dollar LIBOR /OIS Spread



# Near Term Macro View

**S&P 500 - Top 10 5 Year Returns**



Source: Bloomberg

## Equities:

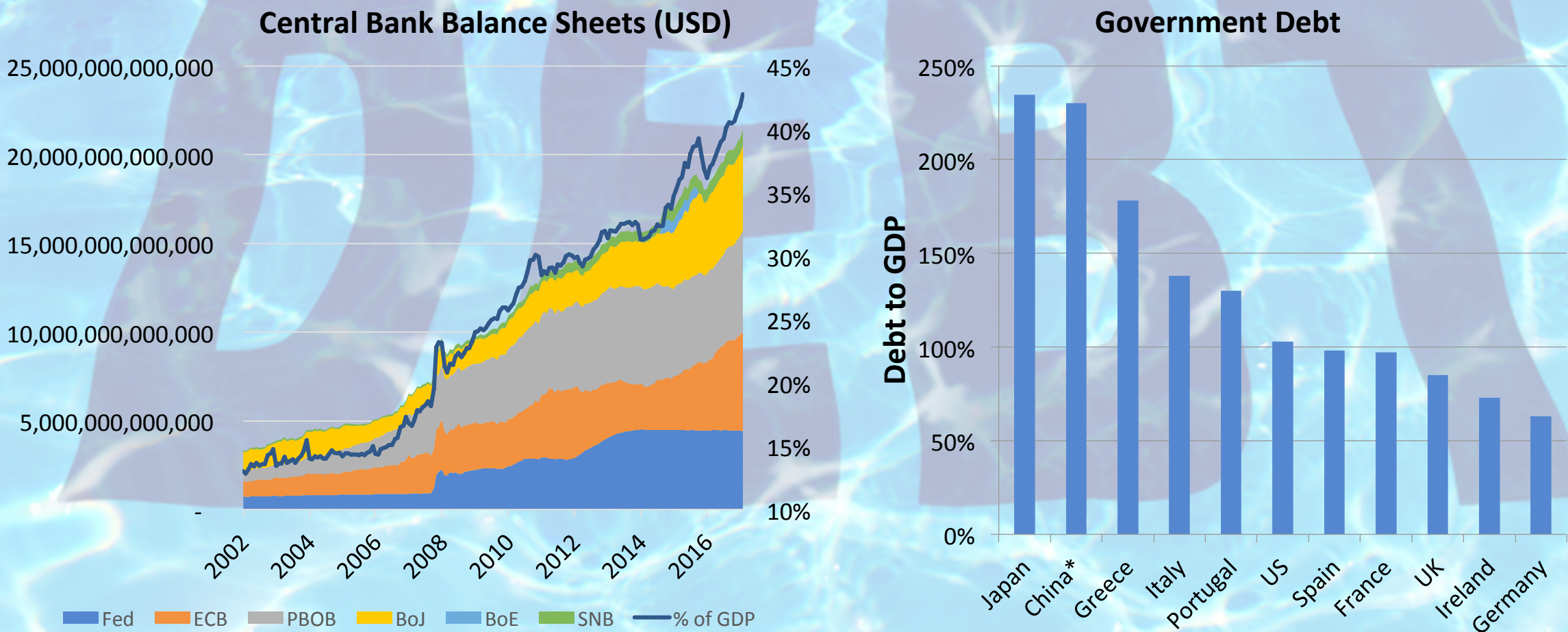
- Quite expensive
- Dominated by tech – China too
- Increased volatility

## Geopolitical Risks:

- US
- European Union – Italian politics
- Russia
- China – foreign and domestic
- North Korea



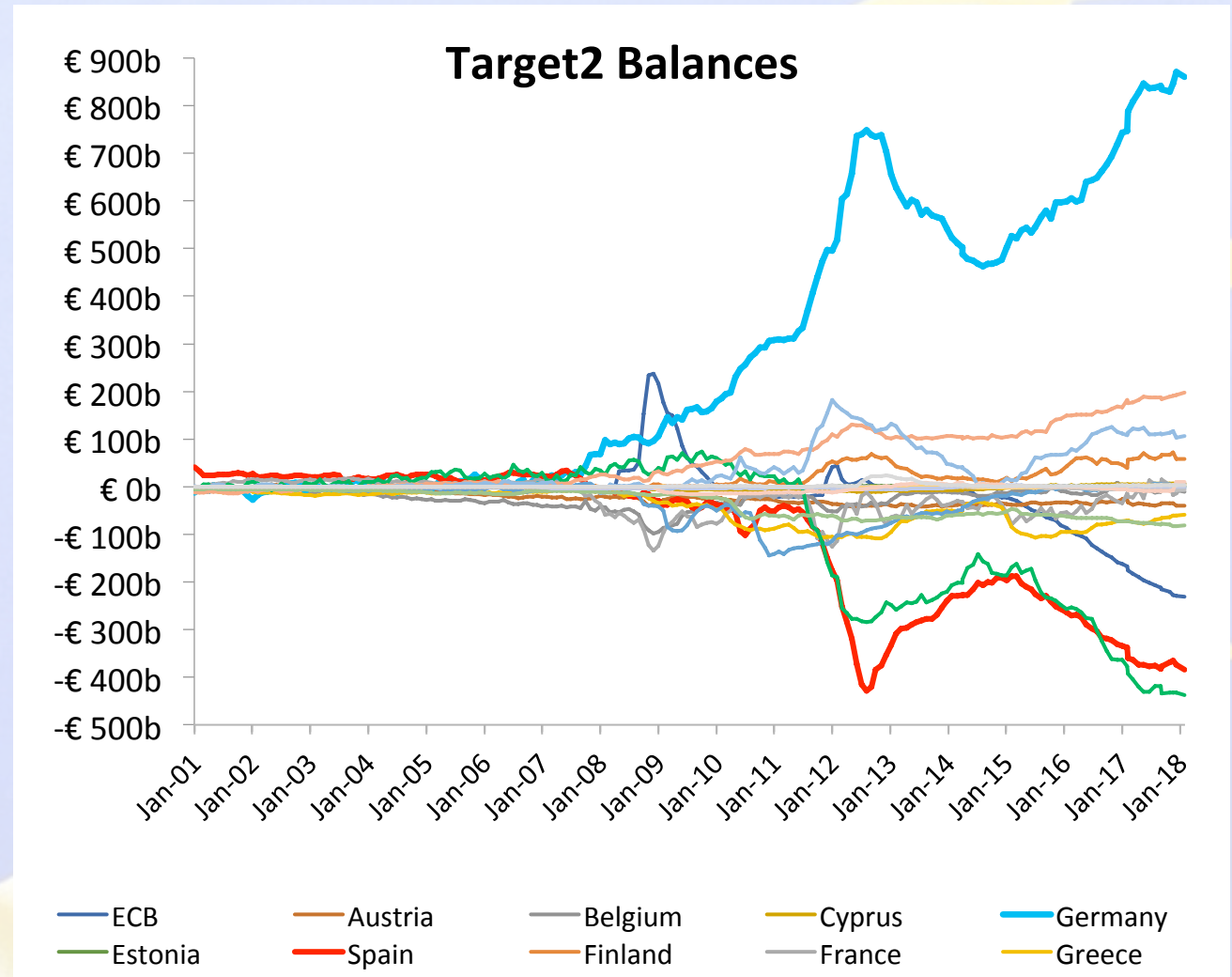
# Swimming in it – Govt. Debt & Central Bank Ownership



Source: Bloomberg, \*IMF estimate

# Europe

- Still messy
- Germany
  - Pristine balance sheet
- France
  - Debt trap
- Italy
  - 4.7m in absolute poverty
  - North/South divide stark





# United Kingdom

- GBP fairly valued
- Brexit will be fine
- UK being used as China's Hong Kong of the West

# Japan

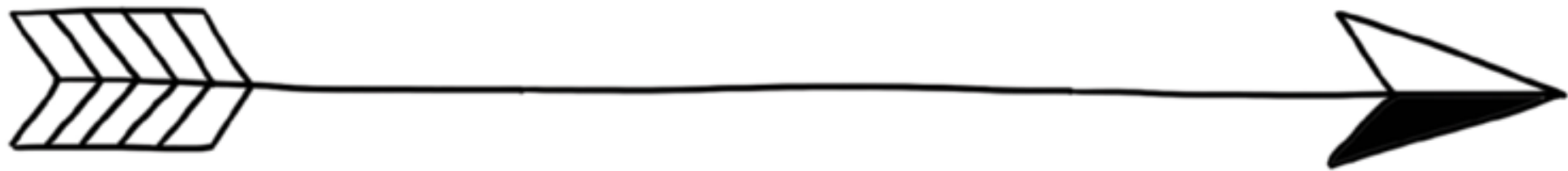
- Remains favourite equity market
- Nikkei target 25,000





