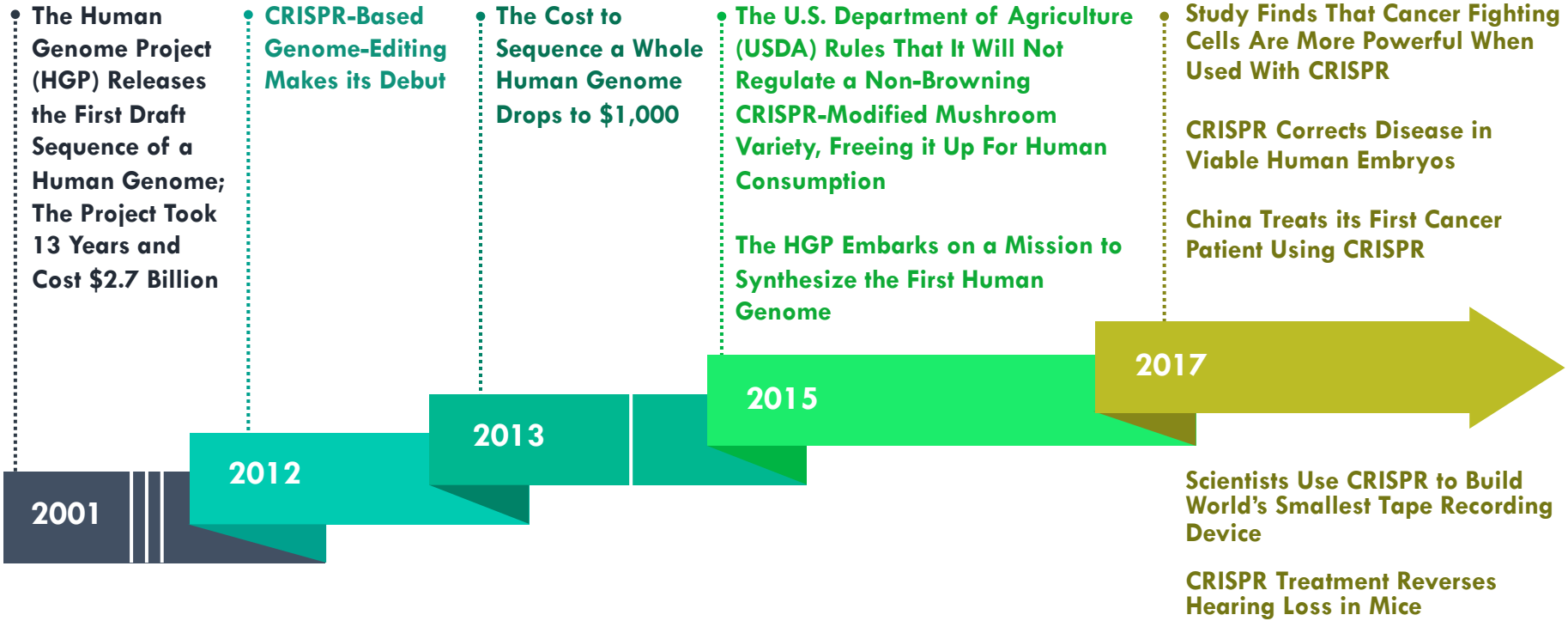
CRISPR GENOME-EDITING

Research by Manisha Samy

A Review

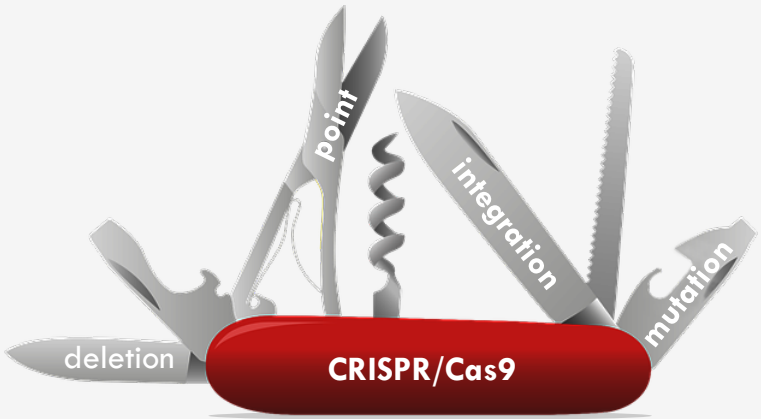


Source: ARK Investment Management LLC, 2017 | A selection of events, achievements and innovation milestones.

Cheap And Rapid "Write" Capabilities Enable Genome Modification

ARK believes that CRISPR is a genome-editing platform that will address the world's most salient health issues. It is like a "molecular swiss army knife" with a rapidly expanding number of tools that perform different functions:

Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR)

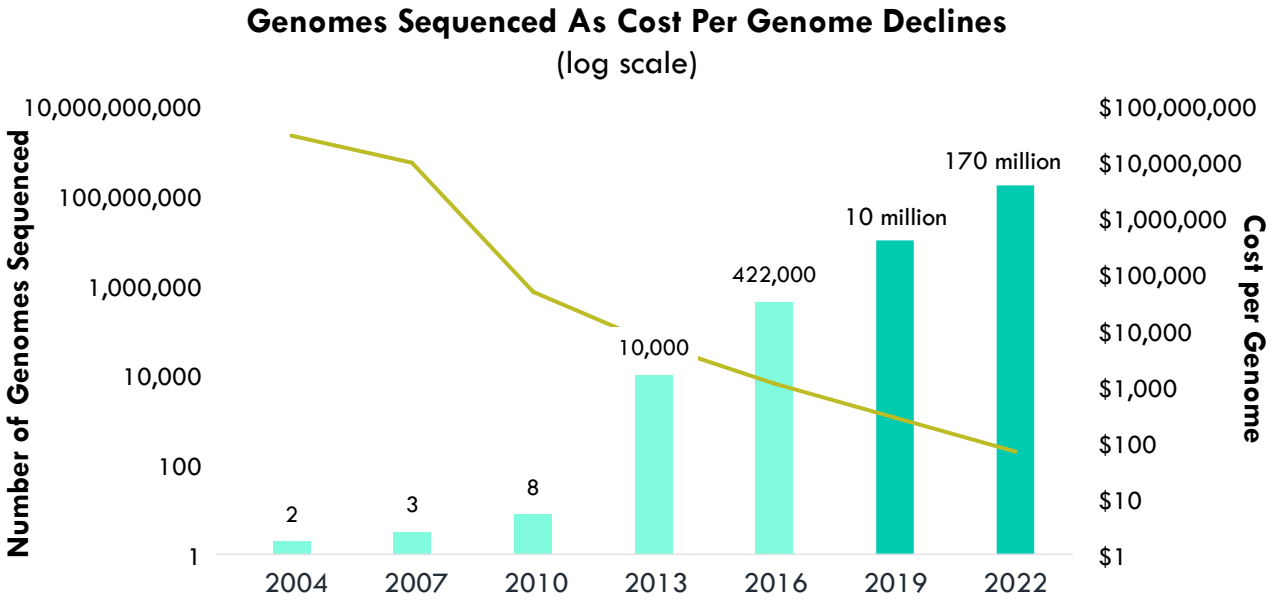


- **Cut** DNA/RNA at a single point or in stretches
- **Insert** DNA/RNA and create novel gene sequences
- **Activate and Silence** genes without making permanent changes
- **Regulate** protein expression levels epigenetically
- **Record and Timestamp** biological events
- **Track** the movement of specific biological molecules
- **Identify** the presence of specific cancer mutations and bacteria
- **Locate** molecules without making changes
- **Target and Destroy** specific viral and bacterial DNA and RNA
- **Interrogate** gene function multiplexed
- **Activate** drug release at a specified trigger

Source: ARK Investment Management LLC, 2017; Image Source: Arup

Research Shows The Number Of Human Genomes Sequenced Should Soar

By 2022, the cost of sequencing or "reading" the DNA of a full human genome should drop below $100, creating an explosion in the number of whole human genomes sequenced.



KEY EXPECTATIONS

- 2018-2021: NovaSeq instruments and chemistries should drive sequencing costs down by ~40% per year
- 2021: Cost/Genome ~$100
- 2022: ~170 million human genomes should be sequenced

Forecasts are inherently limited and cannot be relied upon.
Source: ARK Investment Management LLC, 2017

The Cost Of Editing DNA Mutations Is Dropping Precipitously

The cost of CRISPR, or "editing" DNA, is dropping, as is its time-to-manufacture, accelerating the pace of innovation.

