Why Invest in 3D Printing?
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. In addition, the potential growth or displacement of market industries discussed herein may not translate to favorable investment performance. Please read risk disclosure carefully.

RISK FACTORS OF INVESTING IN 3D PRINTING

- Rapid Pace of Change
- Exposure Across Sectors and Market Cap
- Barriers to Entry
- Uncertainty and Unknowns
- Regulatory Hurdles
- Political or Legal Pressure
- Patent Protection and Intellectual Property Rights
- Competitive Landscape

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)
3D Printing Revenues Declined In 2020, But New Users Leveraged The Technology During The Pandemic

Applications during the COVID-19 crisis:

**Medical Devices**
- Ventilator Valves
- Mask Connectors for CPAP and BiPAP
- Emergency Respiration Device
- Non-Invasive PEEP Mask

**Personal Protective Equipment (PPE)**
- Face Shield
- Respirators
- Metal Respirator Filters

**Personal Accessories**
- Face Masks
- Mask Filters
- Mask Adjusters
- Door Openers

**Testing Devices**
- Nasopharyngeal (NP) Swabs

**Training and Visualization Aids**
- Medical Manikins
- Bio-Models

**Emergency Dwellings**
- Isolation Wards

---

3D Printing Is in Its Infancy

ARK’s research indicates that 3D printing for end-use parts is the next frontier.

<table>
<thead>
<tr>
<th>Market Potential:</th>
<th>PROTOTYPES</th>
<th>MOLDS &amp; TOOLS</th>
<th>END-USE PARTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Size (Billions USD)</td>
<td>$12.5 Billion</td>
<td>$30 Billion</td>
<td>$490 Billion</td>
</tr>
<tr>
<td>Current Penetration</td>
<td>40-50%</td>
<td>4%</td>
<td>1%</td>
</tr>
<tr>
<td>First Applications</td>
<td>1980’s</td>
<td>1990’s</td>
<td>Early 2000’s</td>
</tr>
</tbody>
</table>

Forecasts are inherently limited and cannot be relied upon.
Source: ARK Investment Management LLC, 2020 data sourced from; McKinsey; Stratasys; “3D Printing History.” AV Plastics, 14 June 2018, https://arkinv.st/2TC57H1
3D Printing Applications Vary By Industry, Volumes, And Complexity

Example applications by category:

**Prototyping**
- All Industries

**Molds & Tools**
- Automobiles, Auto Parts, and Equipment
- Machinery
- Foundries and Metal Products
- Industrial Manufacturing
- Die Sets, Jigs, and Industrial Molds

**End Use Parts**
- Aerospace
- Health Care Equipment and Supplies
- Plastic Products
- Footwear
- Semiconductors and Equipment

**3D Printing Addressable Opportunity**

ARK believes that the global 3D printing market will scale at a compound annual rate of 60% during the next five years, from $12 billion to roughly $120 billion by 2025.

Global Estimates for 3D Printing Market 2020 to 2025

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimate</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>$12</td>
<td>Earnst &amp; Young</td>
</tr>
<tr>
<td>2023</td>
<td>$27</td>
<td>3D Hubs</td>
</tr>
<tr>
<td>2024</td>
<td>$35</td>
<td>Wohlers</td>
</tr>
<tr>
<td>2024</td>
<td>$36</td>
<td>Lux Research</td>
</tr>
<tr>
<td>2024</td>
<td>$20</td>
<td>Smartech</td>
</tr>
<tr>
<td>2024</td>
<td>$51</td>
<td>BCG</td>
</tr>
<tr>
<td>2025</td>
<td>$120</td>
<td>ARK</td>
</tr>
<tr>
<td>2025</td>
<td>$120</td>
<td>McKinsey</td>
</tr>
<tr>
<td>2025</td>
<td>$180 - 490</td>
<td></td>
</tr>
</tbody>
</table>
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
ARK Seeks To Capture The 3D Printing Opportunity

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: $556 Million
- Number of Holdings: 59
- Expense Ratio: 0.66%

**TOP 10 HOLDINGS**

<table>
<thead>
<tr>
<th>Company</th>
<th>Weight (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D SYSTEMS CORP</td>
<td>8.4</td>
</tr>
<tr>
<td>SLM SOLUTIONS GROUP AG</td>
<td>5.5</td>
</tr>
<tr>
<td>STRAUMANN HOLDING AG-REG</td>
<td>5.5</td>
</tr>
<tr>
<td>EXONE CO/THE</td>
<td>5.4</td>
</tr>
<tr>
<td>ALTAIR ENGINEERING INC - A</td>
<td>5.1</td>
</tr>
<tr>
<td>DASSAULT SYSTEMES SE</td>
<td>4.6</td>
</tr>
<tr>
<td>MICROSOFT CORP</td>
<td>4.6</td>
</tr>
<tr>
<td>TRIMBLE INC</td>
<td>4.4</td>
</tr>
<tr>
<td>AUTODESK INC</td>
<td>4.3</td>
</tr>
<tr>
<td>MGI DIGITAL GRAPHIC TECHNOLO</td>
<td>4.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>52.2</strong></td>
</tr>
</tbody>
</table>

**INDEX FACTORS WEIGHT AT REBALANCE**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Weight (%)</th>
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</thead>
<tbody>
<tr>
<td>3D Printing Hardware</td>
<td>50</td>
</tr>
<tr>
<td>CAD &amp; 3D Printing Simulation Services</td>
<td>30</td>
</tr>
<tr>
<td>3D Printing Centers</td>
<td>13</td>
</tr>
<tr>
<td>Scanning &amp; Measurement</td>
<td>5</td>
</tr>
<tr>
<td>3D Printing Materials</td>
<td>2</td>
</tr>
</tbody>
</table>

**MARKET CAPITALIZATION**

<table>
<thead>
<tr>
<th>Category</th>
<th>Weight (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mega ($100B+)</td>
<td>8.3</td>
</tr>
<tr>
<td>Large ($10-$100B)</td>
<td>37.7</td>
</tr>
<tr>
<td>Medium ($2-$10B)</td>
<td>30.5</td>
</tr>
<tr>
<td>Small ($300M-$2B)</td>
<td>23.5</td>
</tr>
<tr>
<td>Micro ($50-$300M)</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**SECTORS**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Weight (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Technology</td>
<td>60.2</td>
</tr>
<tr>
<td>Industrials</td>
<td>26.1</td>
</tr>
<tr>
<td>Health Care</td>
<td>9.4</td>
</tr>
<tr>
<td>Materials</td>
<td>3.2</td>
</tr>
<tr>
<td>Consumer Discretionary</td>
<td>1.0</td>
</tr>
<tr>
<td>Consumer Staples</td>
<td>0.1</td>
</tr>
<tr>
<td>Not Classified</td>
<td>0.0</td>
</tr>
</tbody>
</table>

*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, 2021.*
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

ARKW
ARK Next Generation Internet ETF

ARKQ
ARK Autonomous Tech. & Robotics ETF

ARKG
ARK Genomic Revolution ETF

ARKF
ARK Fintech Innovation ETF

ARKX
ARK Space Exploration & Innovation ETF

PRNT
The 3D Printing ETF

IZRL
Israel Innovative Technology ETF
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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.

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