# INNOVATION

# DISRUPTION



DOING THE SAME  
THINGS A BIT  
BETTER

DOING NEW  
THINGS

MAKING THINGS THAT  
MAKE THE OLD THINGS  
OBSOLETE

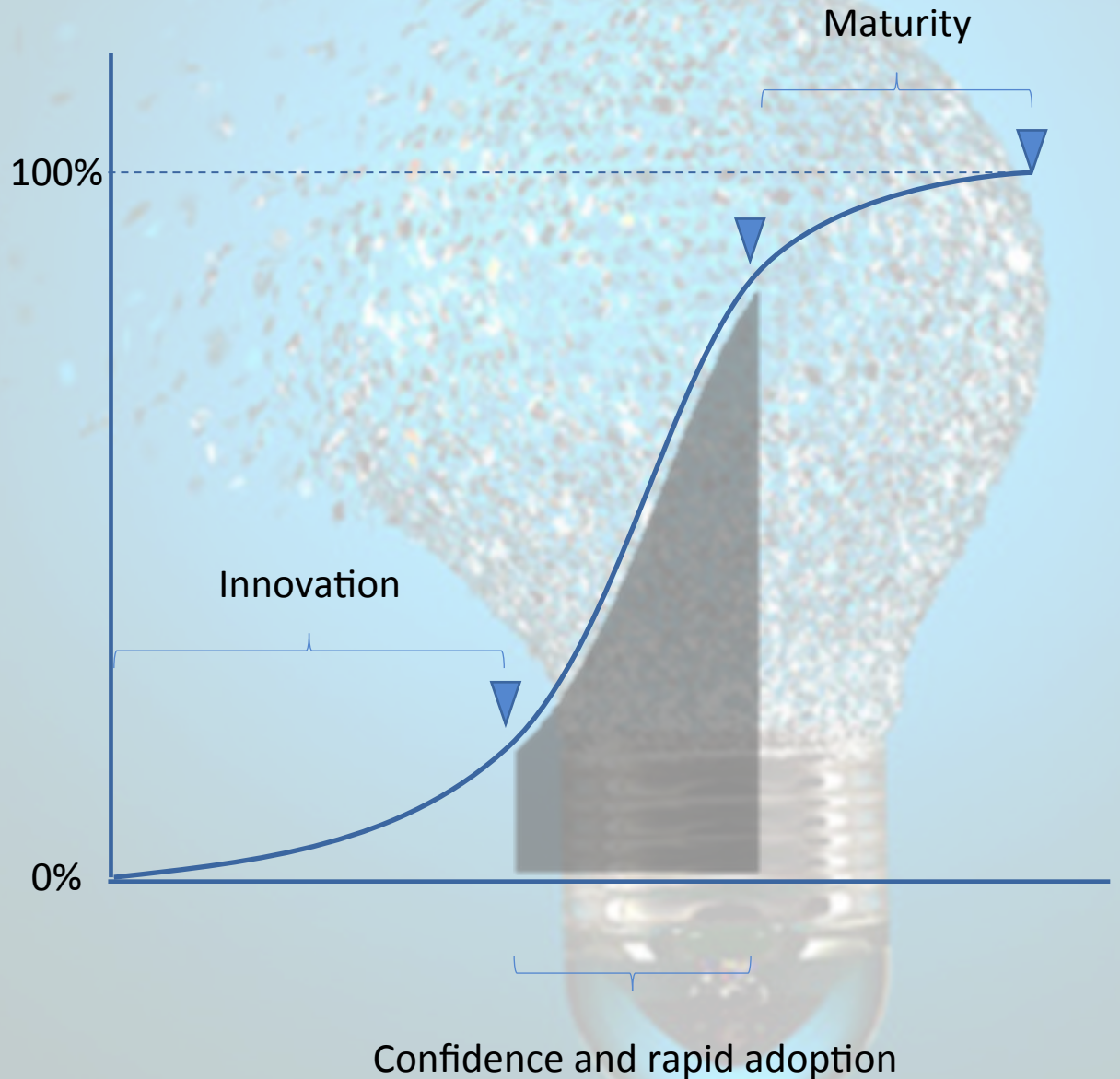
# 10 Disruptive Themes

1. China
2. Artificial Intelligence
3. 3D Printed and Modular Housing
4. Transport Revolution
5. Energy and battery technology
6. Cryptocurrency and Blockchain
7. Cannabis
8. Agricultural Revolution
9. Leisure
10. Future of Medicine and Juvenescence



# Technology Disruption

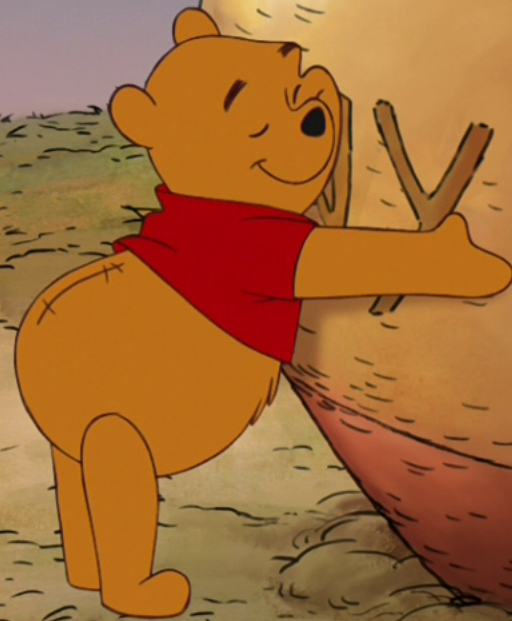
- Technology adoption “S-Curve”
- No successful technologies experience linear adoption
- Trend is for faster/steeper adoption curves - disruption is accelerating





#小熊维尼的智慧# 找到一样你所钟  
爱的事物，然后，永不放手。

Find the thing  
you love and  
stick with it



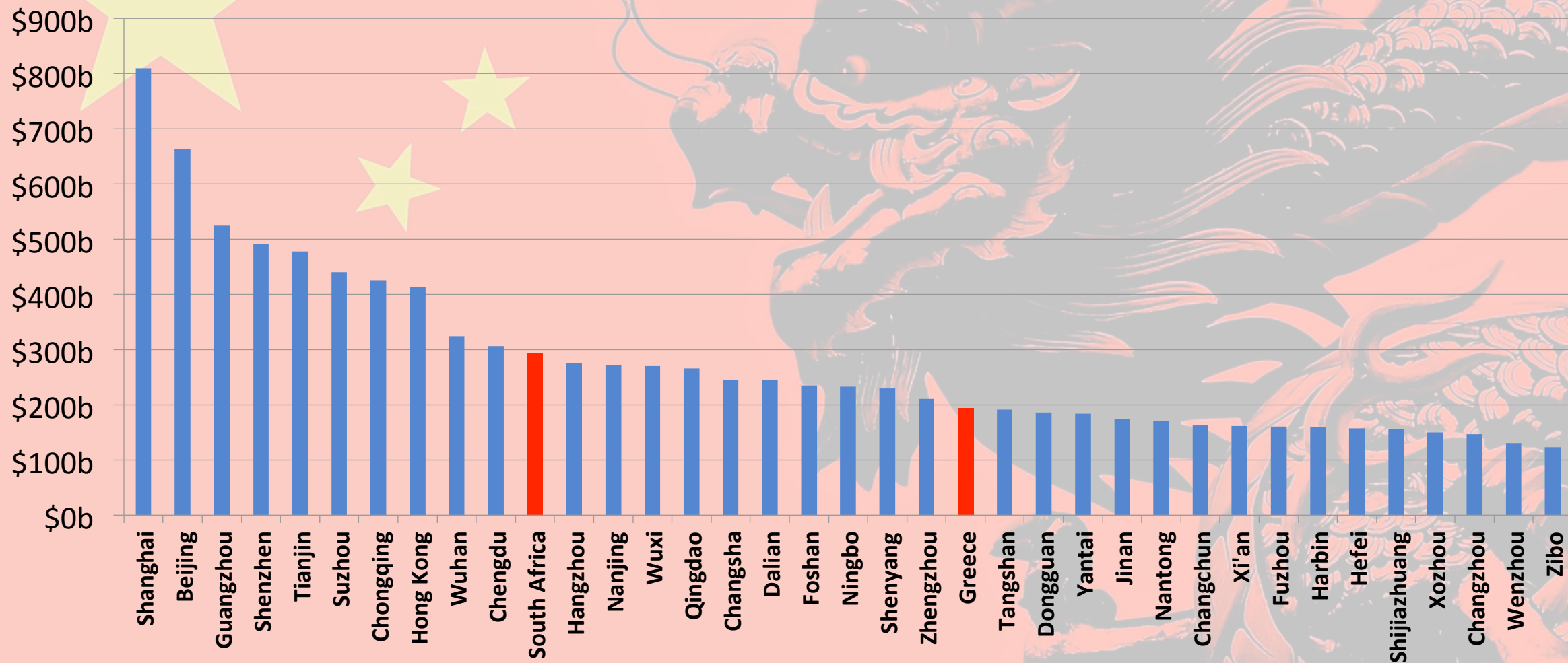
China





# China

## Largest Chinese Cities by GDP



Source: CB Insights

# China

- The internet was initially a tool for freer expression
- China has become a technological dictatorship
- Technology, big data and AI cut the financial cost of suppression
- China Telecom Corporation - 728:HK



## Xiaobing the Tencent Chatbot



*AI having inappropriate dreams of "moving to the United States"*



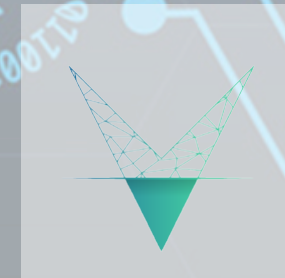


# Artificial Intelligence

- Already part of daily life
  - Siri, Google Assistant, Alexa
  - Purchase predictions
  - Chat bots
  - Fraud detection
  - Video games
- Already superior to humans in many narrow applications – image recognition and the game Go
- AlphaGo Zero - Better algorithms using less data and processing power
- Big tech focus – Alphabet, Microsoft and IBM
- **Accenture Plc – ACN:NYSE**



INSILICO MEDICINE

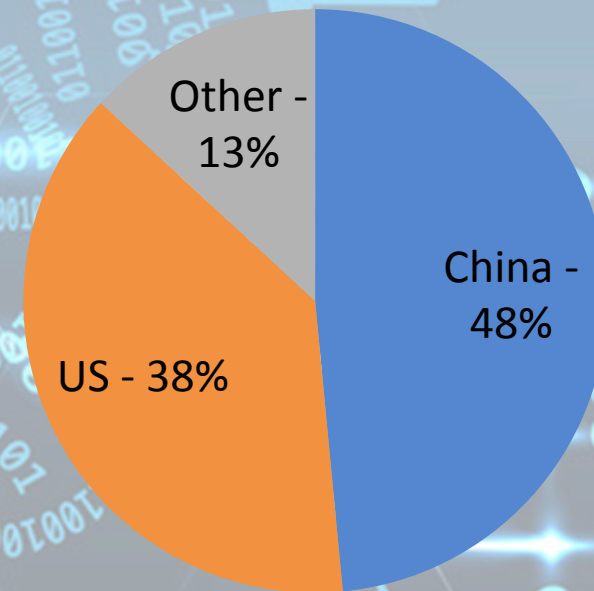




# Artificial Intelligence

- China's share of AI start-up funding in 2017 was 48%, up from 11% in 2016
- US still leads in terms of absolute number of AI start-ups
- China using AI for facial recognition surveillance while developed economies trying to determine legality/regulation
- Military applications of major interest