	ZFNs*	TALENs**	CRISPR
Year of First Human Cell Modification	**2003**	**2009**	**2012**
Time to Manufacture (days)	22	10	**5**
Cost (per pair of nuclease)	~$5,500	~$360 per pair	**~$30 per pair**

Newer Genome-Editing Techniques

THE CRISPR ADVANTAGE

- Increases research thanks to lower costs and ease of use
- Reduces manufacturing time thanks to operational efficiencies
- Re-invigorates opportunities in regenerative medicine, such as stem cell research

*ZFNs: Zinc Finger Nucleases **TALENs: Transcription activator-like effector nuclease

Source: ARK Investment Management LLC, 2017

Use Case: Agriculture

CRISPR should increase the yields of livestock, crops, and aquaculture in different ways:

- Breed TB- and other disease-resistant cattle
- Shift breeding practices from random to more scientific techniques
- Raise pigs with lower fat content
- Increase the milk yield of cows

- Yield more productive, pesticide-free, and weather/bug resistant crops
- Enhance taste and nutritional value
- Surface new seed variants for hard-to-modify crops like wheat and rice

- Cut gestation periods in half
- Increase the conversion of feed into weight
- Sterilize farmed fish to protect wildlife
- Breed disease-resistant fish to avoid food poisoning

CRISPR

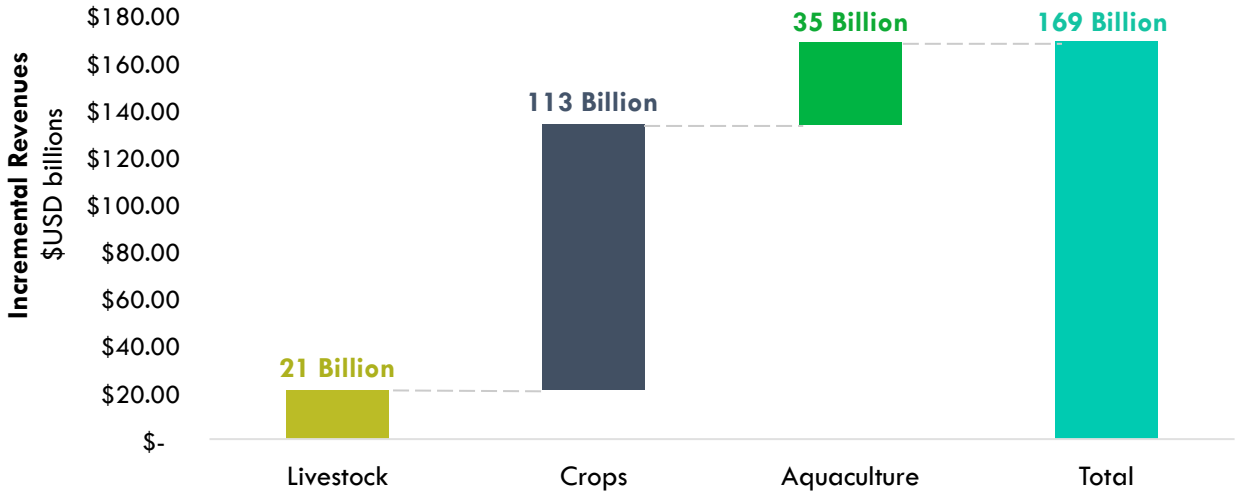
- Minimizes environmental footprint
- Avoids traditional GMO's in which foreign DNA infiltrates genes
- Aids small, family-owned farms with breeding techniques that lower the risk of disease
- Meets global demand for a diversified diet
- Reduces energy consumption associated with inefficient farmed fishing methods

Source: ARK Investment Management LLC, 2017

Use Case: Agriculture

By 2025, CRISPR could expand the agricultural market by an estimated $170 billion, sustaining projected growth in the global population.

Global Agriculture Market Expansion with CRISPR Technology
(2016 to 2025)



CRISPR should have the first commercial impact in agriculture:

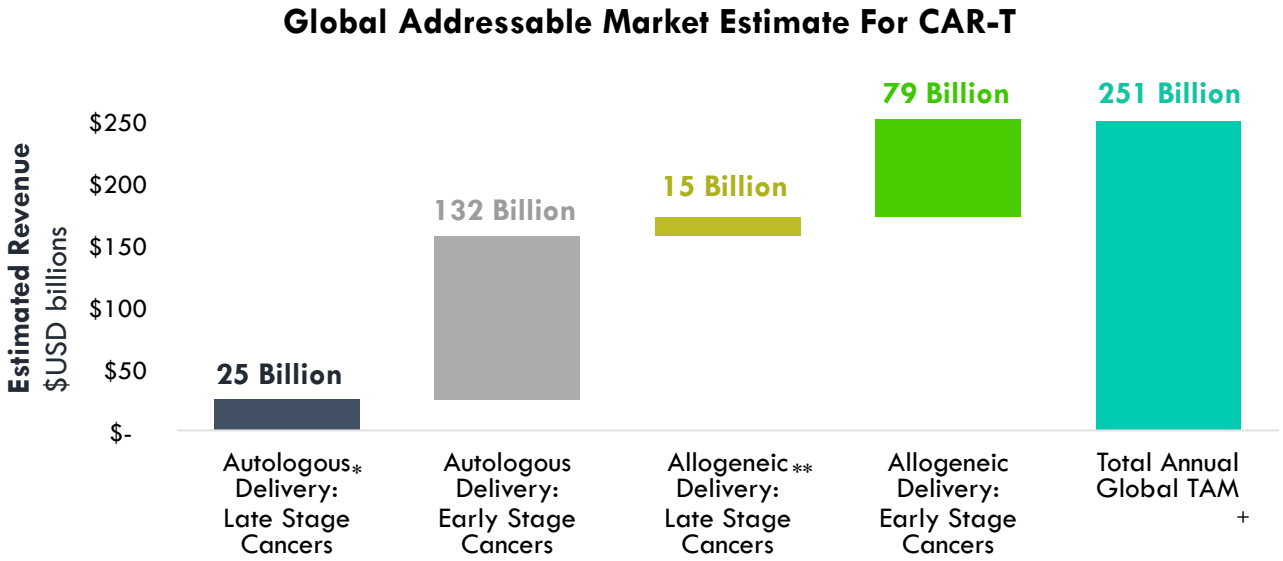
- 2020: CRISPR could enable the first commercial waxy corn variety
- 2025: CRISPR may increase food yield by an estimated 585 trillion calories
- 2025: CRISPR may increase agricultural productivity enough to feed an additional 800 million people

Forecasts are inherently limited and cannot be relied upon.
Source: ARK Investment Management LLC, 2017

Use Case: CAR-T

Globally, CAR-T cancer therapy could generate $250 billion per year in revenues, with royalties payable to CRISPR companies.

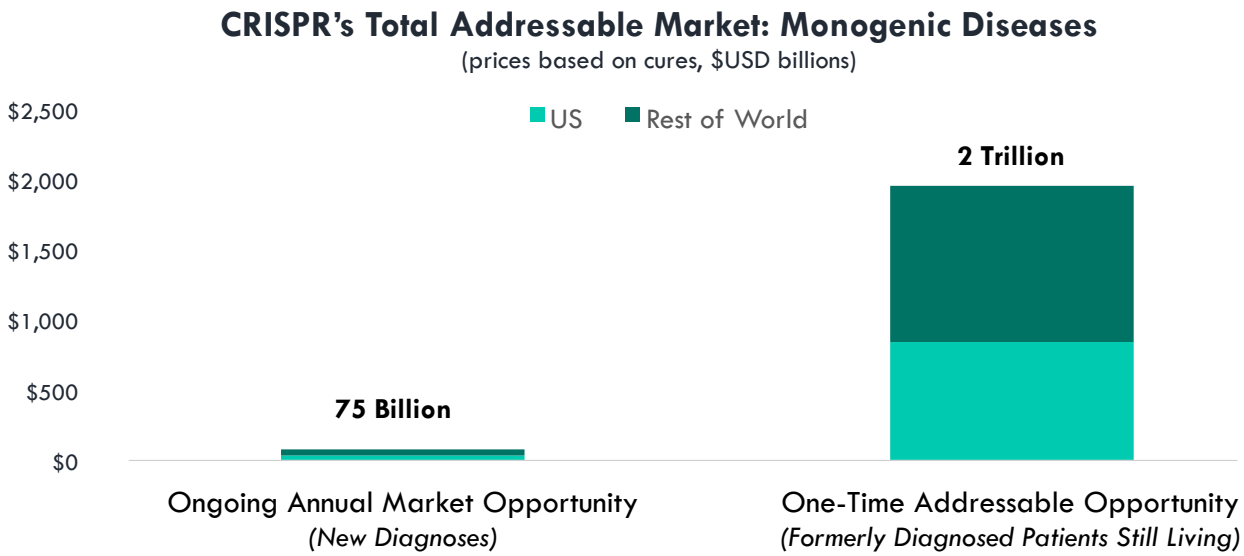
- Chimeric Antigen Receptor T-cell (CAR-T) therapy is a novel immunotherapy that modifies a patient's own T-cells to target and kill malignant cells while keeping healthy cells intact.
- CAR-T therapy is in its infancy: CRISPR could enhance the safety and efficacy of next generation CAR-T therapies.



