



Why Invest in 3D Printing?

For Informational Purposes Only | As of June 30, 2020

www.ark-funds.com

A close-up photograph of a 3D printer nozzle printing a small, rectangular object. The scene is bathed in a blue light, and the background is blurred, showing other parts of the machine.

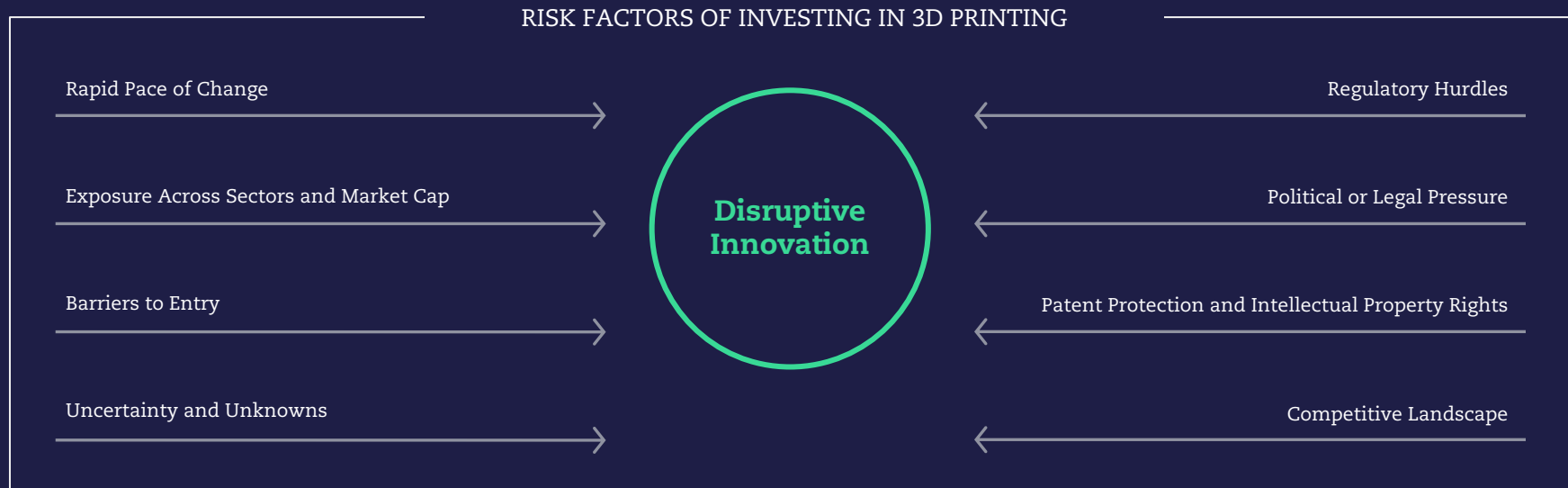
PRNT



Risks of Investing in 3D Printing

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. ARK aims to educate investors and seeks to size the potential investment opportunity of 3D Printing, 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 certain innovation areas.

Please read risk disclosure carefully.



→ Aim for a cross-sector understanding of technology and combine top down and bottom up research.