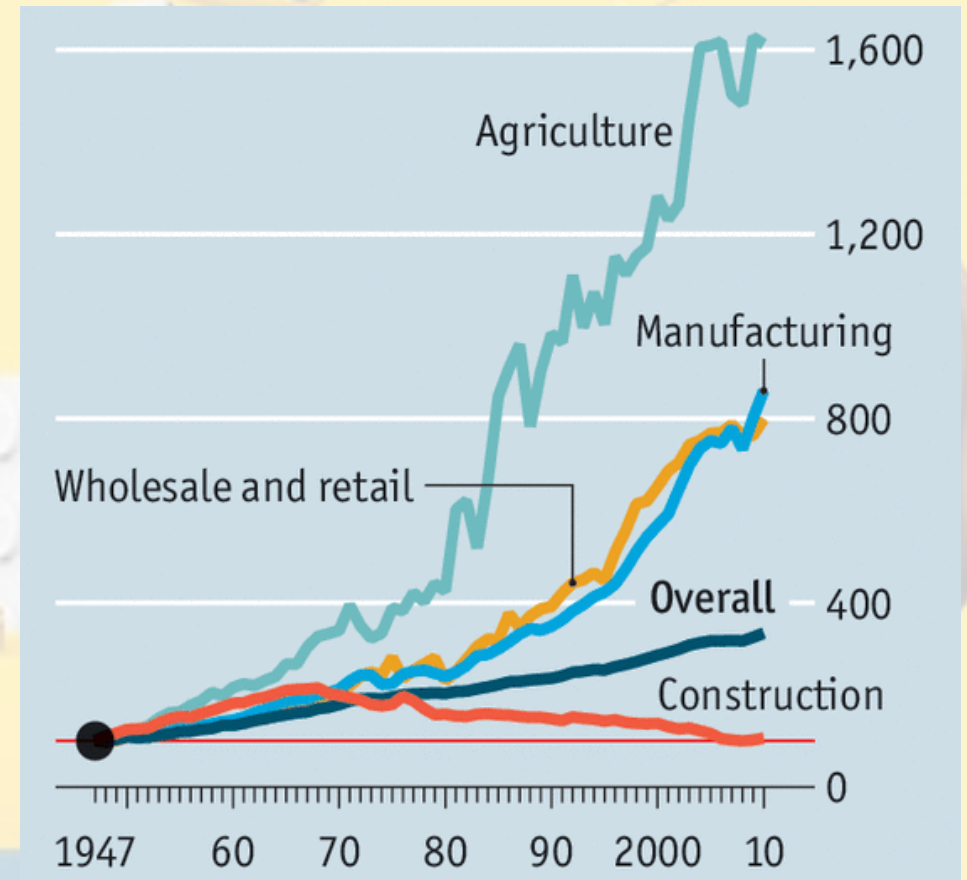
**China Dominated Global AI Funding in 2017**



# 3D Printed and Modular Housing

- Global construction industry - USD 10 trillion
- Lowest productivity gains of any industry past 20 years – even in Germany and Japan
- 90% of infrastructure projects late or over budget
- Rapidly improved cost and efficiency of construction
  - 100m people globally living in slum conditions
  - 350 sq ft house for \$4,000 in one day
- Ease of printing curved walls
- WinSun and ICON – leaders in 3D printable buildings

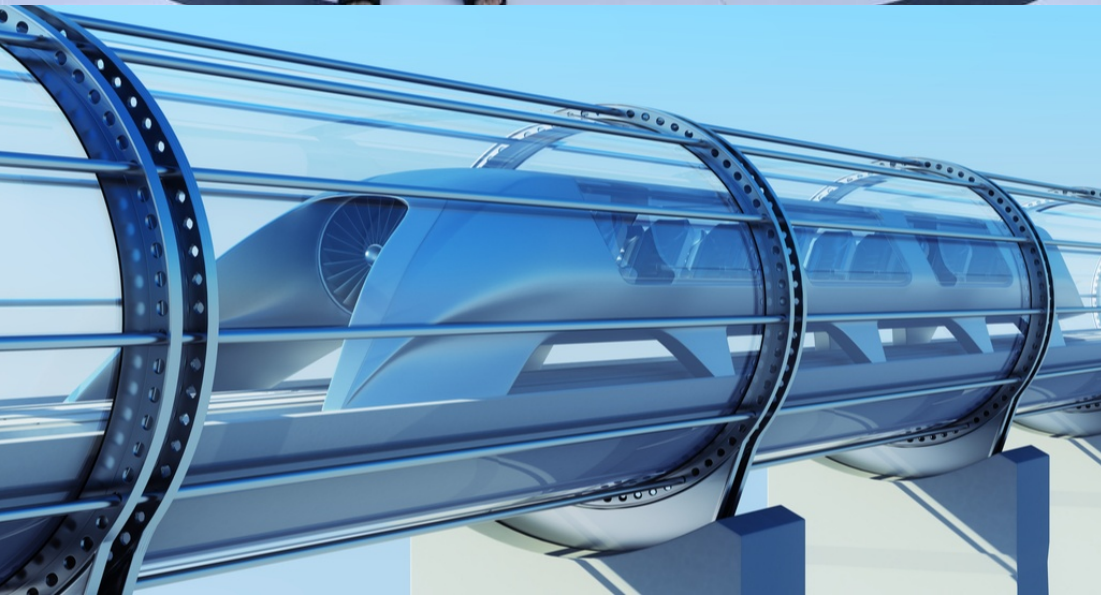
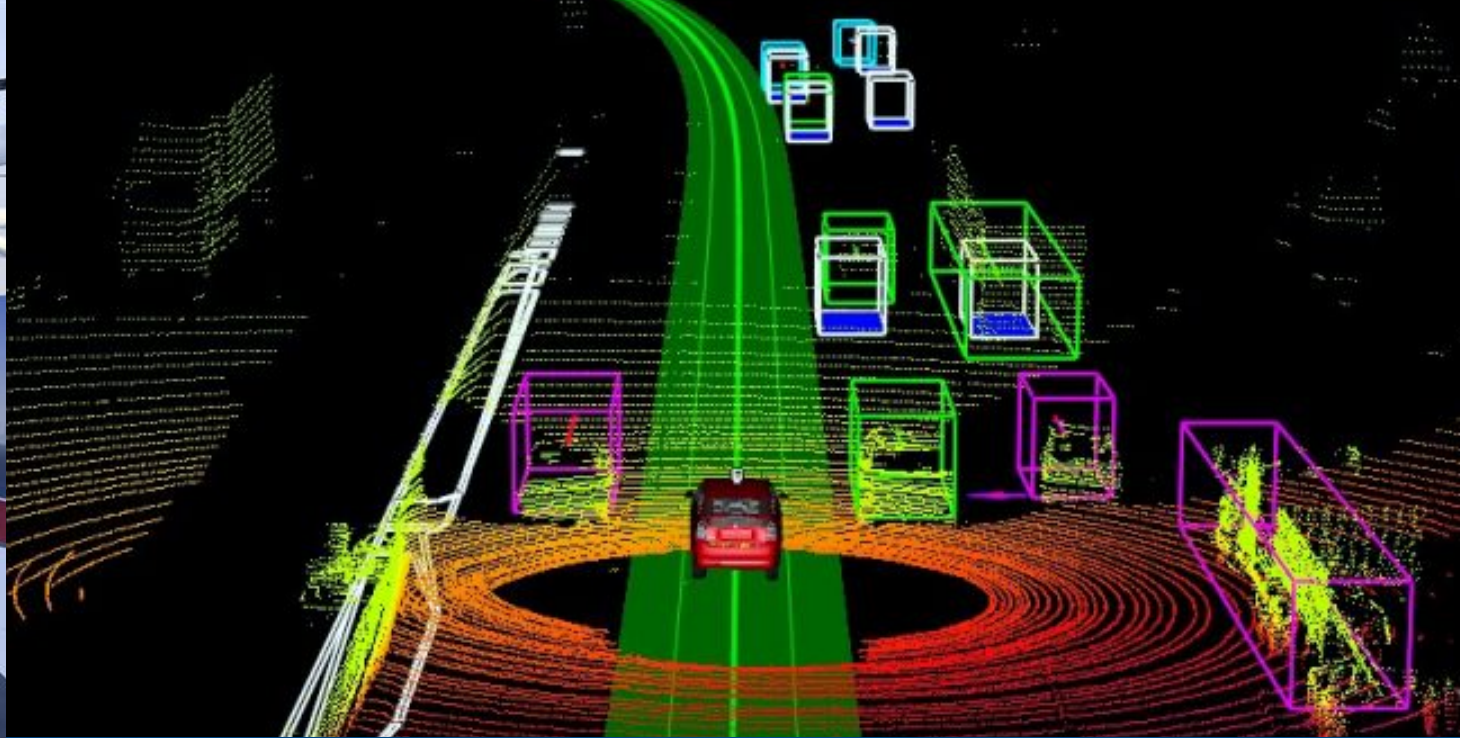
**US Productivity Gains by Industry**