Forecasts are inherently limited and cannot be relied upon.
*Autologous: involves one individual as both donor and recipient. **Allogeneic: involves different individuals of the same species
+TAM: Total Addressable Market | Source: ARK Investment Management LLC, 2017

Use Case: Monogenic Disease

CRISPR should dominate the $75 billion annual addressable monogenic disease market.
Only 5% of diseases caused by a single gene have any available treatment today.

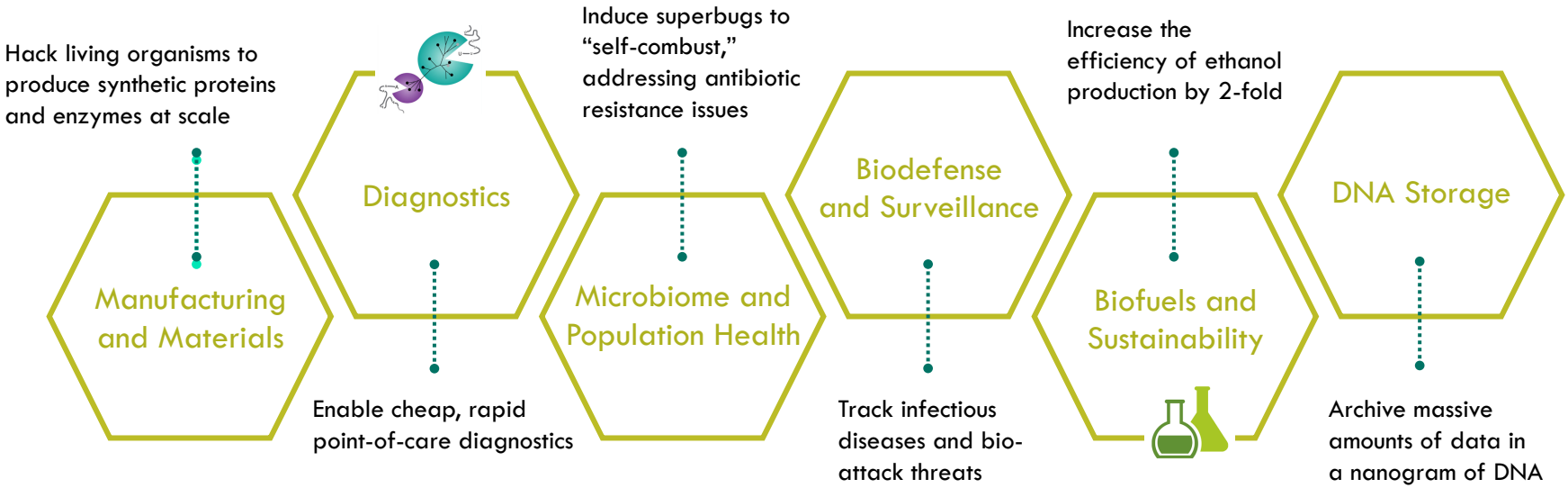


- CRISPR can address 10,000 monogenic diseases, of which only 5% have any treatments today
- 1 in 100 live human births results in a monogenic disease
- ARK expects CRISPR to enter human trials in 2018

Forecasts are inherently limited and cannot be relied upon.
Source: ARK Investment Management LLC, 2017; Genetic Explanation: Sense and Nonsense. Gruber, Jeremy & Krimsky, Sheldon. 2013

Based On ARK's Research...

CRISPR's toolbox should disrupt more than therapeutics and agriculture.



Source: ARK Investment Management LLC, 2017

Risks and Disclosure

Please note, companies that ARK believes are capitalizing on disruptive innovation and developing technologies to displace older technologies or create new markets may not in fact do so and/or may face political or legal attacks from competitors, industry groups, or local and national governments.

ARK aims to educate investors and to size the potential opportunity of **CRISPR**, noting that risks and uncertainties may impact our projections and research models. Investors should use the content presented for informational purposes only, and be aware of market risk, disruptive innovation risk, regulatory risk, and risks related to CRISPR, such as:

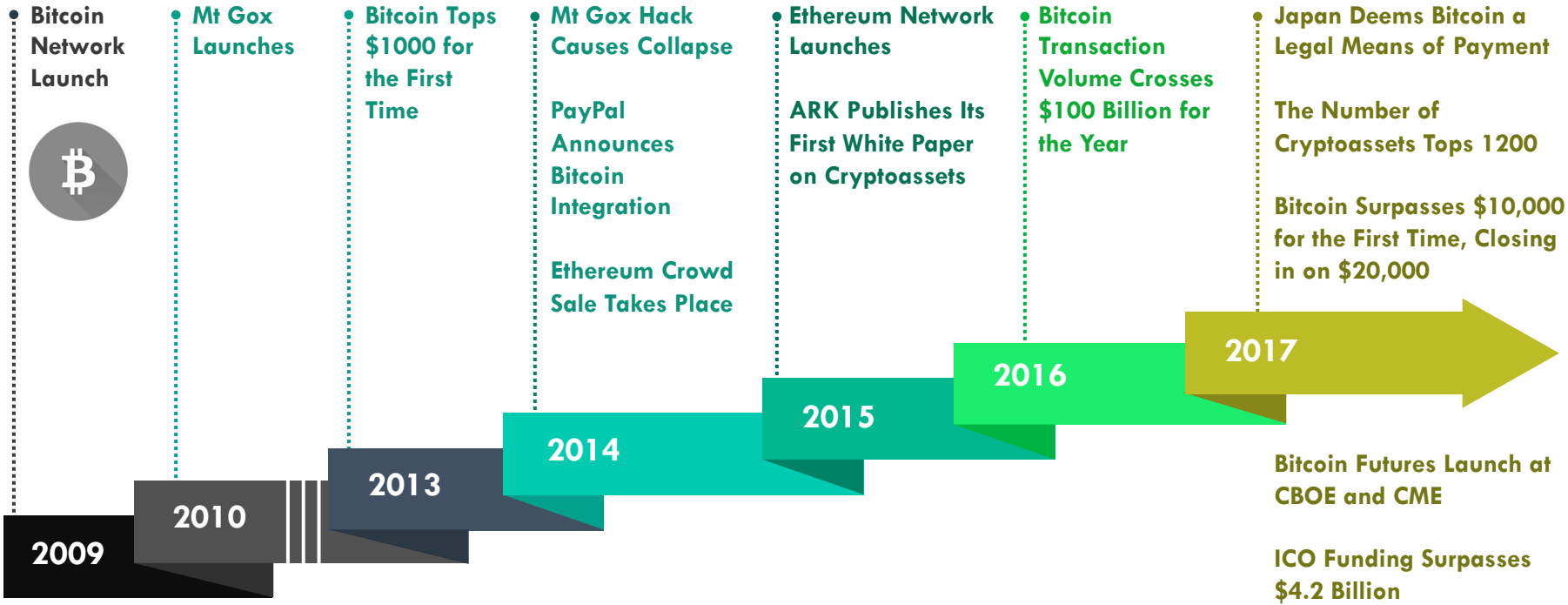
- Health Care Sector Risk
- Biotechnology Company Risk
- Pharmaceutical Company Risk

Health Care Sector Risk. The health care sector may be affected by government regulations and government health care programs, restrictions on government reimbursement for medical expenses, increases or decreases in the cost of medical products and services and product liability claims, among other factors. Many health care companies are: (i) heavily dependent on patent protection and intellectual property rights and the expiration of a patent may adversely affect their profitability; (ii) subject to extensive litigation based on product liability and similar claims; and (iii) subject to competitive forces that may make it difficult to raise prices and, in fact, may result in price discounting. Many health care products and services may be subject to regulatory approvals. The process of obtaining such approvals may be long and costly, and delays or failure to receive such approvals may negatively impact the business of such companies. Additional or more stringent laws and regulations enacted in the future could have a material adverse effect on such companies in the health care sector. In addition, issuers in the health care sector include issuers having their principal activities in the biotechnology industry, medical laboratories and research, drug laboratories and research and drug manufacturers, which have the additional risks described below. **Biotechnology Company Risk.** A biotechnology company's valuation can often be based largely on the potential or actual performance of a limited number of products and can accordingly be greatly affected if one of its products proves, among other things, unsafe, ineffective or unprofitable. Biotechnology companies are subject to regulation by, and the restrictions of, the U.S. Food and Drug Administration, the U.S. Environmental Protection Agency, state and local governments, and foreign regulatory authorities. **Pharmaceutical Company Risk.** Companies in the pharmaceutical industry can be significantly affected by, among other things, government approval of products and services, government regulation and reimbursement rates, product liability claims, patent expirations and protection and intense competition.