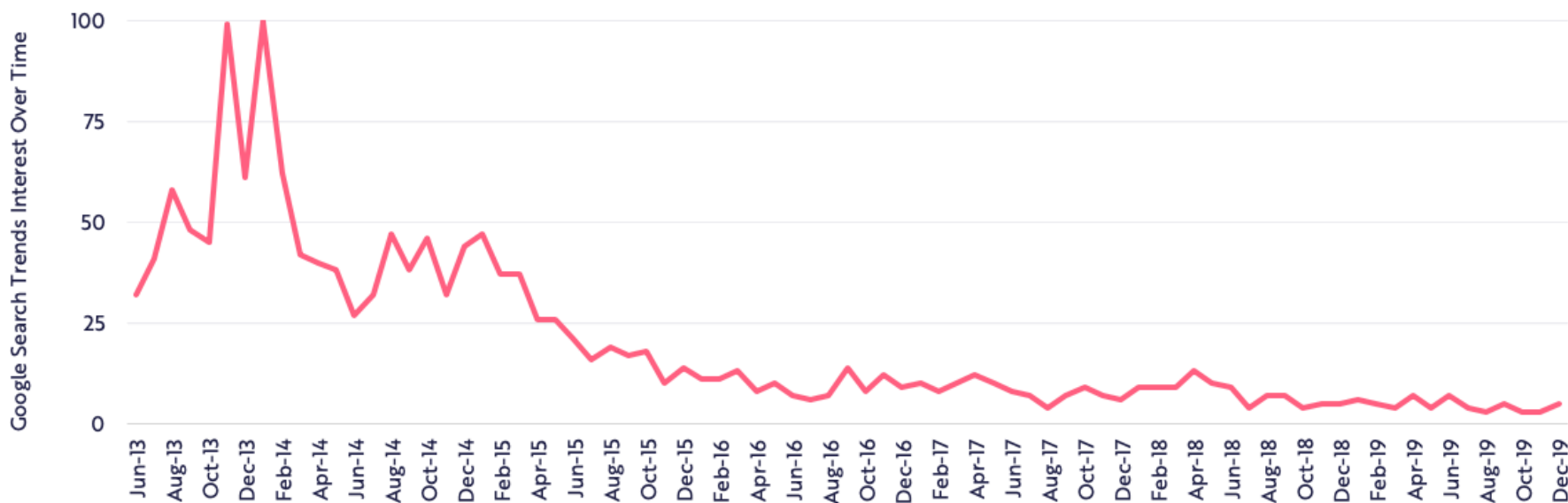
→ Aim to understand the regulatory, market, sector, and company risks. (See Risk and Disclosure at the end)



Investors Seem to Be Underestimating 3D Printing

3D printing companies have not recovered from the consumer-3D printing hype of 2013-2014. As they have entered the so called “valley of despair,” 3D printing stocks have suffered from a lack of interest, creating a mismatch between the valuation of public and private companies in the space.

Google Trends "3D Printing Stocks"¹
(Category: Finance, Worldwide)



[1] ARK used Google Search Trends to illustrate the decline in investor interest for 3D printing stocks. While this analysis is limited, it mirrors the general investor sentiment for 3D printing stocks and their price decline.

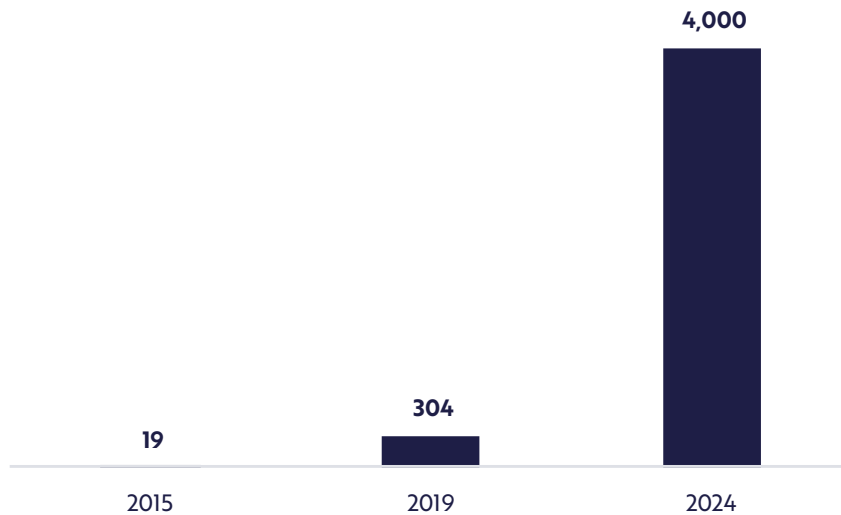
Source: ARK Investment Management LLC, 2019; Data sourced from trends.google.com/.