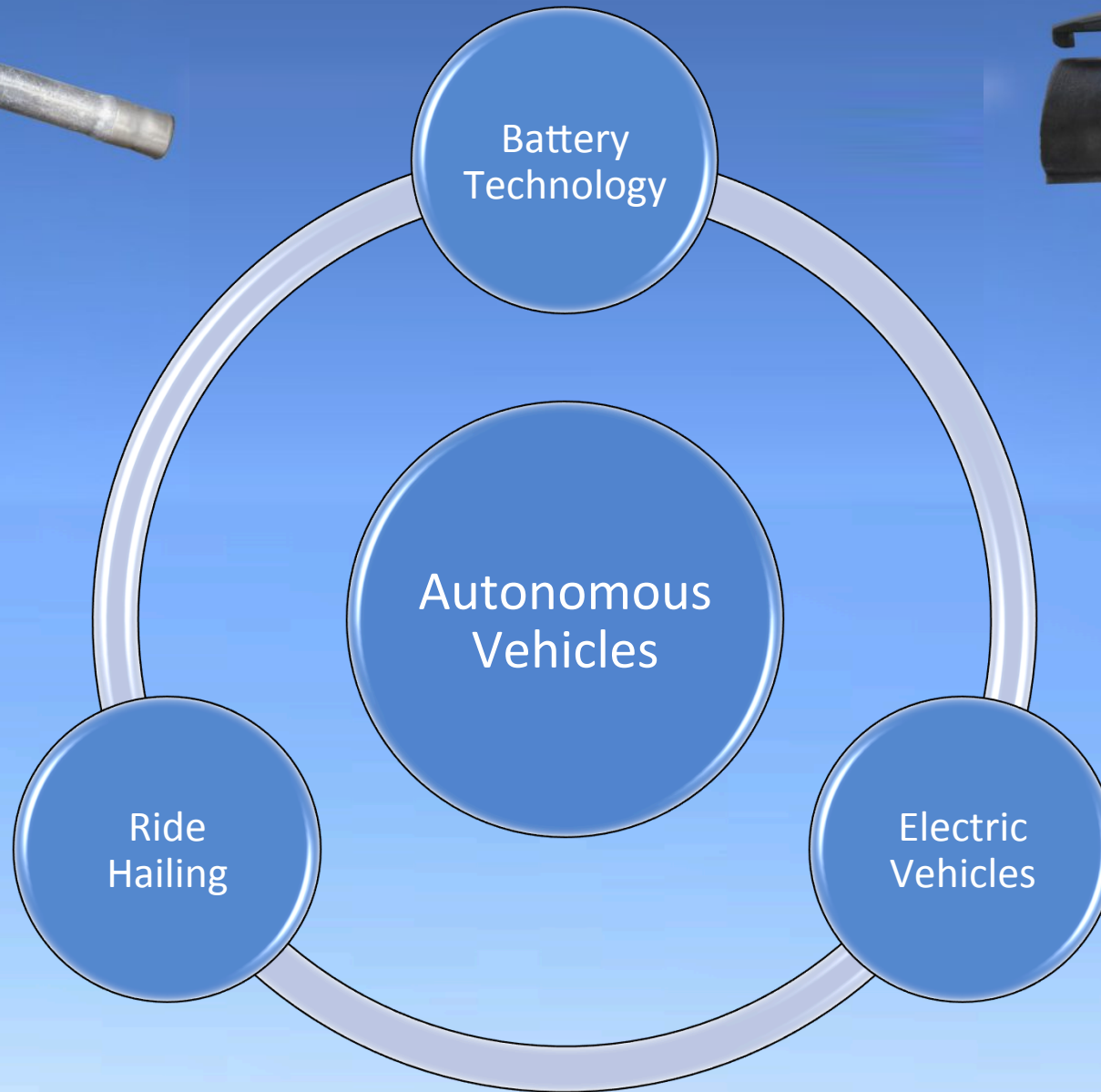




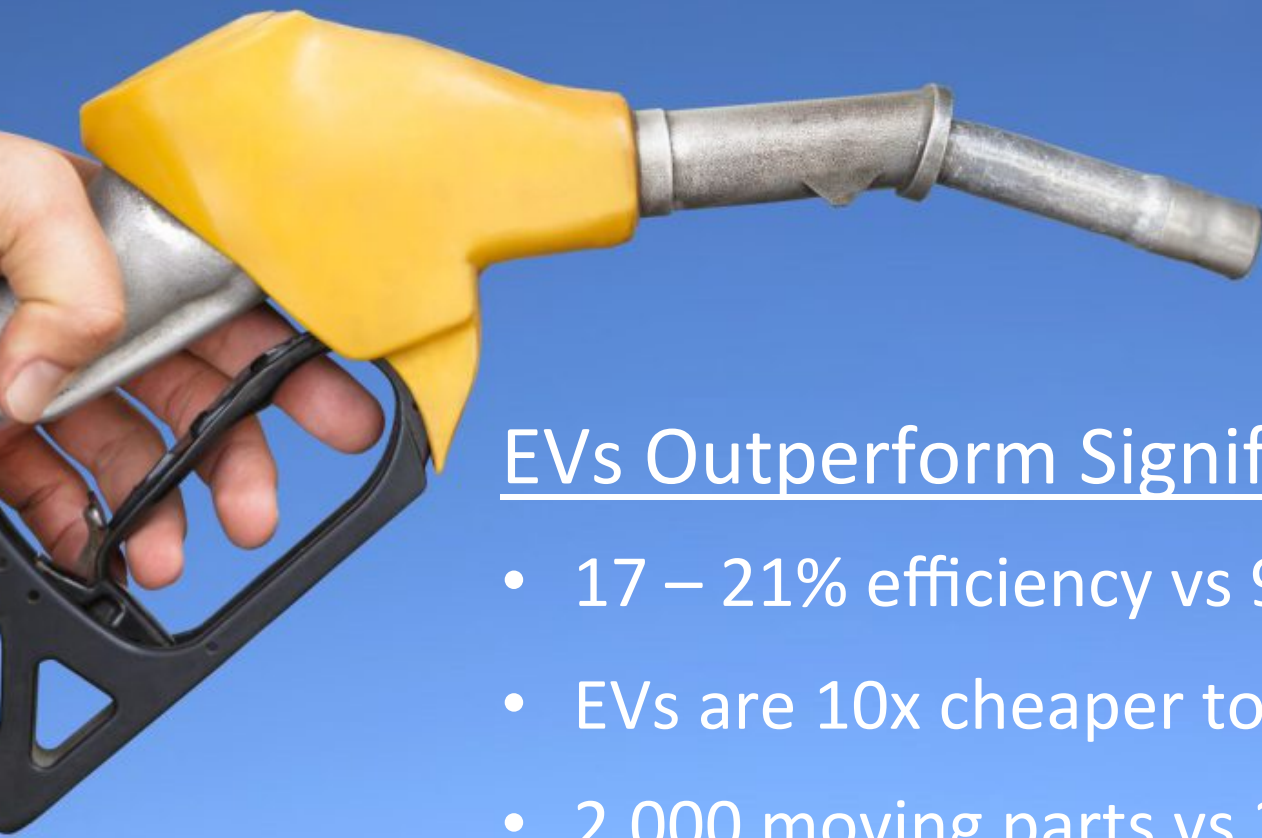




Transport Revolution







## EVs Outperform Significantly on Key Metrics

- 17 – 21% efficiency vs 90 – 95% efficiency 5x
- EVs are 10x cheaper to charge/fuel 10x
- 2,000 moving parts vs 20 moving parts 100x
- 200k mile lifetime vs 1m miles 5x





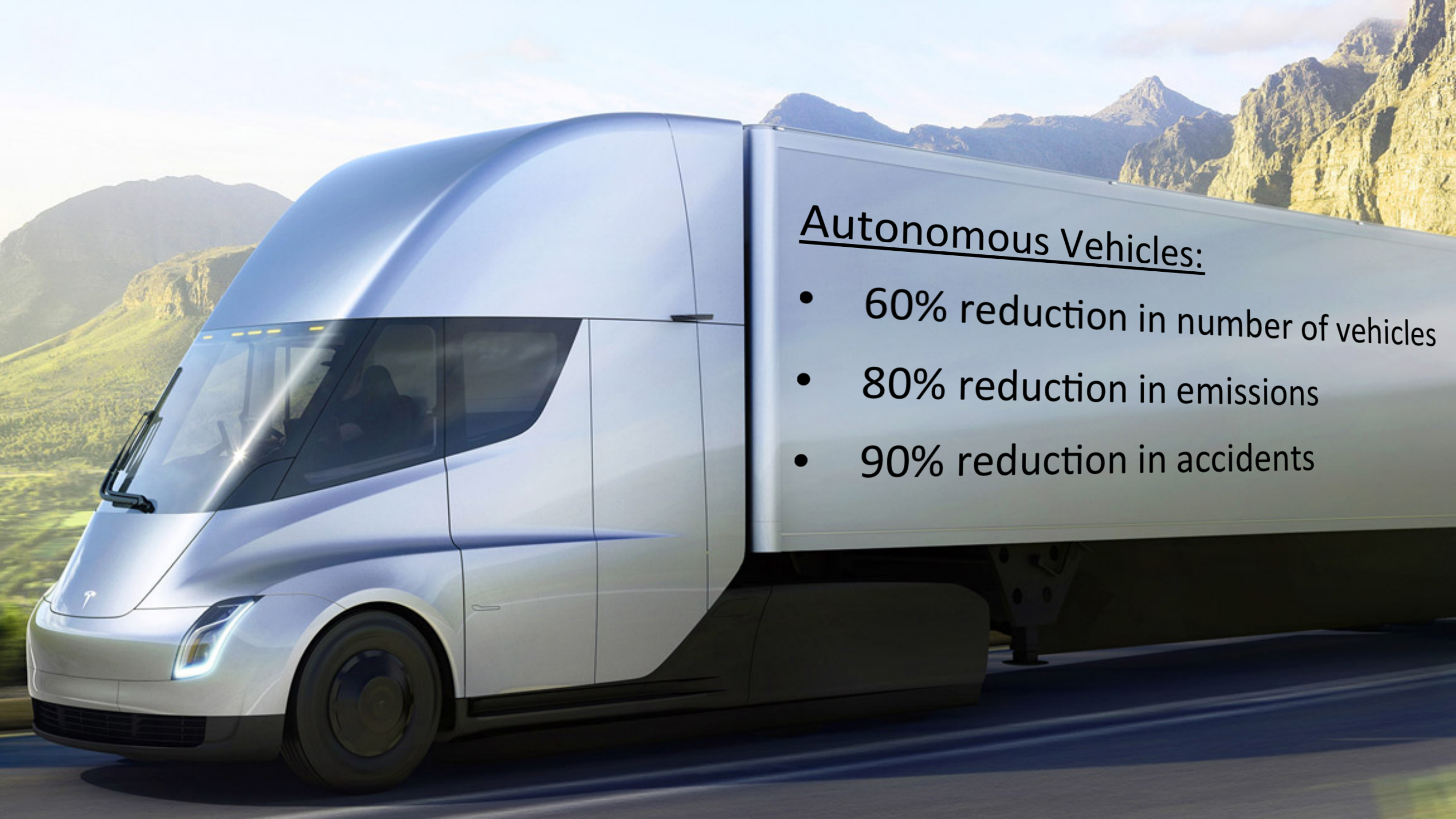
**Sole ownership model cars are parked  
96% of the time**