CRYPTOASSETS

Research by Bhavana Yarasuri and Julia Hemmendinger

A Review



Source: ARK Investment Management LLC, 2017 | A selection of events, achievements and innovation milestones.

Bitcoin Can Play The Roles Of Currency And Store of Value

Bitcoin ➡

Money over IP* + Digital Gold

ARK believes that through blockchain technology, bitcoin can act as "money over IP", allowing for value transfer at a lower cost for consumers. For example, it could allow much simpler and cheaper cross-border money transfers for migrant workers.

*IP: Internet Protocol

Bitcoin's supply is mathematically metered to level out at 21million units.+ As it moves toward this limit and becomes scarce, ARK believes bitcoin will hold its value, if not appreciate. For instance, increasingly bitcoin is serving as a "store of value" in countries, like Zimbabwe and Venezuela, which are plagued with hyperinflation

+Unless its core-software developer community agrees to lift the limit.

Cryptocurrency: A digital currency (i.e. bitcoin) in which encryption techniques are used to regulate the generation of units of currency and verify the transfer of funds independently of a central bank within a decentralized network via the internet.

Source: ARK Investment Management LLC, 2017

Bitcoin As Money Over IP

In the 1980s, communicating across the world was expensive.

Voice over IP (VoIP)

Instant communication everywhere without relying on expensive telecom providers

The Internet enabled "free voice"

Today, transferring funds across the world is expensive.

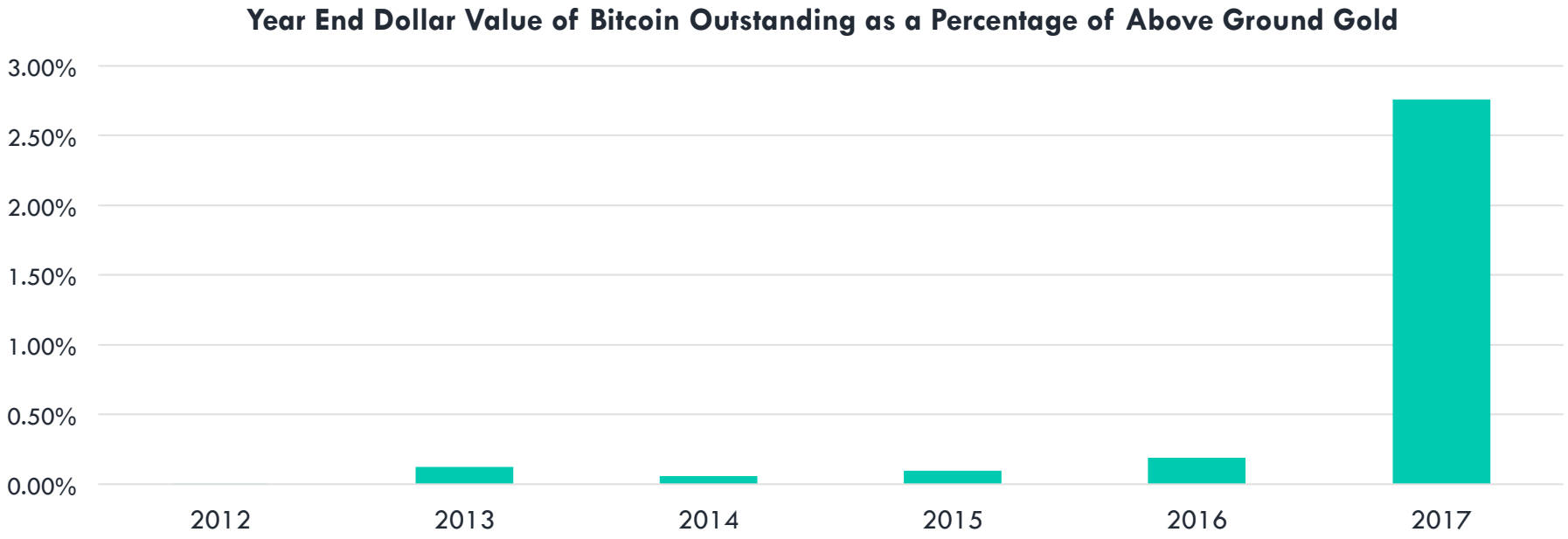
Money over IP (MoIP)

Instant value transfer of any amount to any person anywhere at almost no cost

ARK believes blockchain technology will enable fee-less transfers

Source: ARK Investment Management LLC

Bitcoin As Digital Gold

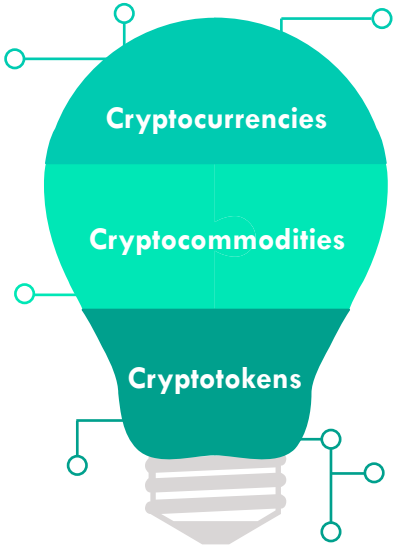


Bitcoins price is volatile an since the end of 2017 has lost substantial value. Bitcoin outstanding as a percentage of above ground gold as of 02/28/2018 was 2.2%.

Source: ARK investment Management LLC, as of Dec 2017 | Data: blockchain.info and World Gold Council

Blockchain Technology Has The Potential to Create A New Asset Class

ARK believes that bitcoin and other cryptocurrencies are not just "currencies", but could be considered part of a new asset class: **Cryptoassets**. The definition of an asset class was addressed by Robert Greer[1] in 1997. Greer differentiates asset classes in three ways: politico-economic features, correlation of price movements, and risk-reward profiles. ARK believes the same differentiation can be applied to cryptoassets when comparing them to other asset classes such as equities, bonds, or currencies.



Verticals ARK defines within cryptoassets:

Cryptocurrencies	**Uses**: means of exchange, store of value, unit of account Examples: bitcoin, litecoin, monero, zcash
Cryptocommodities	**Uses**: cloud storage, compute cycles, bandwidth Examples: ether, golem, filecoin
Cryptotokens	**Uses**: consumer facing distributed applications Examples: augur, gnosis, aragon, steemit

[1] "What is an Asset Class, Anyway?" Robert J. Greer, 1997, The Journal of Portfolio Management

How Cryptoassets Compare To Other Asset Classes

	Collateral	Basis of value	Provenance
Equities	Voting rights	Cash flows in excess of fixed income obligations	1600s
Bonds	Fixed assets; Legal position in the capital structure	Interest payments, recovery value of fixed assets	1200s
Income-producing real estate	Underlying land and buildings	Rents	500 BC
Physical commodities (i.e. Grains, Coal)	Physical goods	Supply/predictable demand	100,000 BC
Precious metals (i.e. Gold)	Metal	Supply/unpredictable demand	3000 BC
Currency	The credibility of the monetary authority	Manipulated supply to stabilize demand	600 BC
Fine art	Paint on canvas	Aesthetics/scarcity/unpredictable demand	400 BC
Cryptoassets	Bandwidth in a digital network	Digital scarcity/ mathematically metered supply^{+}/ unpredictable demand	2008

Unlike traditional currencies or other asset classes, bitcoin has no physical form and is not backed by tangible assets. A virtual currency like bitcoin is not insured or controlled by a central bank or other governmental authority, cannot always be exchanged for other commodities, and is subject to little or no regulation. Consequently, there is significant more risk for potential fraud and manipulation.
$^{+}$Some cryptoasstes may not be mathematically metered (i.e. Ripple) and follow a different approach.

Sources: ARK Investment Management LLC, 2017;
Data Sources: The Ascent of Money; Land Tenure in Ancient Greece, The Canadian Journal of Economics and Political Science; Britannica.com; The history of money from barter to bitcoin, the Telegraph

Cryptoassets Are Still Small Compared To Other Asset Classes.