The Adoption of 3D Printing Is at a Tipping Point

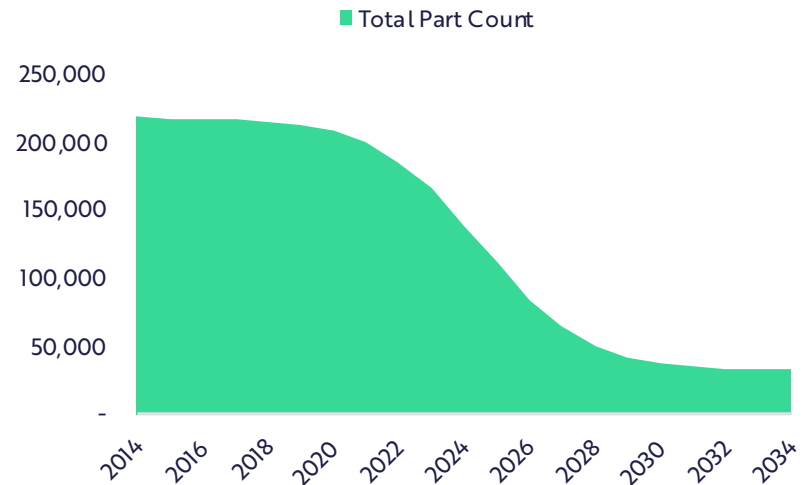
In 2015, General Electric (GE) produced the first 3D printed fuel nozzle, combining 20 parts into one.¹ In 2019, the GE9X engine contained 304 3D printed parts.² At that rate of adoption, and adjusting for the reduction in complexity, a large percentage of the GE9X engine could be 3D printed by the late 2020s.

3D Printed Parts in One Aircraft Engine*



*Note: There are 19 fuel nozzles per engine

3D Printing Reduces The Number of Parts Required For An Aircraft Engine



[1] Kellner, Tomas. "How 3D Printing Will Change Manufacturing." GE Reports, 16 Feb. 2018, arxiv.org/abs/1802.07001.

[2] Donaldson, Brent. "Mission Critical: An Additive Manufacturing Breakthrough in Commercial Aviation." Additive Manufacturing, 20 May 2019, arxiv.org/abs/1905.08001. Forecasts are inherently limited and cannot be relied upon. | Source: ARK Investment Management LLC, 2019. Data sourced from Bloomberg.



3D Printing Enables Leaps In Manufacturing

Companies like Relativity Space use 3D printing, robotics, and AI to optimize production, improve quality, reduce manufacturing time, lower costs, and create designs previously not possible.

Advancements in Aerospace Through Disruptive Technologies — Case Study: Terran 1 Rocket

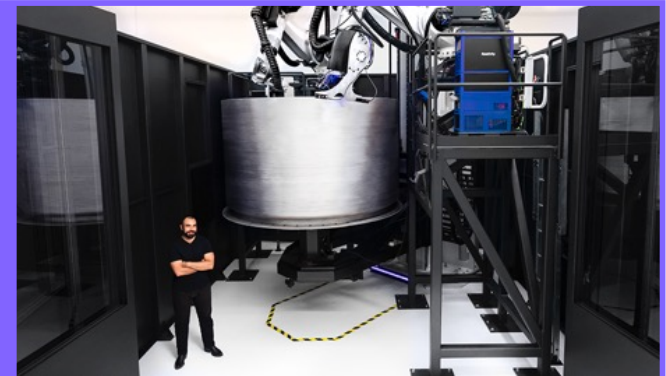


Traditional Manufacturing

- 100,000+ Parts
- 24 Months Build Time
- 48 Months Iteration Time
- Human Designed Parts
- Complex Supply Chain
- Static Manufacturing Process

3D Printed Rocket Manufacturing

- < 1,000 Parts
- 2 Months Build Time
- 6 Months Iteration Time
- Computer Generated Design
- Simplified Supply Chain
- AI Continuously Improves Manufacturing Process