**Shared ownership/ride hailing model  
utilisation goes up to 40% - a 10x increase**

**Only electric cars with 1 million miles  
lifetime can compete under this model**

**Driverless + EV + Ride Hailing will be 10%  
– 25% of current cost than sole ownership**



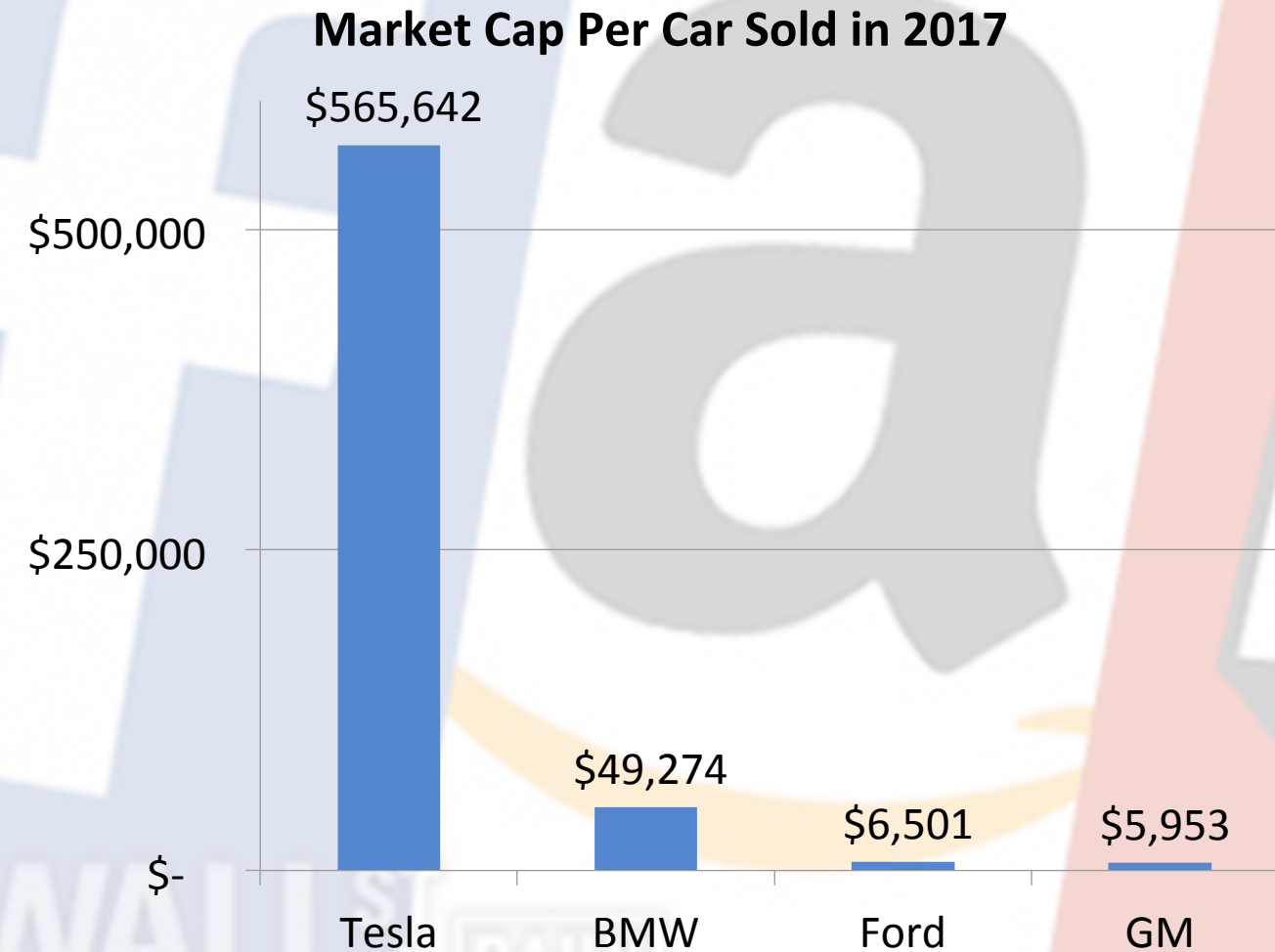
A futuristic white Tesla Semi truck is shown from a side-front perspective, driving on a road. The truck has a sleek, aerodynamic design with a large windshield and a small Tesla logo on the front. The background features a mountain range under a clear sky. 

## Autonomous Vehicles:

- 60% reduction in number of vehicles
- 80% reduction in emissions
- 90% reduction in accidents

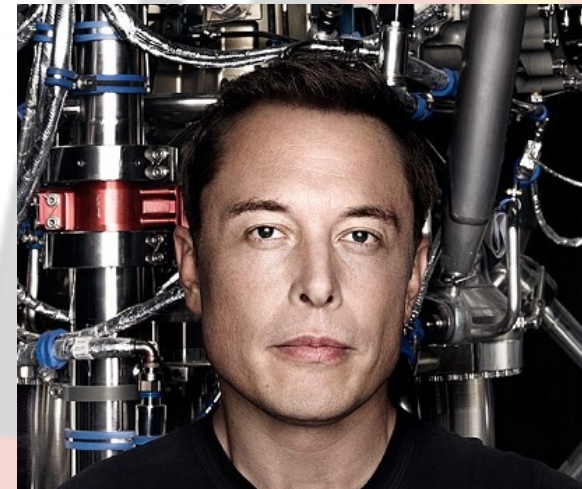


# But Tesla Too Expensive!



Source: Bloomberg

**General Motors –  
GM:NYSE a better bet!**



# Battery Technology



**Elon Musk**  @elonmusk

9h

@mcannonbrookes Tesla will get the system installed and working 100 days from contract signature or it is free. That serious enough for you?



**Mike Cannon-Brookes**

@mcannonbrookes

 Follow

@elonmusk legend! 🌞 You're on mate. Give me 7 days to try sort out politics & funding. DM me a quote for approx 100MW cost - mates rates!

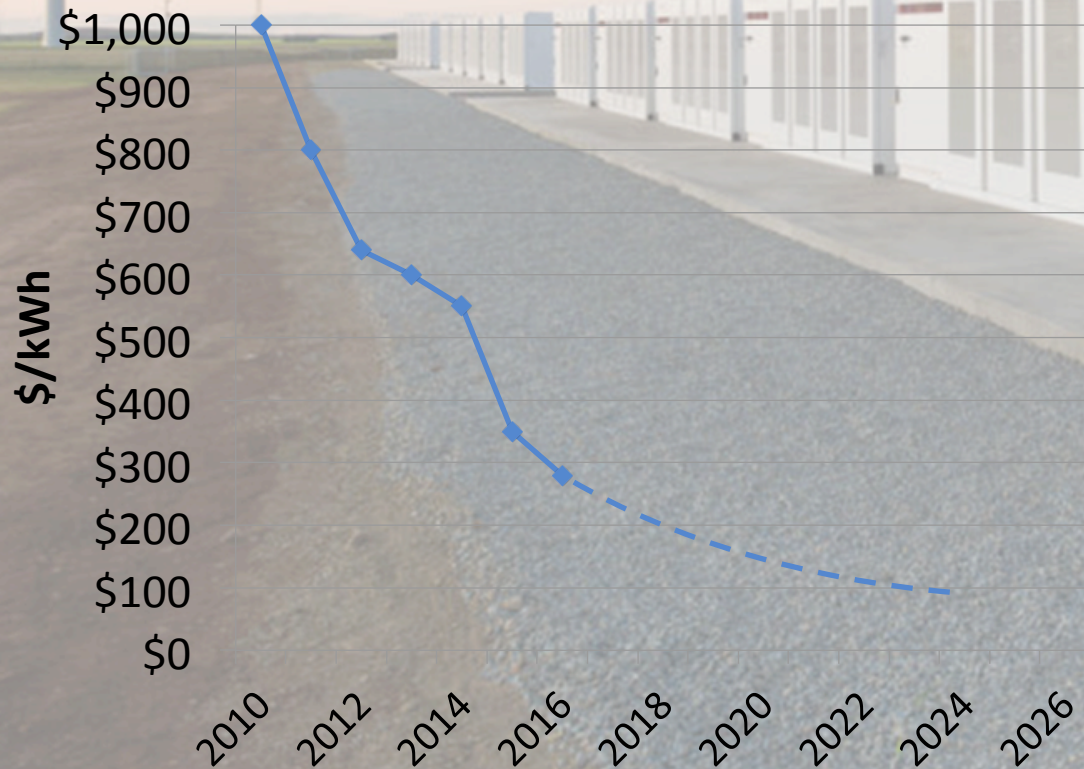
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# Battery Technology

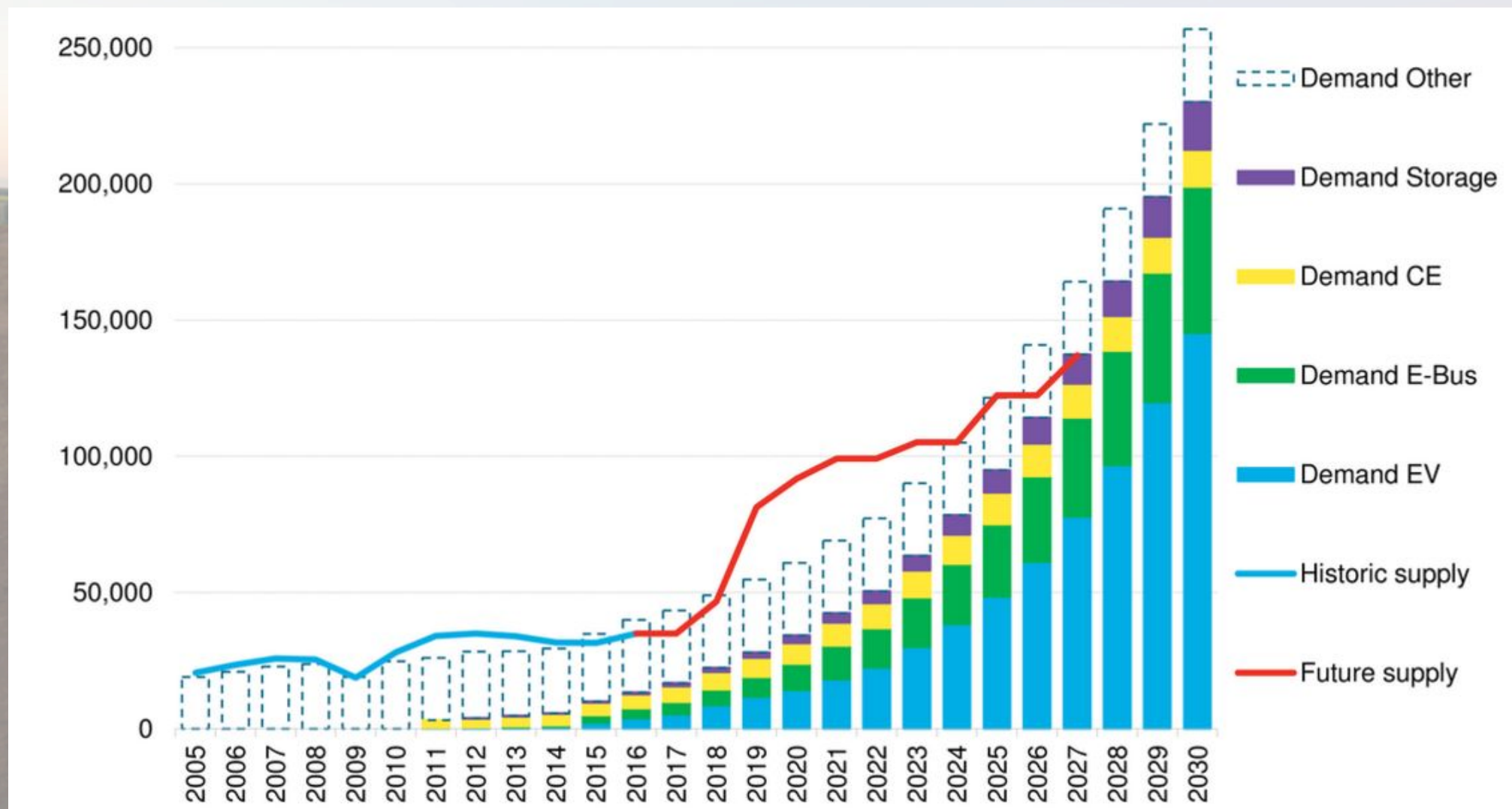
Projected cost of Li-On Battery \$/kWh



- Costs reducing and new technologies developing – e.g. solid state batteries
- 12 Tesla giga-factory-equivalents coming online by 2020:
  - Dyson, BYD, Foxconn, Samsung etc
- Energy storage will replace “peakers”
- Batteries faster to construct than new plants
- Tesla delivered 100 Megawatt battery in 88 days to South Australia