Asset Classes	Global Value (USD Trillions)	As a Multiple of Cryptoassets
	As of Feb 28, 2018	
Cryptoassets	**$0.4**	1x
Gold	$8.1	20x
Money Supply (Narrow)	$37	92x
Equities	$80	200x
Money Supply (Broad)	$90	225x
Bonds	$108	270x
Real Estate	$240	600x

Cryptoassets: Represented by the sum total of assets listed on coinmarketcap.com
Gold Outstanding: Represented by the current value of all above-ground gold
Money Supply Narrow: M1 outstanding according to the *CIA Fact Book*
Money Supply Broad: M2 outstanding according to the *CIA Fact Book*
Equities: Reflects total value of equities outstanding per *SIFMA Fact Book* adjusted for incremental appreciation
Bonds: Total debt securities outstanding from the March 2018 BIS quarterly review plus estimates of incremental issuance
Real estate: Estimate of total value of privately held real estate

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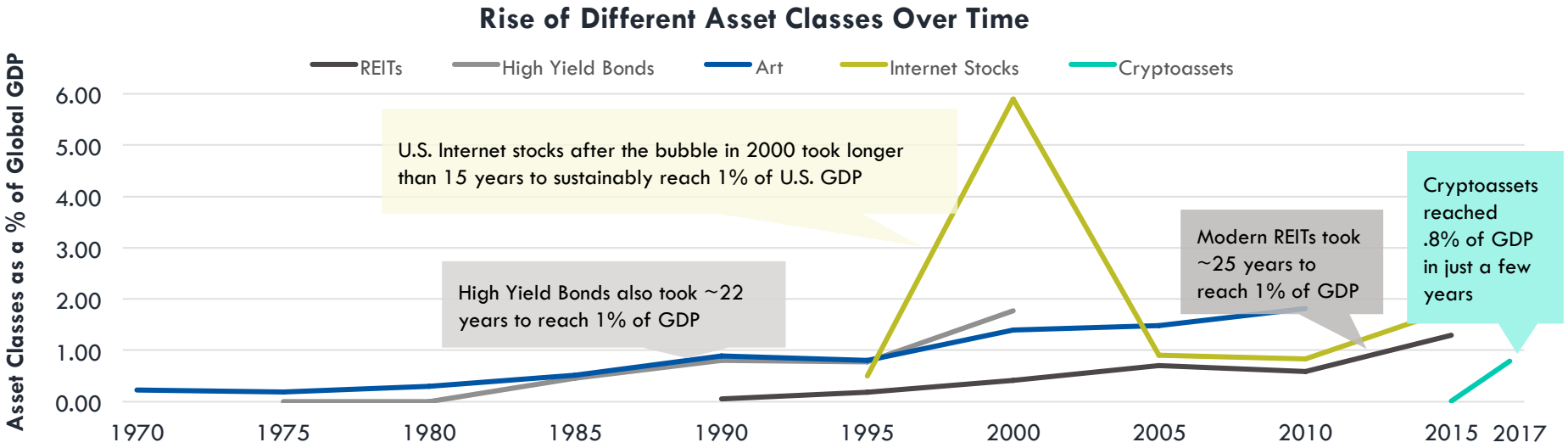
Sources: ARK Investment Management LLC, 2017 | Data: Coinmarketcap.com, World Gold Council, SIFMA Fact Book, Savill\s World Research & CIA Fact Book

Cryptoassets Have Appreciated Rapidly

It typically takes decades before an asset class's value rises sustainably above 1% of global GDP. The total value of bitcoin, ether, litecoin, and other cryptoassets listed on coinmarketcap.com hit 0.8% of global GDP in late 2017—less than a decade.



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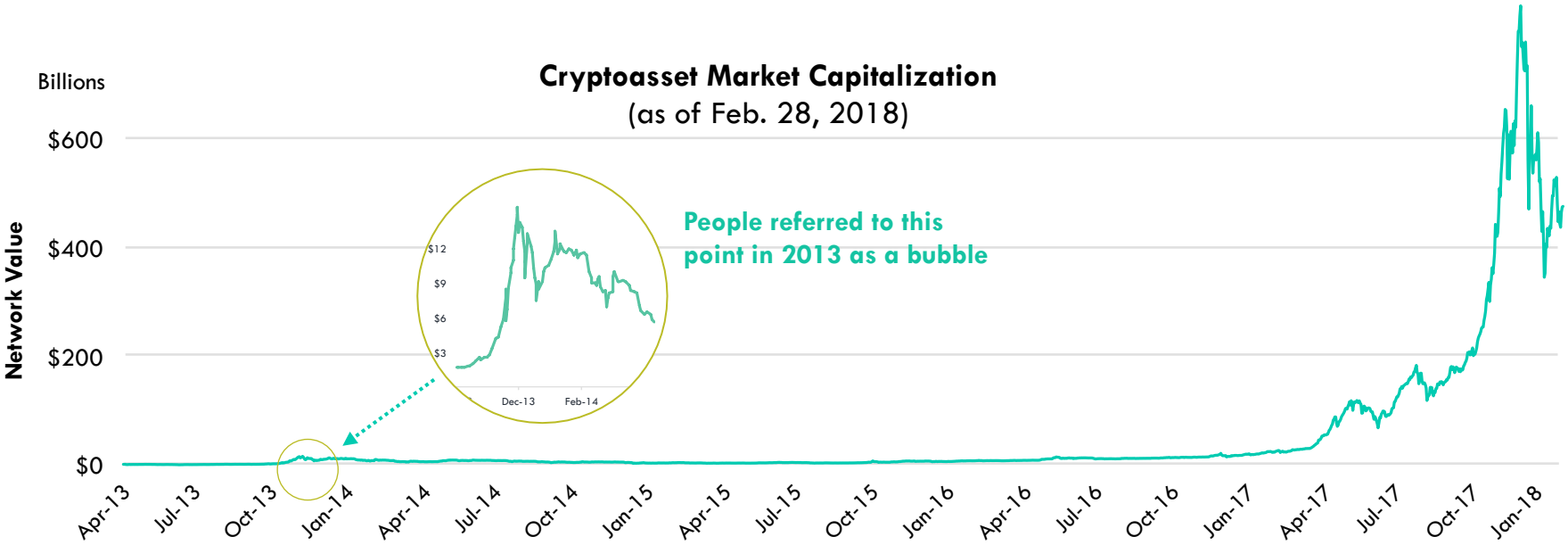
Sources: ARK Investment Management LLC, 2017; Data Sources : ART: "Size of Distressed Debt Market and Default Outlook for 2005 - 2006", NYU Stern, "Art as an Asset and the underperformance of the Masters" by Mei and Moses REITs: https://www.reit.com/data-research/reit-market-data/us-reit-industry-equity-market-cap Internet Stocks: "The valuation and market rationality of internet stock prices", 2002, NY Stern

Are Cryptoassets In A Bubble?

Many thought that cryptoassets were in a bubble in 2013 when bitcoin peaked around $1,000. Financial "booms and busts" are normal in technological revolutions. ARK believes the value proposition of blockchain technology is profound.



Source: ARK Investment Management LLC, 2017 | Data: https://coinmarketcap.com/charts/, Feb. 27, 2017

What We Expect In The Future For Cryptoassets

As the cryptoasset market evolves, each category will have a unique utility and value proposition.

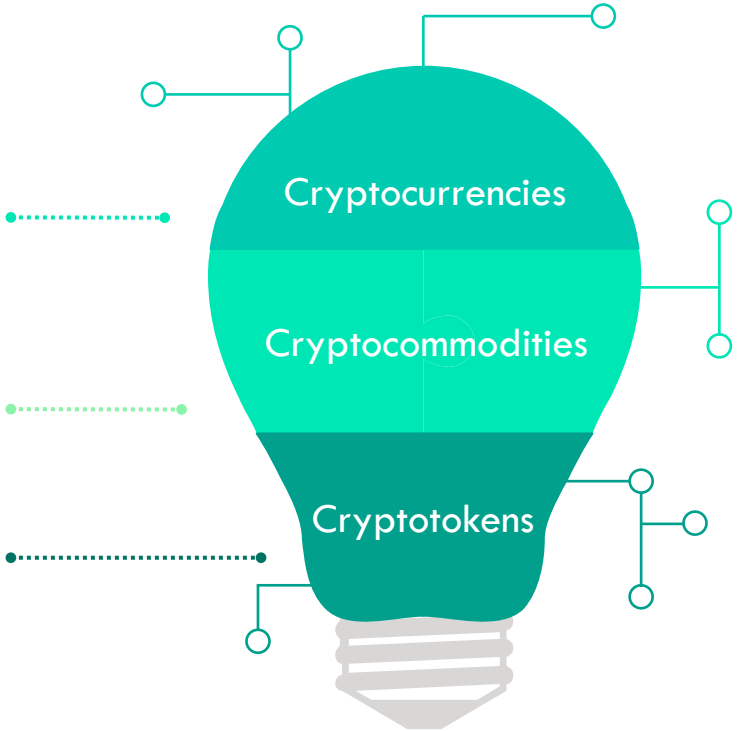
01 A store of value, particularly in emerging markets.