TERRAN 1 ROCKET BUILT AND FLOWN
IN DAYS INSTEAD OF YEARS

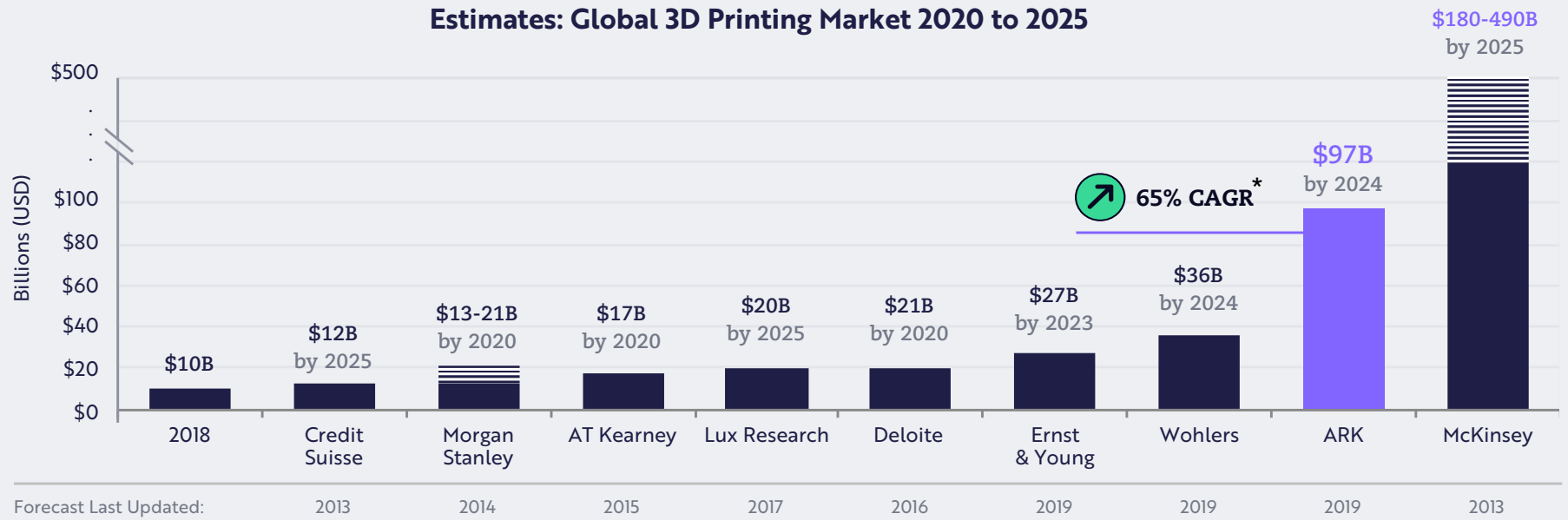
Disrupts 60 years of aerospace by incorporating the world's largest metal 3D printers and AI-driven controls to build rockets in less than one year.



Sizing the Opportunity

The global 3D printing market could scale to \$97 billion by 2024, compounding at a 65% annual rate.

Estimates: Global 3D Printing Market 2020 to 2025



*CAGR: Compound Annual Growth Rate
 Forecasts are inherently limited and cannot be relied upon.
 Source: ARK Investment Management LLC, 2019



THE 3D PRINTING ETF (PRNT) TRACKS THE PERFORMANCE OF THE TOTAL 3D-PRINTING INDEX (3DPRNT)

The Total 3D-Printing Index is designed to track the price movements of exchange listed companies from the U.S., non-U.S. developed markets and Taiwan that are engaged in 3D printing related businesses within the following business lines: 3D printing hardware, computer aided design and 3D printing simulation software, 3D printing centers, scanning and measurement, and 3D printing materials.

Index Details

- Index: Total 3D-Printing Index
- Weighting Method: Multi-Factor Weighting (Equal within each Factor)
- Rebalance: Quarterly
- Index Calculator: Solactive AG



The 3D Printing ETF (PRNT)

PRNT seeks to provide investment results that closely correspond, before fees and expenses, to the performance of the Total 3D-Printing Index, which is designed to track the price movements of stocks of companies involved in the 3D printing industry.

