

Why Invest In

Disruptive Innovation?

As of December 31, 2023

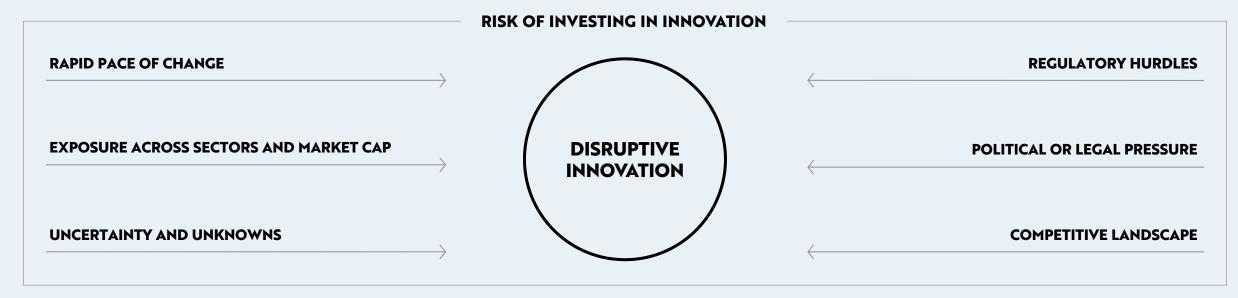




Risks of Investing in Innovation

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, 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 Disclosure Page)

Five Innovation Platforms Are Converging And Defining This Technological Era

Public Blockchains

Upon large-scale adoption, we believe all money and contracts likely will migrate onto Public Blockchains that enable and verify digital scarcity and proof of ownership. The financial ecosystem is likely to reconfigure to accommodate the rise of Cryptocurrencies and Smart Contracts. These technologies increase transparency, reduce the influence of capital and regulatory controls, and collapse contract execution costs. In such a world, Digital Wallets would become increasingly necessary as more assets become money-like, and corporations and consumers adapt to the new financial infrastructure. Corporate structures themselves may be called into question.

Artificial Intelligence

Computational systems and software that evolve with data can solve intractable problems, automate knowledge work, and accelerate technology's integration into every economic sector. We believe the adoption of **Neural Networks** should prove more momentous than the introduction of the internet. At scale these systems will require unprecedented computational resources, and Al-specific compute hardware should dominate the **Next Gen Cloud** datacenters that train and operate Al models. The potential for endusers is clear: a constellation of Al-driven **Intelligent Devices** that pervade people's lives, changing the way that they spend, work, and play. The adoption of artificial intelligence should transform every sector, impact every business, and catalyze every innovation platform.

Multiomic Sequencing

The cost to gather, sequence, and understand digital biological data is falling precipitously. Multiomic Technologies provide research scientists, therapeutic organizations and health platforms with unprecedented access to DNA, RNA, protein, and digital health data. Cancer care should transform with pan-cancer blood tests. Multiomic data should feed into novel Precision Therapies using emerging gene editing techniques that target and cure rare diseases and chronic conditions. Multiomics should unlock entirely new Programmable Biology capabilities, including the design and synthesis of novel biological constructs with applications across industries, particularly agriculture and food production.

Energy Storage

Declining costs of Advanced Battery Technology should cause an explosion in form factors, enabling Autonomous Mobility systems that collapse the cost of getting people and things from place to place. Electric drivetrain cost declines should unlock micro-mobility and aerial systems, including flying taxis, enabling business models that transform the landscape of cities. Autonomy should reduce the cost of taxi, delivery, and surveillance by an order of magnitude, enabling frictionless transport that could increase the velocity of e-commerce and make individual car ownership the exception rather than the rule. These innovations combined with large-scale stationary batteries should cause a transformation in energy, substituting electricity for liquid fuel and pushing generation infrastructure towards the edge of the network.