02 A means of payment, particularly in emerging markets.

03 A reserve currency for all other crypto-assets.

04 Computing power, storage, bandwidth, and other digital commodities will become securitized products that trade on financial exchanges.

05 Just as bonds are claims on fixed assets and equities are claims on excess cash flows, tokens will be claims on the utilization of assets and could become a part of corporate capital structures.



Sources: ARK Investment Management LLC, 2017

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- Cryptocurrency Risk
- Cryptocurrency Tax Risk

Cryptocurrency Risk. Cryptocurrency (notably, bitcoin), often referred to as "virtual currency" or "digital currency," operates as a decentralized, peer-to-peer financial exchange and value storage that is used like money. The Fund may have exposure to bitcoin, a cryptocurrency, indirectly through an investment in the Bitcoin Investment Trust ("GBTC"), a privately offered, open-end investment vehicle. Cryptocurrency operates without central authority or banks and is not back by any government. Even indirectly, cryptocurrencies (i.e., bitcoin) may experience very high volatility and related investment vehicles like GBTC may be affected by such volatility. As a result of holding cryptocurrency, the Fund may also trade at a significant premium to NAV. Cryptocurrency is also not legal tender. Federal, state or foreign governments may restrict the use and exchange of cryptocurrency, and regulation in the U.S. is still developing. Cryptocurrency exchanges may stop operating or permanently shut down due to fraud, technical glitches, hackers or malware.

Cryptocurrency Tax Risk. Many significant aspects of the U.S. federal income tax treatment of investments in bitcoin are uncertain and an investment in bitcoin may produce income that is not treated as qualifying income for purposes of the income test applicable to regulated investment companies, such as the Fund. GBTC is expected to be treated as a grantor trust for U.S. federal income tax purposes, and therefore an investment by the Fund in GBTC will generally be treated as a direct investment in bitcoin for such purposes. See "Taxes" in the Fund's SAI for more information.

FRICTIONLESS VALUE TRANSFERS

06

Research by Bhavana Yarasuri and Julia Hemmendinger

A Review

2004

Alipay Launches

2009

Bitcoin Network Launches

2014

Apple Pay Launches

2016

WeChat Pay Reaches 1 Billion Active Users

Mobile Payments Hit $5.8 Trillion in 2016

2017

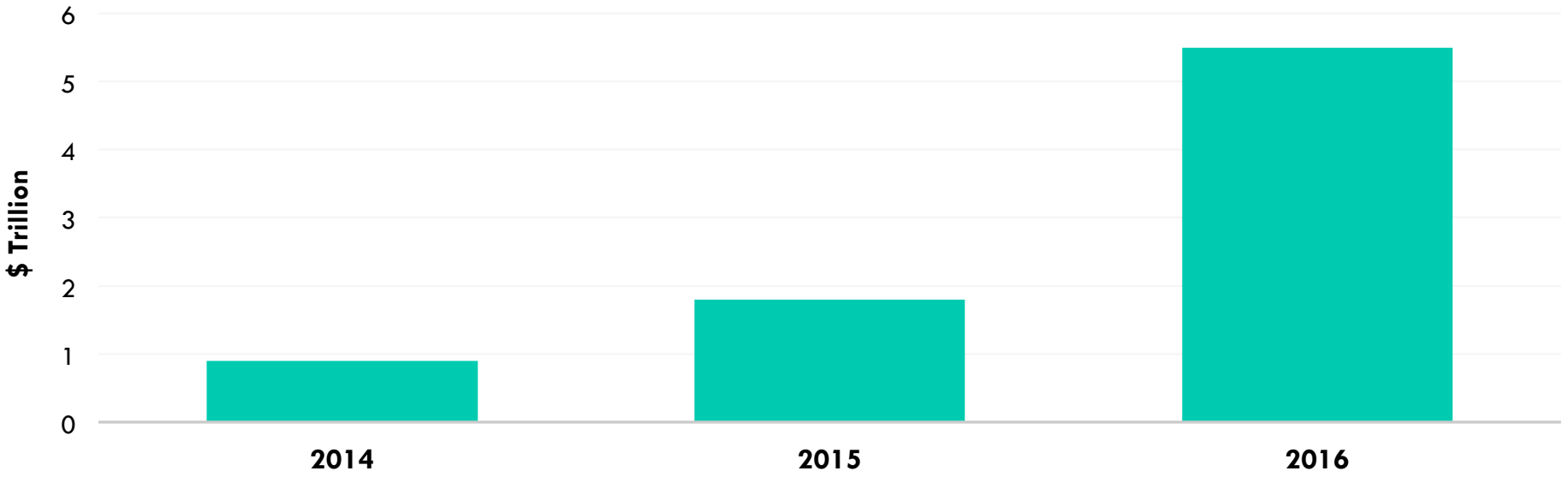
Square Cash App Launches Bitcoin Purchasing Function

Over the 3 Months Ended December 6th, Bitcoin's Blockchain Facilitated More Than $1.5 Billion Worth of Value Transfer on Average Per Day

Source: ARK Investment Management LLC, 2017 | A selection of events, achievements and innovation milestones.

China Points To The Potential Of Mobile Payments

ARK believes that frictionless value transfers, enabled by technology, make transactions and exchanges (i.e. money, digital commodities, etc.) as simple and seamless as possible within a user's everyday life. Today, one of the most common forms is mobile payments. In China, mobile value transfers jumped 5-fold in two years, reaching $5.5 trillion in 2016.

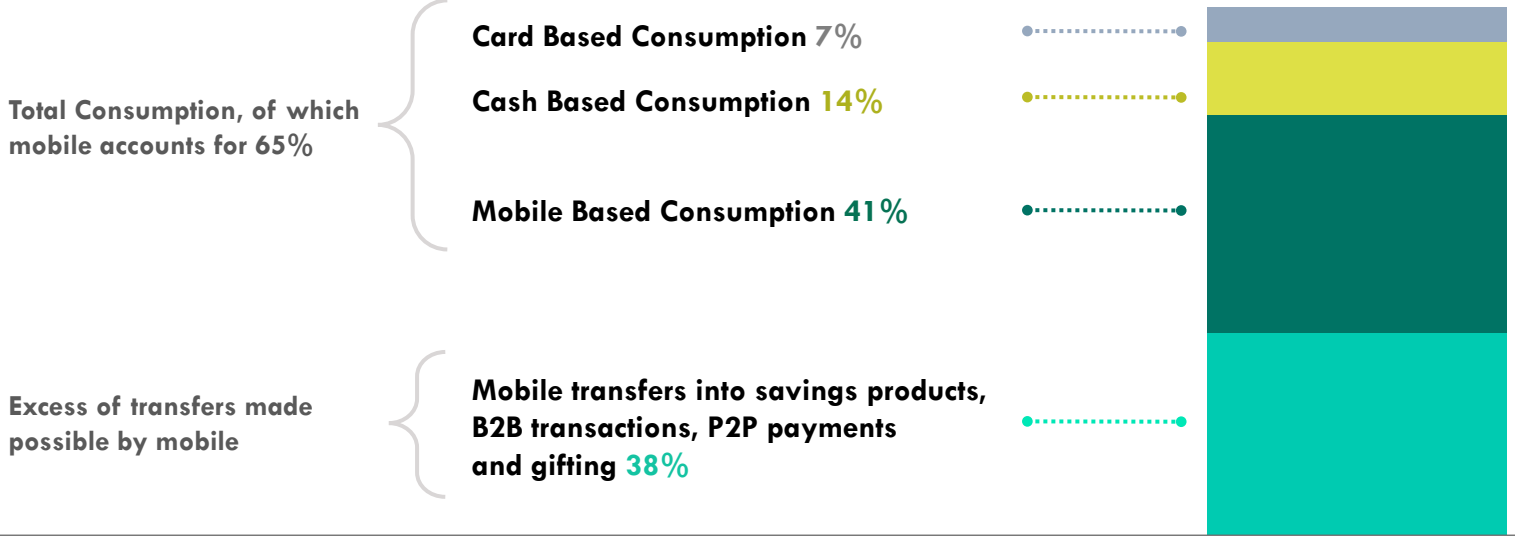


Sources: ARK Investment Management LLC, 2017; Data: http://www.analysyschina.com/

China Points To The Potential Of Mobile Payments

Mobile enables 65% of the consumption in China as well as other financial transfers like gifts and business-to-business transactions.