- Ticker: PRNT
- Fund AUM: \$37 Million
- Number of Holdings: 53
- Expense Ratio: 0.66%

- Index: Total 3D Printing Index
- Weighting Method: Multi-Factor Weighting (Equal within each Factor)

TOP 10 HOLDINGS

	Weight
PROTO LABS INC	6.1%
EXONE CO/THE	5.7%
RENISHAW PLC	5.4%
AUTODESK INC	5.0%
TRIMBLE INC	5.0%
ALTAIR ENGINEERING INC - A	4.9%
MATERIALISE NV-ADR	4.9%
HP INC	4.8%
STRAUMANN HOLDING AG-REG	4.7%
PTC INC	4.3%
	50.8%

MARKET CAPITALIZATION

Mega (\$100B+)	5.9%
Large (\$10-\$100B)	35.1%
Medium (\$2-\$10B)	25.6%
Small (\$300M-\$2B)	19.2%
Micro (\$50-\$300M)	13.9%

INDEX FACTORS WEIGHT AT REBALANCE

3D Printing Hardware	50%
CAD and Simulation Software	30%
3D Printing Centers	13%
Scanning and Measurement	5%
3D Printing Materials	2%

SECTORS

Information Technology	62.9%
Industrials	25.0%
Health Care	8.5%
Materials	3.1%
Not Classified	0.3%
Consumer Staples	0.1%

Holdings are subject to change and should not be considered as investment advice, or a recommendation to buy, sell or hold any particular security. The securities identified do not represent all of the securities purchased, sold or recommended for client accounts. It should not be assumed that an investment in the securities identified was or will be profitable.

Source: ARK Investment Management LLC; All data as of June 30, 2020.



WHY INVESTORS SHOULD CONSIDER THE 3D PRINTING ETF (PRNT)

- 1. Targeted Exposure to Innovation:** ARK believes 3D printing is misunderstood today, leading to historically poor market performance and stock declines for companies in this industry. However, ARK expects 3D printing to revolutionize manufacturing by collapsing the time between design and production, reducing costs, and providing greater design complexity, accuracy and customization.
- 2. Growth Potential:** The Fund aims to provide investment results that closely correspond to the performance of the Total 3D-Printing Index, which is designed to track companies involved in the 3D printing industry. ARK believes 3D printing is one of the highest growth potential industries in the economy and is set to transform the manufacturing landscape.

PRNT is the first, and only, ETF in the U.S. to focus solely on the most innovative companies within the 3D printing ecosystem.



Thematic Strategies Focused on Disruptive Innovation



ARKK
ARK Innovation ETF



PRNT
The 3D Printing ETF



ARKW
ARK Next Generation Internet ETF *



IZRL
Israel Innovative Technology ETF



ARKQ
ARK Autonomous Tech. & Robotics ETF *



ARKG
ARK Genomic Revolution ETF



ARKF
ARK Fintech Innovation ETF

*Effective as of November 4, 2019, the name of the ARK Web x.0 ETF changed to the "ARK Next Generation Internet ETF" and the name of the ARK Industrial Innovation ETF changed to the "ARK Autonomous Technology & Robotics ETF."



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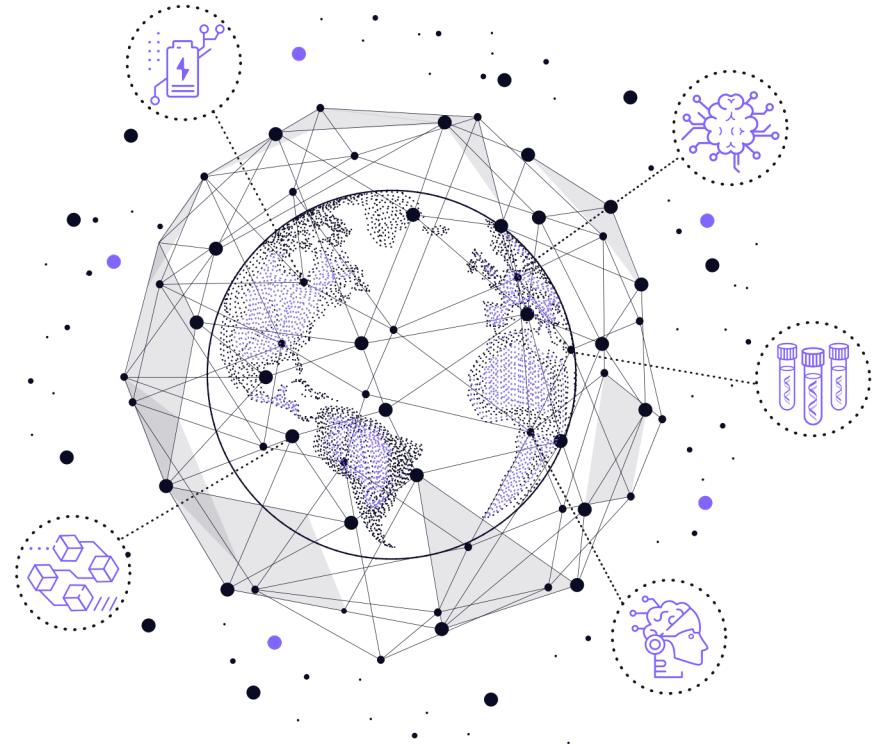
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Factsheet, prospectus, and latest performance reports are available for download on our website: ark-funds.com/investor-material