Robotics

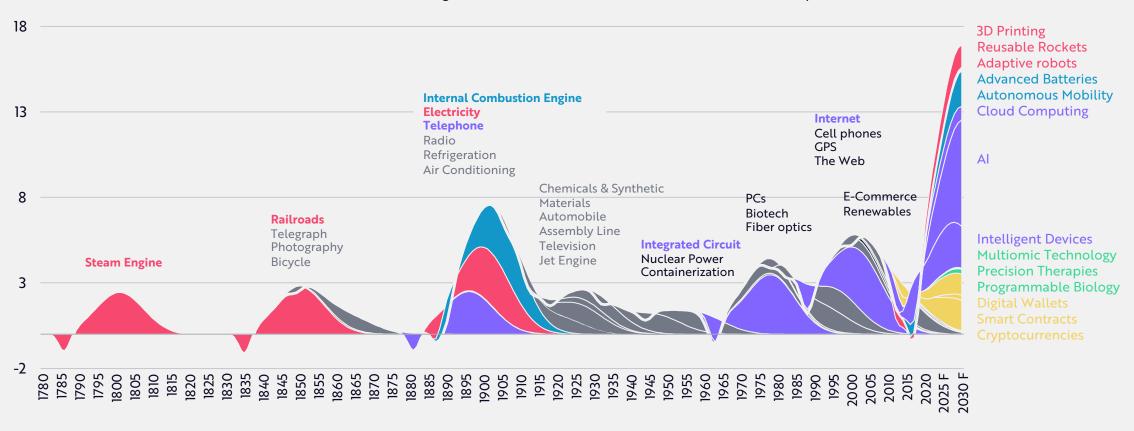
Catalyzed by artificial intelligence, Adaptive Robots can operate alongside humans and navigate legacy infrastructure, changing the way products are made and sold. 3D Printing should contribute to the digitization of manufacturing, increasing not only the performance and precision of end-use parts but also the resilience of supply chains. Meanwhile, the world's fastest robots, Reusable Rockets, should continue to reduce the cost of launching satellite constellations and enable uninterruptible connectivity. A nascent innovation platform, robotics could collapse the cost of distance with hypersonic travel, the cost of manufacturing complexity with 3D printers, and the cost of production with Al-guided robots.



Converging Technologies Are Generating A Historic Technological Wave

Estimated Economic Impact of General Purpose Technologies

(Annual Percentage Point Additions to Real GDP Growth And Consumer Surplus)

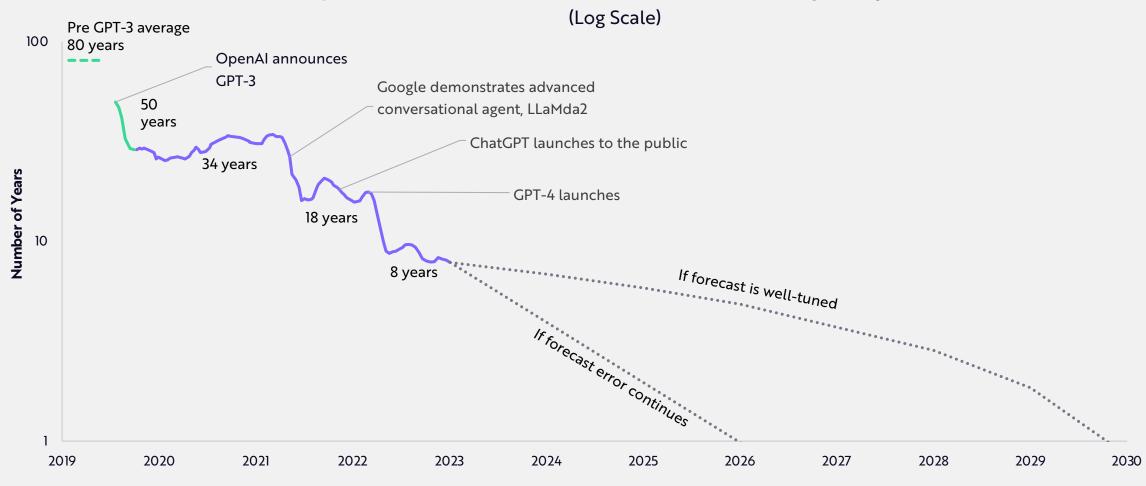


Sources: ARK Investment Management LLC, 2024. This ARK analysis is based on a range of underlying sources, including Bekar et al. 2017, which may be provided upon request. The chart uses GPT 4 prompting to survey a comprehensive list of general purpose technologies using the identification framework detailed therein. Where available, academic literature is also used to assess attributable economic impact. A GPT-4 scoring rubric assesses technology-by-technology impacts. The impact measured directly is matched against the scoring to tune all scores to produce technology-by-technology estimates of economic impact (even when direct measures of economic impact are unattainable). Consistent with General Purpose Technology theory, these technologies are assumed to go through a period of investment in which economic impact is negative before productivity advances begin to realize into economic data. All technologies are assumed to have the same diffusion and realization cycle. If recent technologies are assumed to diffuse more quickly, the current wave would appear steeper. Forecasts are inherently limited and cannot be relied upon. For informational purposes only and should not be considered investment advice or a recommendation to buy, sell, or hold any particular security. Past performance is not indicative of future results.