# Lithium Supply / Demand





# Cryptocurrencies & Blockchain

- Cryptocurrencies generally a fad but underlying technology important
- Blockchain applications still finding their way:
  - Data storage and management
  - Provenance
  - Real estate and many more

fastforward ▶ **FFWD:AIM**

- Factom – 3.64% equity stake

factom



# Cannabis

- Move towards legalisation in major markets
  - Smoke for medicinal use in 29 states in US - 9 states do not require medicinal use
  - Canada - due to be legalised for recreation in July 2018
  - Germany, Israel, Uruguay and others following
- Legalisation combined with interest in therapeutic application has created a mania

- Medical uses include:
  - Nausea and vomiting
  - HIV/AIDS
  - Pain
  - Neurological conditions
  - Post traumatic stress disorder

- **Aphria – APH:TSE**

- **Nuuvera Inc – NUU:TSX**

**nuuvera**

**Aphria**

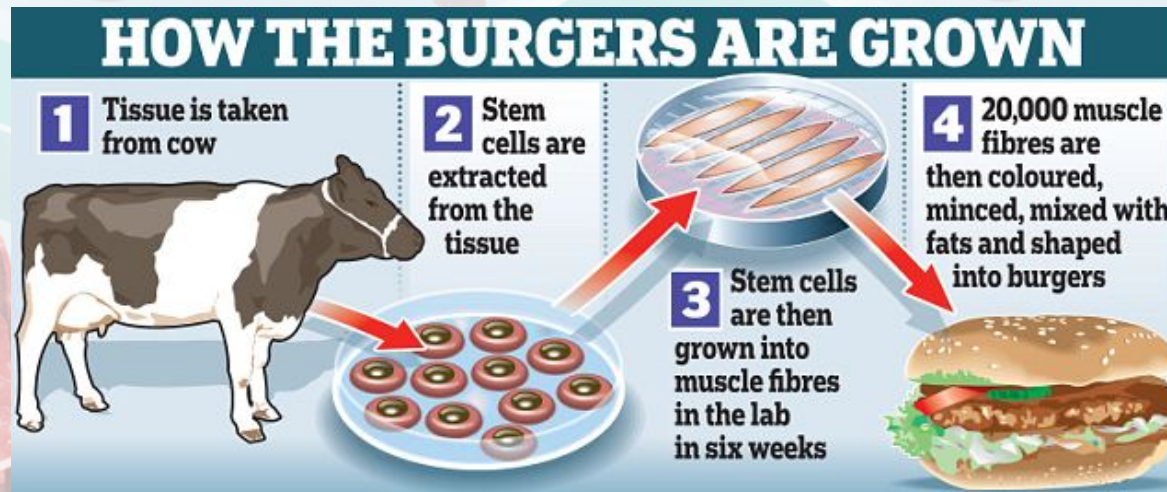




# Agricultural Revolution

- Clean meat – grown in a lab
- Memphis Meats
- Slaughter free
- Requires serum derived from animal blood

- Impossible Foods Inc. & the Impossible Burger
  - Plant based protein with heme
- Soylent meal replacement soylent
- Bayer AG – BAYN:GE
- Monsanto Co. – MON:NYSE