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Investors should carefully consider the investment objectives and risks as well as charges and expenses of an ARK ETF before investing. This and other information are contained in the ARK ETFs' prospectuses, which may be obtained by visiting www.ark-funds.com. The prospectus should be read carefully before investing.

Fund Risks: The principal risks of investing in ARK's Index ETFs include equity, market, concentration and non-diversification risks, as well as fluctuations in market value and net asset value ("NAV"). The principal risks of investing in PRNT: **Equity Securities Risk.** The value of the equity securities the Fund holds may fall due to general market and economic conditions. **Foreign Securities Risk.** Investments in the securities of foreign issuers involve risks beyond those associated with investments in U.S. securities. **Index Tracking Risk.** The returns of the ETF may not match the returns of the underlying index that the ETF is designed to track. **Industrials Sector Risk.** Companies in the industrials sector may be adversely affected by changes in government regulation, world events, economic conditions, environmental damages, product liability claims, high barriers to entry and exchange rates. Companies in the aerospace and defense industry rely to a large extent on U.S. (and other) Government demand for their products and services and may be significantly affected by changes in government regulations and spending, as well as economic conditions and industry consolidation. **Information Technology Sector Risk.** Companies may face rapid product obsolescence due to technological developments and frequent new product introduction, unpredictable changes in growth rates and competition for the services of qualified personnel.

PRNT has a limited number of financial institutions that may act as Authorized Participants ("APs") on an agency basis (i.e., on behalf of other market participants). To the extent that those APs exit the business or are unable to process creation and/or redemption orders, and no other AP is able to step forward to create and redeem in either of these cases, shares may possibly trade at a discount to NAV. The AP risk may be heightened in the case of ETFs investing internationally because international ETFs often require APs to post collateral, which only certain APs are able to do. ETF shares may only be redeemed directly with the ETF at NAV by Authorized Participants, in very large creation units.

Index Descriptions: The Total 3D-Printing Index is composed of equity securities and depositary receipts of exchange listed companies from the U.S., non-U.S. developed markets and Taiwan that are engaged in 3D printing related businesses within the following business lines: (i) 3D printing hardware, (ii) computer aided design and 3D printing simulation software, (iii) 3D printing centers, (iv) scanning and measurement, and (v) 3D printing materials. The S&P 500® Index is a widely recognized capitalization-weighted index that measures the performance of the large-capitalization sector of the U.S. stock market. The MSCI World Index represents large and mid-cap equity performance across 23 developed markets countries. Returns shown for the MSCI World Index are net of foreign withholding taxes applicable to U.S. investors. Securities in the ETF's portfolio will not match those in any index. You cannot invest directly in an index. Although reinvestment of dividend and interest payments is assumed, no expenses are netted against an index's returns. Index performance information was furnished by sources deemed reliable and is believed to be accurate, however, no warranty or representation is made as to the accuracy thereof and the information is subject to correction.

Portfolio holdings will change and should not be considered as investment advice or a recommendation to buy, sell or hold any particular security. Please visit www.ark-funds.com for the most current list of holdings for the ARK ETFs.

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