Mobile as a % of Total Value Transfers in 2016



Sources: ARK Investment Management LLC, 2017 | Data: http://www.analysyschina.com/

China Points To The Potential Of Mobile Payments

ON-DEMAND BIKE SHARING

- 25 Billion Transactions in 2017
- Average Value of $0.15

TIPPING FOR CONTENT

- 1.2 Trillion Transactions in 2016
- Average Value of $0.01

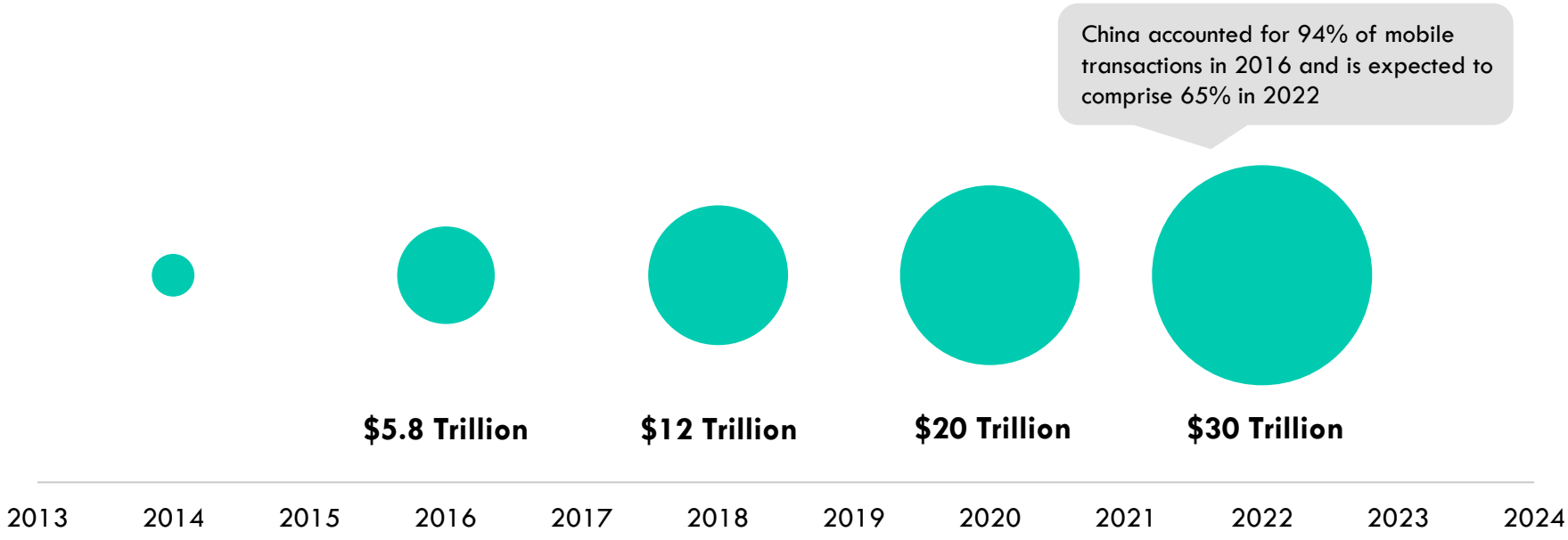
RED ENVELOPES & GIFT GIVING

- 290 Billion Transactions in 2017
- Average Value of $1.50

Sources: https://www.economist.com/news/business/21731675-one-answer-would-be-ofo-and-mobike-merge-chinas-bicycle-sharing-giants-are-still-trying.
https://www.reuters.com/article/us-lunar-newyear-wechat-redpackets/wechat-users-send-46-billion-digital-red-packets-over-lunar-new-year-xinhua-idUSKBN15J0BG

China Points To The Potential Of Mobile Payments

ARK's research shows globally, mobile value transfers are expected to grow 5-fold and to reach **$30 trillion** by 2022.



Forecasts are inherently limited and cannot be relied upon.
Sources: ARK Investment Management LLC, 2017

The Evolution Of Frictionless Value Transfers Has Accelerated

ARK believes the number of transactions should increase significantly as technology enables programmatic value transfers.

Cash

Bank Notes

Demand Drafts

Credit & Debit Cards
VISA, MASTERCARD

Wire Transfers
WESTERN UNION

ATMs

Mobile Payments
WECHAT PAY, ALIPAY

Social Payments
VENMO, SQUARE CASH

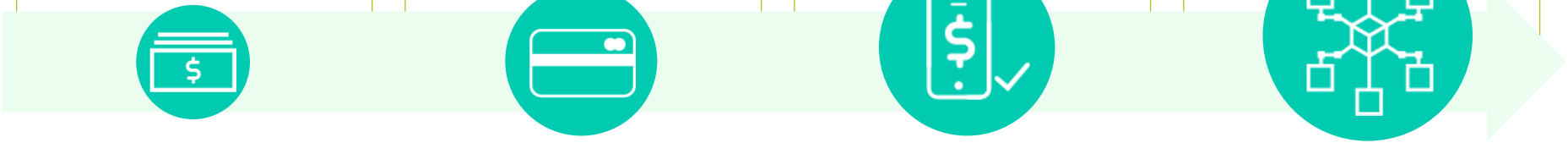
Digital Wallets
APPLE PAY, PAYPAL

Embedded Payments
AMAZON ONE CLICK

Machine to Machine Programmatic Value Transfers
BITCOIN, LITECOIN

Digital Commodities

Real Time Insurance Contracts



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- Internet Company Risk
- Software Industry Risk
- Cryptocurrency Risk

Internet Company Risk. Many Internet-related companies have incurred large losses since their inception and may continue to incur large losses in the hope of capturing market share and generating future revenues. Accordingly, many such companies expect to incur significant operating losses for the foreseeable future, and may never be profitable. The markets in which many Internet companies compete face rapidly evolving industry standards, frequent new service and product announcements, introductions and enhancements, and changing customer demands. The failure of an Internet company to adapt to such changes could have a material adverse effect on the company's business. Additionally, the widespread adoption of new Internet, networking, telecommunications technologies, or other technological changes could require substantial expenditures by an Internet company to modify or adapt its services or infrastructure, which could have a material adverse effect on an Internet company's business. **Software Industry Risk.** The software industry can be significantly affected by intense competition, aggressive pricing, technological innovations, and product obsolescence. Companies in the software industry are subject to significant competitive pressures, such as aggressive pricing, new market entrants, competition for market share, short product cycles due to an accelerated rate of technological developments and the potential for limited earnings and/or falling profit margins. These companies also face the risks that new services, equipment or technologies will not be accepted by consumers and businesses or will become rapidly obsolete. These factors can affect the profitability of these companies and, as a result, the value of their securities. Also, patent protection is integral to the success of many companies in this industry, and profitability can be affected materially by, among other things, the cost of obtaining (or failing to obtain) patent approvals, the cost of litigating patent infringement and the loss of patent protection for products (which significantly increases pricing pressures and can materially reduce profitability with respect to such products). In addition, many software companies have limited operating histories. Prices of these companies' securities historically have been more volatile than other securities, especially over the short term. **Cryptocurrency Risk.** Cryptocurrency (notably, bitcoin), often referred to as "virtual currency" or "digital currency," operates as a decentralized, peer-to-peer financial exchange and value storage that is used like money. The Fund may have exposure to bitcoin, a cryptocurrency, indirectly through an investment in the Bitcoin Investment Trust ("GBTC"), a privately offered, open-end investment vehicle. Cryptocurrency operates without central authority or banks and is not back by any government. Even indirectly, cryptocurrencies (i.e., bitcoin) may experience very high volatility and related investment vehicles like GBTC may be affected by such volatility. As a result of holding cryptocurrency, the Fund may also trade at a significant premium to NAV. Cryptocurrency is also not legal tender. Federal, state or foreign governments may restrict the use and exchange of cryptocurrency, and regulation in the U.S. is still developing. Cryptocurrency exchanges may stop operating or permanently shut down due to fraud, technical glitches, hackers or malware.

3D PRINTING

Research by Tasha Keeney

A Review

1980

- **Invention of First 3D Printing Methods**

2003

- **First Patent for 3D Printed Human Cells**

2014

- **Consumer 3D Printing Hype**

2016

- **3D Printing Companies Restructure, Placing Less Emphasis on the Consumer Market**
- **GE Acquires Metal 3D Printing Companies, Arcam and Concept Laser**
- **HP Begins Selling Multijet Fusion Printer**

2017

- **Adidas and Carbon 3D Partner on 3D Printing Shoe Midsoles**
- **FAA Drafts Guidance on Additive Manufacturing in Aerospace**
- **FDA Provides Guidance on Additive Manufacturing for Medical Devices**

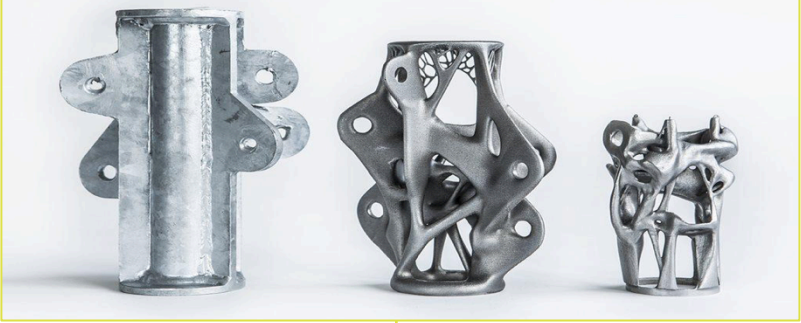
Source: ARK Investment Management LLC, 2017 | A selection of events, achievements and innovation milestones.