## THE IMPOSSIBLE BURGER

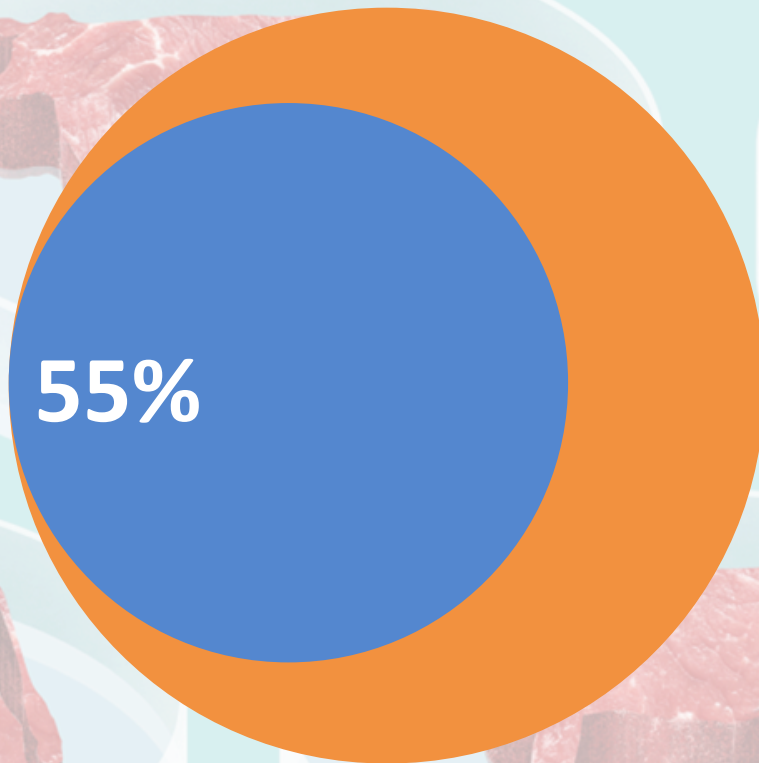




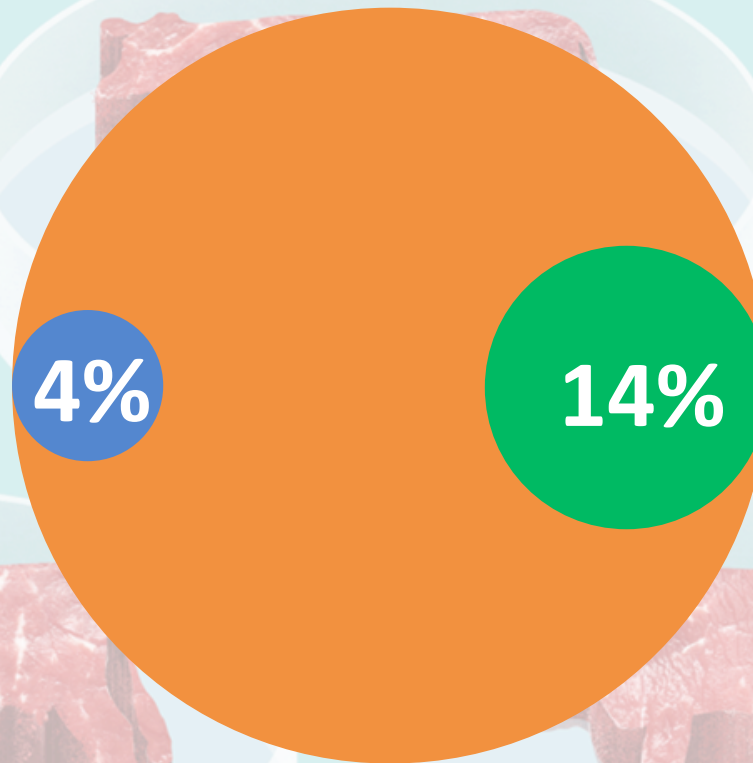
# Environmental Comparison

- Lab-grown beef
- Plant-based protein
- Conventionally farmed beef

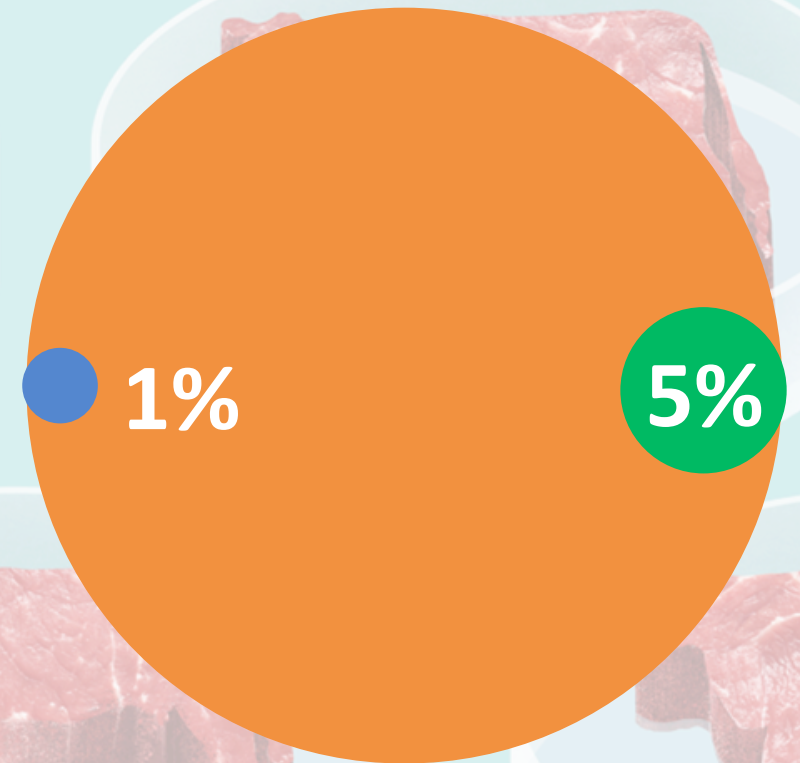
Energy Use



Greenhouse Gas Emissions



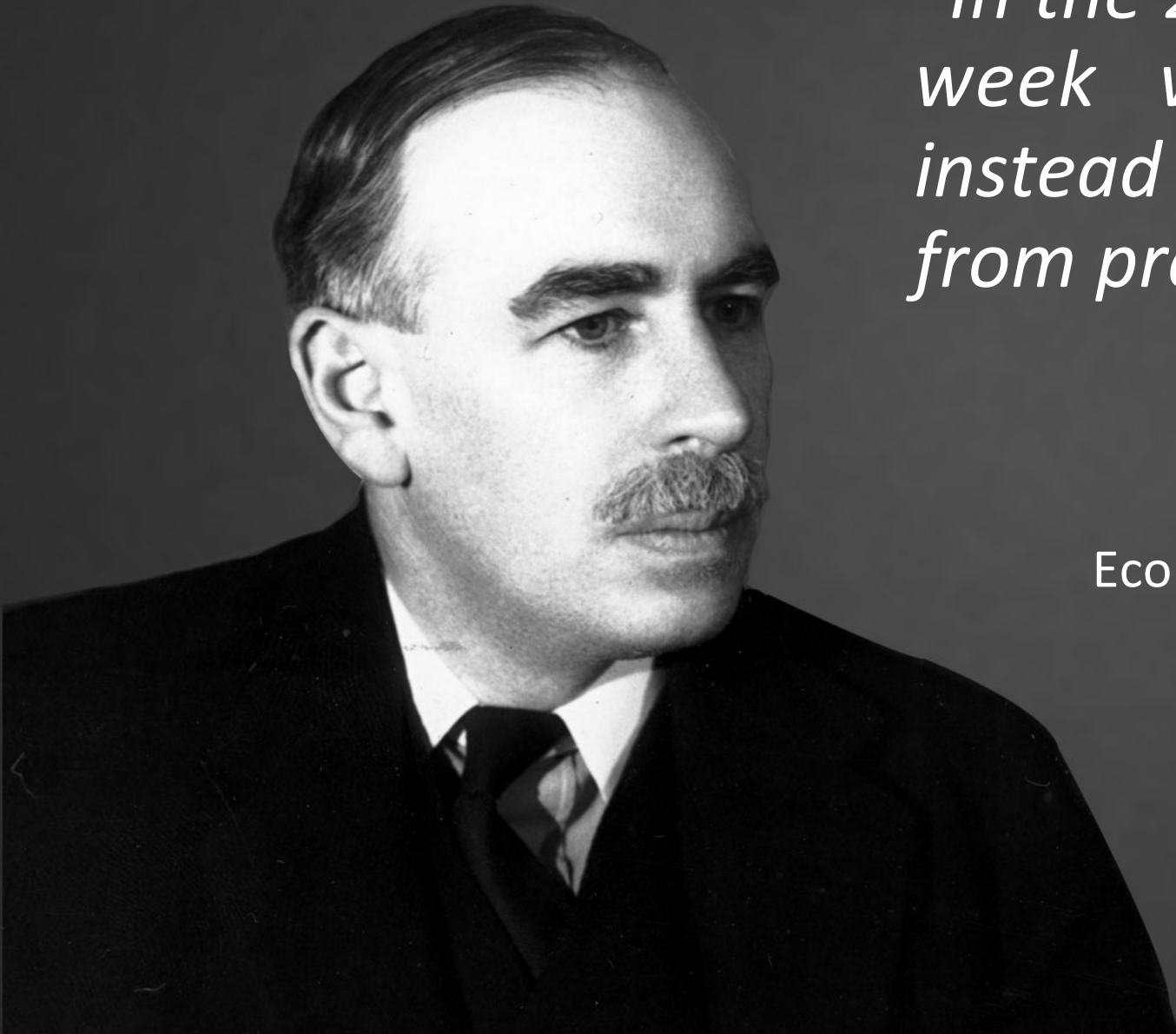
Land Use



Source: Environmental Science & Technology Journal

Lab-grown beef currently \$2,400 per pound to produce





*“In the 21<sup>st</sup> century a 15 hour work week will suffice, as we turn instead to how to use freedom from pressing economic cares.”*

John Maynard Keynes, 1930

Economic Possibilities for Our Grandchildren

# Leisure Industry

- Juvenescence = older populations + more leisure time
- Median age of global population:
  - 1950 – 23.6
  - 2000 – 26.4
  - 2050 – 37
- Gardening, travel, cruise ships, education and several other sectors likely to benefit
- **Carnival Corp – CCL:NYSE**
- **Pearson Plc – PSON:LSE**
- **Marhsalls Plc – MSLH:LSE**

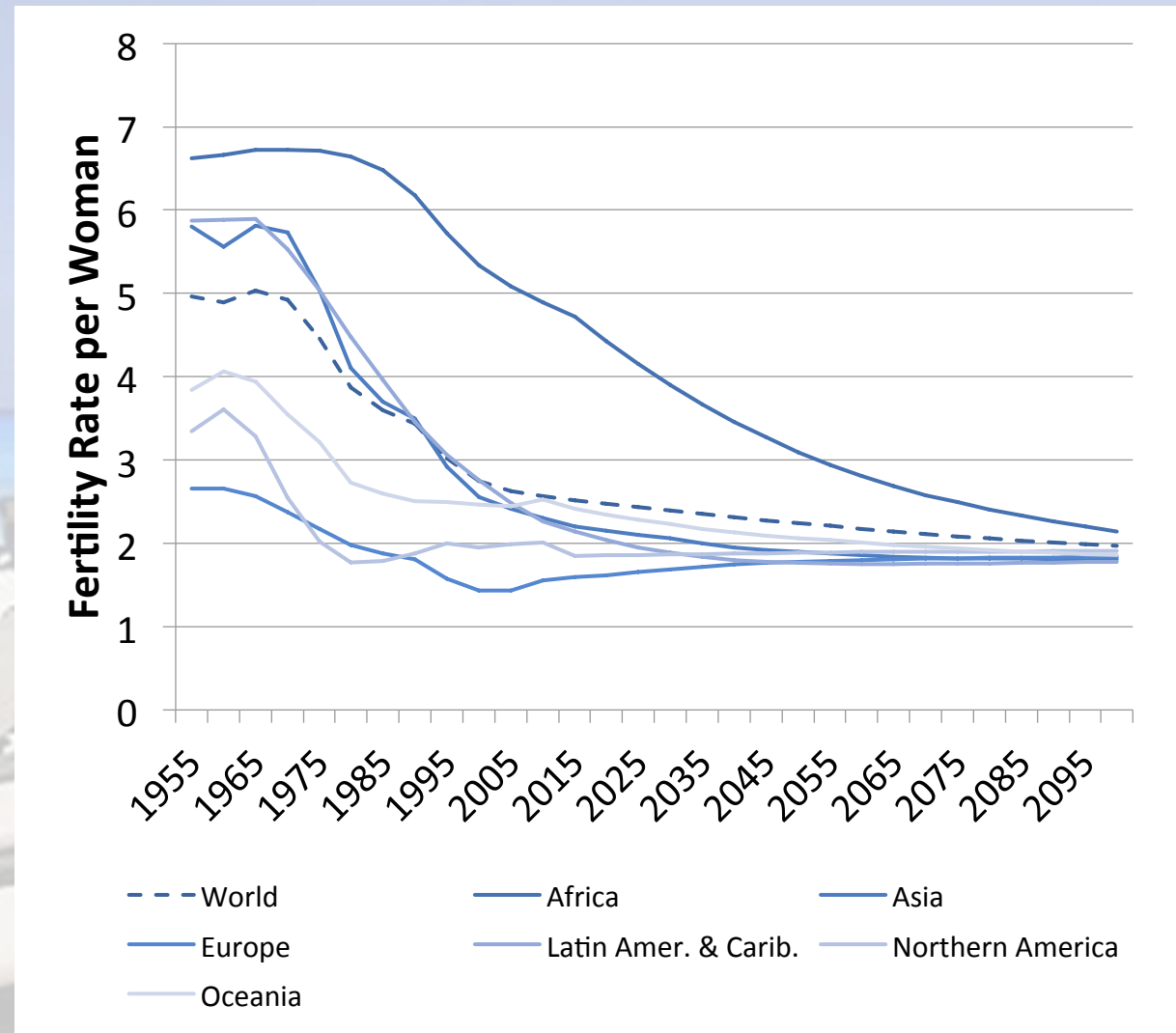


Source: UN World Population Prospects & The Economist

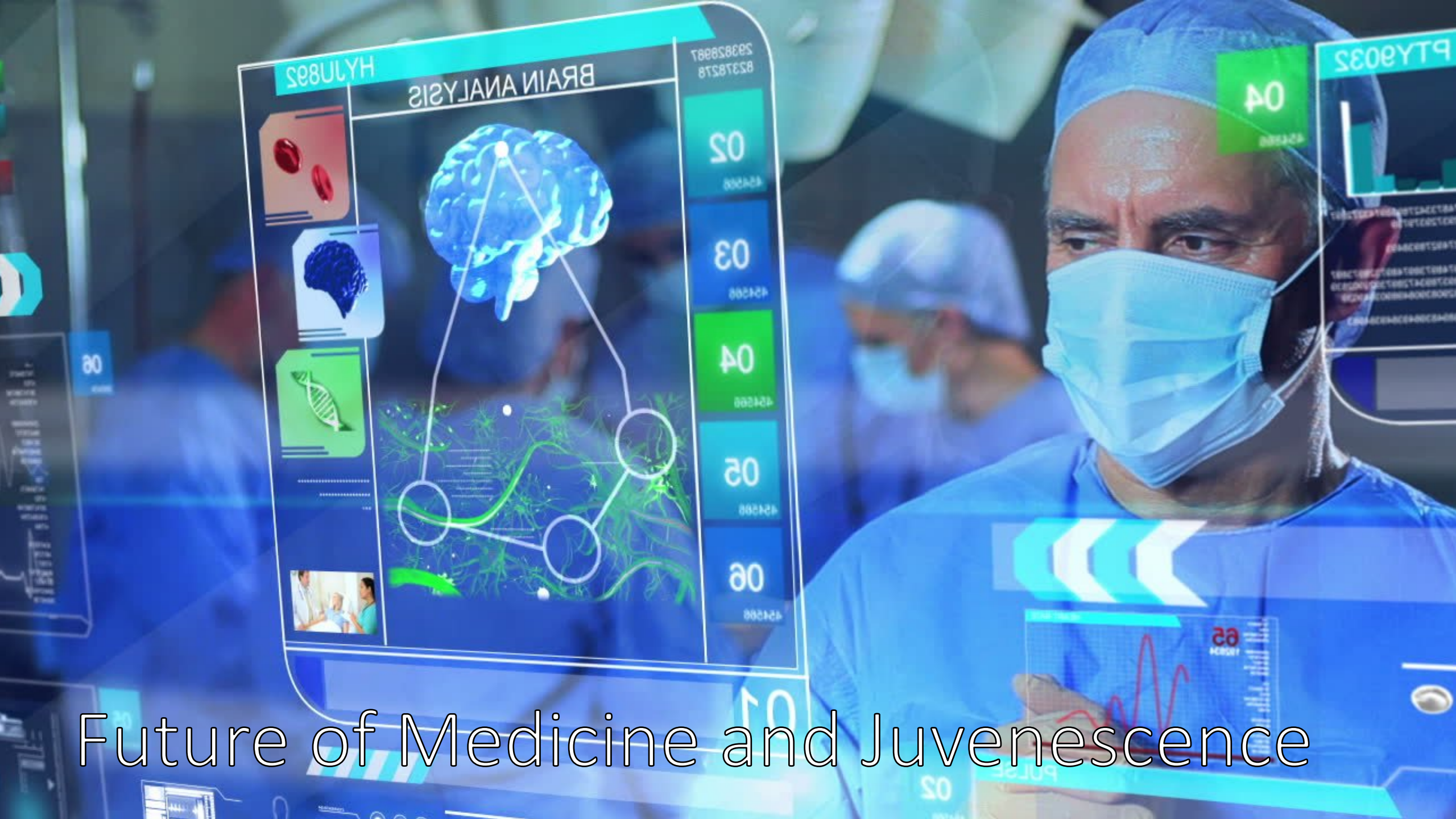


# Global Population

- US – adults over 65 will outnumber children by 2035 for first time in history
- Between 2017 – 2050 half the world's population growth will occur in 9 countries
- “Peak Children”
  - 1960 / 1 billion / 35%
  - 2011 / 1.9 billion / 27%
  - 2050 / 1.9 billion / 20%



Source: UN World Population Prospects



Future of Medicine and Juvenescence



## Computing



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## Internet



## Longevity





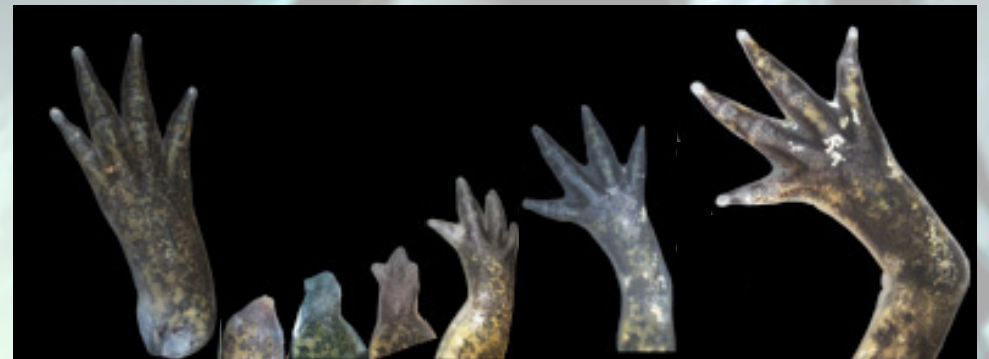
## Gene Therapies /CRISPR

# Future of Medicine

- Science of longevity remains most exciting area in medicine
- Small molecules will form bridge to 120 years
- Stem cells, gene therapies and tissue regeneration will push beyond 120
- CRISPR/Cas9 – most important discovery of last 100 years
  - Bacteria defence mechanism against viruses
- resTORbio – TORC:NASDAQ
- CRISPR Therapeutics – CRSP:NASDAQ
- BioTime, Inc. – BTX:NYSE
  - 80% stake in AgeX Therapeutics

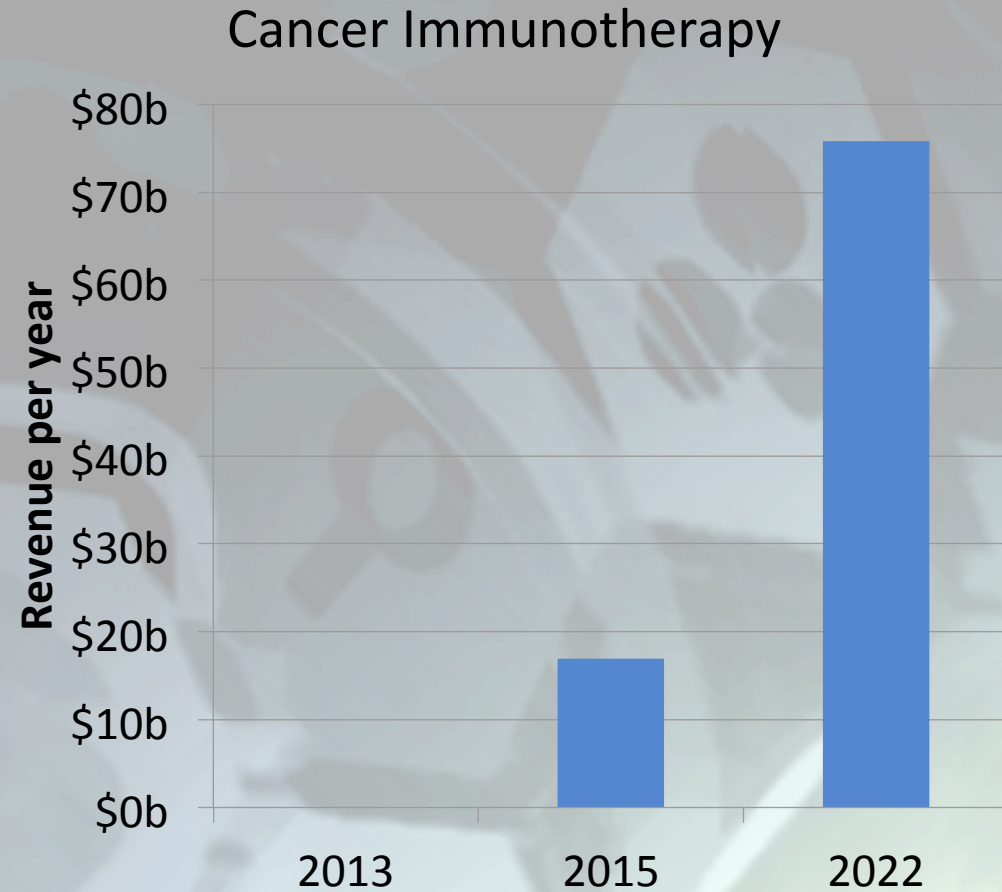


## Induced Tissue Regeneration

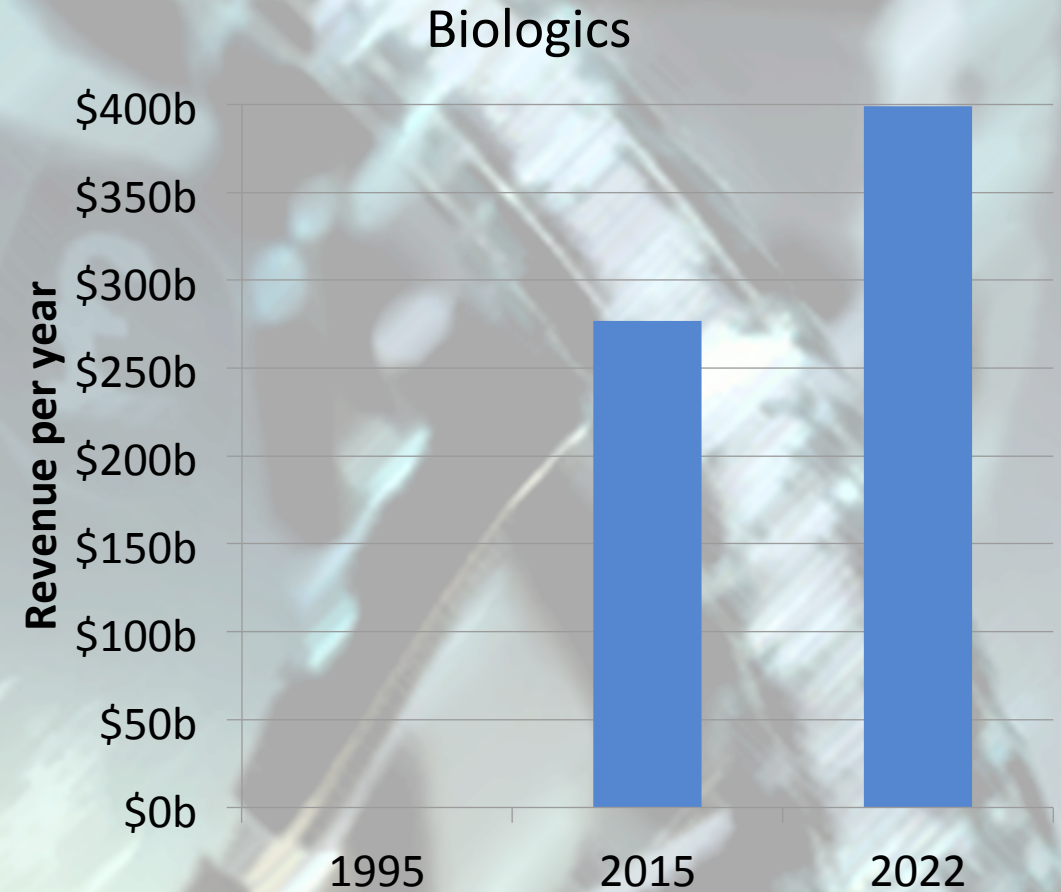




# Markets Develop Quickly



Source: GBI Research



Source: Grand View Research





## TOTAL ADULT POPULATION



5.70  
BILLION

## GLOBAL MEDIAN INCOME



\$9,733  
PER YEAR

## GLOBAL MARKET FOR LONGEVITY



\$312  
BILLION PER YEAR

~15%  
Earn more  
than

@ \$1  
per day

# JUVENESCENCE INVESTING IN THE AGE OF LONGEVITY

The market for anti-ageing treatments is currently worth USD 140 billion annually.

Imagine how much they'll be worth when they actually work.

[WWW.JUVENESCENCE-BOOK.COM](http://WWW.JUVENESCENCE-BOOK.COM)





# Summary of Stock Ideas

Company	Market Cap (\$m)	Dividend Yield	P/E Ratio	EV to EBITDA
Novartis AG	215,436	3.60%	14.32	14.38
Accenture PLC	103,621	1.65%	22.23	16.18
Bayer AG	97,888	2.92%	12.76	N/A
Caterpillar Inc	93,500	1.99%	22.95	10.72
GlaxoSmithKline PLC	90,604	6.11%	11.92	11.64
Lloyds Banking Group PLC	67,366	4.55%	8.81	N/A
General Motors Co	52,786	4.03%	5.95	2.36
Carnival Corp	47,678	2.69%	13.65	12.01
China Telecom Corp Ltd	34,575	3.13%	10.80	3.39
Pearson Plc	8,239	2.22%	15.28	8.13
The Weir Group Plc	6,072	2.24%	26.79	11.68

# Summary of Stock Ideas

Company	Market Cap (\$m)	Dividend Yield	P/E Ratio	EV to EBITDA
<b>CRISPR Therapeutics AG</b>	2,733	0.00%	N/A	N/A
<b>Aphria Inc</b>	1,924	0.00%	50.47	N/A
<b>Marshalls PLC</b>	1,211	2.32%	20.48	13.1
<b>resTORbio Inc</b>	423	0.00%	N/A	N/A
<b>Nuuvera Inc</b>	354	0.00%	N/A	N/A
<b>Condor Gold PLC</b>	43	0.00%	N/A	N/A
<b>FastForward Innovations Ltd</b>	32	0.00%	N/A	N/A
<b>Manx Financial Group Plc</b>	24	0.00%	6.00	N/A
<b>Auxico Resources Canada Inc</b>	10	0.00%	N/A	N/A
<b>Blue Star Capital PLC</b>	7	0.00%	N/A	N/A
<b>Fidelity Focus China Fund</b>	N/A	0.60%	N/A	N/A



# Macro and Short Ideas      Private Companies

- Short Facebook
- Short 10 year Bunds
- Short 30 year US Treasuries
- Long EURGBP
- Short Indonesia Rupee vs USD
- Gold – JNUG:US – 3x leverage
- Silver

- Bradda Head
- Insilico Medicine
- Juvenescence
- Factom
- SatoshiPay

*We live in an age of acceleration*







# VELOCITY

## TRADE

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