3D Printing Should Revolutionize Traditional Manufacturing

By building objects layer-by-layer, instead of removing material from a larger block or using a mold, 3D printing offers a range of benefits:

- **Shortens design-to-production time**
- **Shifts power to the designers**
- **Creates products with less waste**
- **Enables radically new architectures**
- **Reduces the cost of manufacturing significantly**

Traditional Manufacturing → 3D Printing and Machine Learning



For example, these structural nodes all support the same weight, but the part on the right weighs 75% less and is 50% smaller than the original part on the left.

Source: ARK Investment Management LLC; Image Source: https://www.arup.com/projects/additive-manufacturing

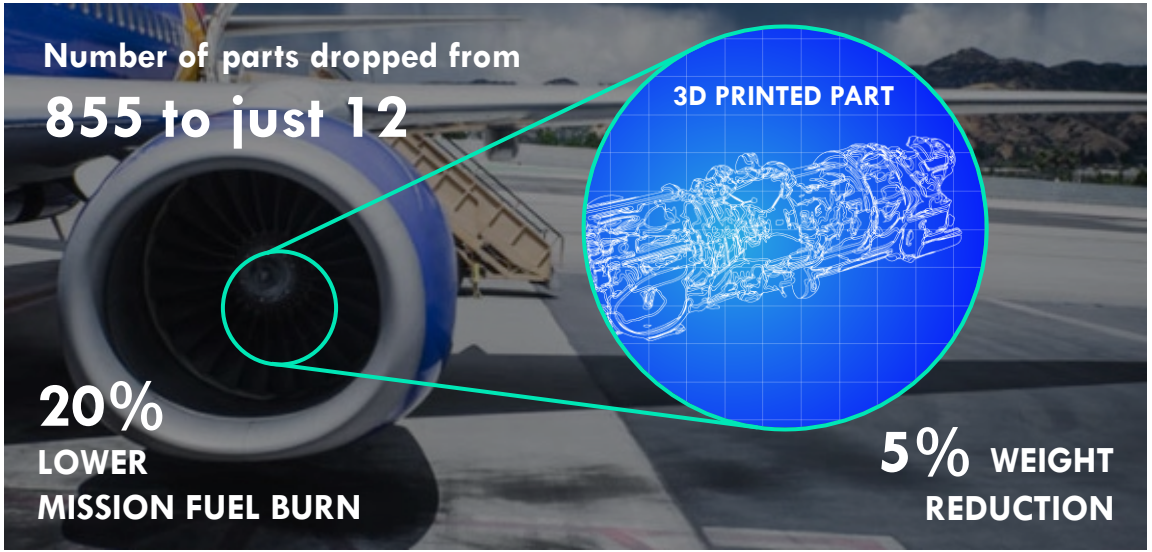
Use Case: Aerospace & Aviation

General Electric expects its additive manufacturing efforts to generate $1 billion in revenues and save $3-5 billion in costs by 2020.

Thanks to 3D printing, GE is reducing costs and producing better performing parts for jet engines.

PROOF OF CONCEPT:
ADVANCED TURBOPROP ENGINE (ATP)

- *Number of parts dropped from 855 to just 12*
- *Fuel burn lowered by 20%*
- *Weight reduced 5%*
- *Test schedule dropped from 12 to 6 months*
- *Structural casting eliminated*



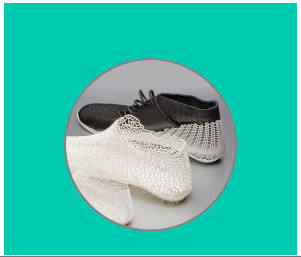
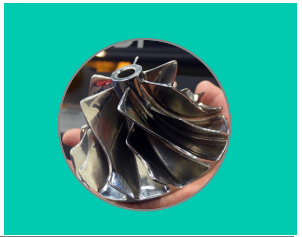
Sources: GE Additive Oppenheimer Annual Industrial conference 2017, https://www.ge.com/investor-relations/sites/default/files/GE%20Additive_Oppenheimer%20Annual%20Industrial%20Growth%20Conference.pdf
https://www.geglobalresearch.com/blog/3d-printing-creates-new-parts-aircraft-engines

3D Printing Is In Its Infancy

ARK's research shows that 3D printing for end use parts should be the next frontier.

3D Printing Market Potential And Its Current Penetration

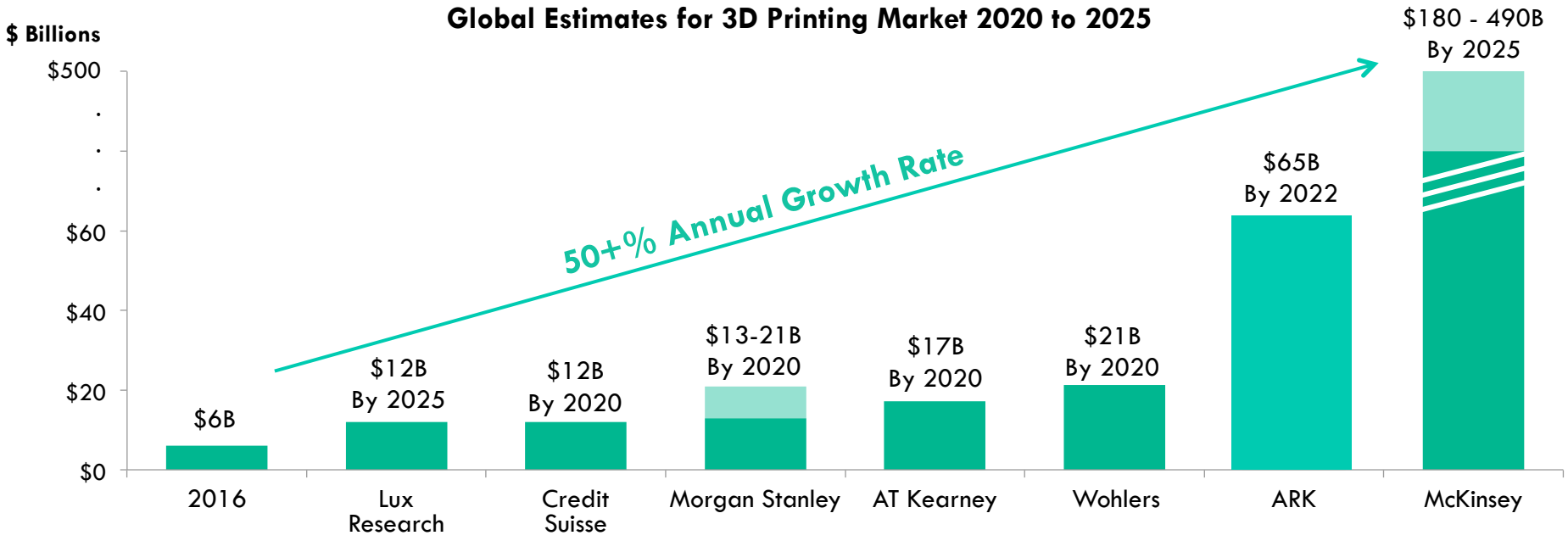
Design for Manufacture

	Prototypes	Molds & Tools	Consumer Products End Use Parts	Non-Consumer End Use Parts
				
Market size:	**$12.5B**	**$30B**	**$260B**	**$230B**
1st Applications:	1980's	1990's	Early 2000's	
Current Penetration:	30-40%	5%	<1%	

Forecasts are inherently limited and cannot be relied upon.
Sources: ARK Investment Management LLC, 2017; McKinsey; Stratasys; http://www.avplastics.co.uk/3d-printing-history,

The 3D Printing Market Could Increase Nearly Ten-Fold By 2022

ARK's research predicts the 3D printing market could grow to $65 billion by 2022.



Forecasts are inherently limited and cannot be relied upon.
Sources: ARK Investment Management LLC, 2017

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Please note, companies that ARK believes are capitalizing on disruptive innovation and developing technologies to displace older technologies or create new markets may not in fact do so and/or may face political or legal attacks from competitors, industry groups, or local and national governments.

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- Industrials Sector Risk
- Machinery Industry Risk
- Software Industry Risk

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