Al Is Accelerating Faster Than Forecasters Anticipated

Expected Years Until Launch Of A General Artificial Intelligence System



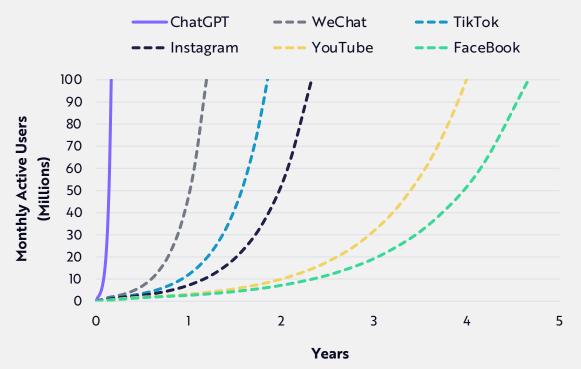


Sources: ARK Investment Management LLC, 2024, based on data from Metaculus, including benchmark details, as of January 3, 2024. Benchmark broadly requires the successful passage of an adversarial two-hour Tuning test, broad success on a Q&A knowledge and logic benchmark, and the successful interpretation of and execution complex model car assembly instruction, all within a single system. Green lines are derived estimates for time to general purpose AI (strongly formulated) based upon forecasts for a weaker benchmark. Forecasts are inherently limited and cannot be relied upon. For informational purposes only and should not be considered investment advice or a recommendation to buy, sell, or hold any particular security. Past performance is not indicative of future results.

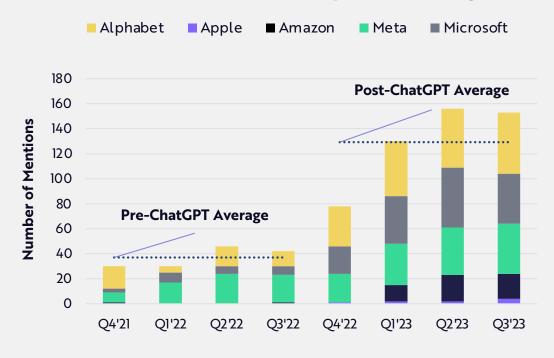
ChatGPT Delighted Consumers And Amazed Enterprises

Building on years of progress since Google invented transformer architecture in 2017, ChatGPT catalyzed the public's understanding of generative Al. No longer a tool just for developers, ChatGPT's simple chat interface enabled anyone speaking any language to harness the power of large language models (LLMs). In 2023, enterprises scrambled to understand and deploy generative Al.

ChatGPT Users Hit 100 Million Users In Two Months



The Number of AI Mentions Tripled On Earnings Calls



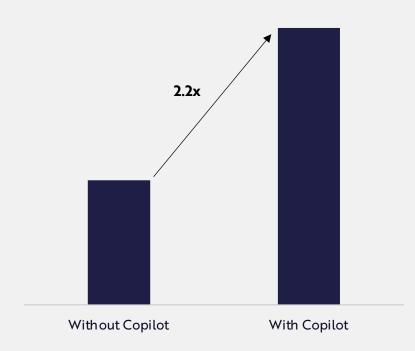
*values between 0 and 100 million users are estimates



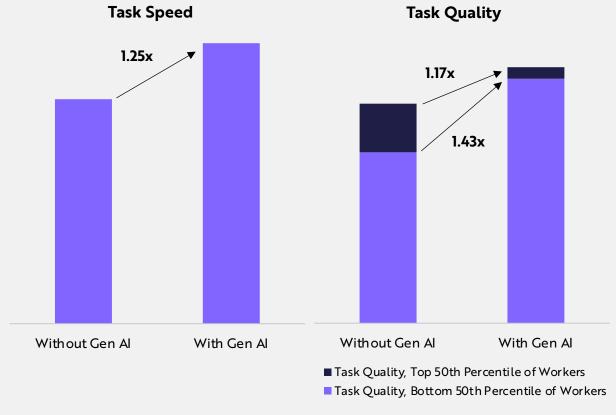
Al Already Has Boosted Productivity Significantly

Coding assistants like GitHub Copilot and Replit AI are early success stories that have boosted the productivity and job satisfaction of software developers. AI-powered assistants are increasing the performance of knowledge workers and, interestingly, benefiting underperforming workers relatively more than high performers.

Productivity of Developers On Coding Tasks Using Github Copilot in 2023



Productivity of Consultants Using Gen AI In 2023



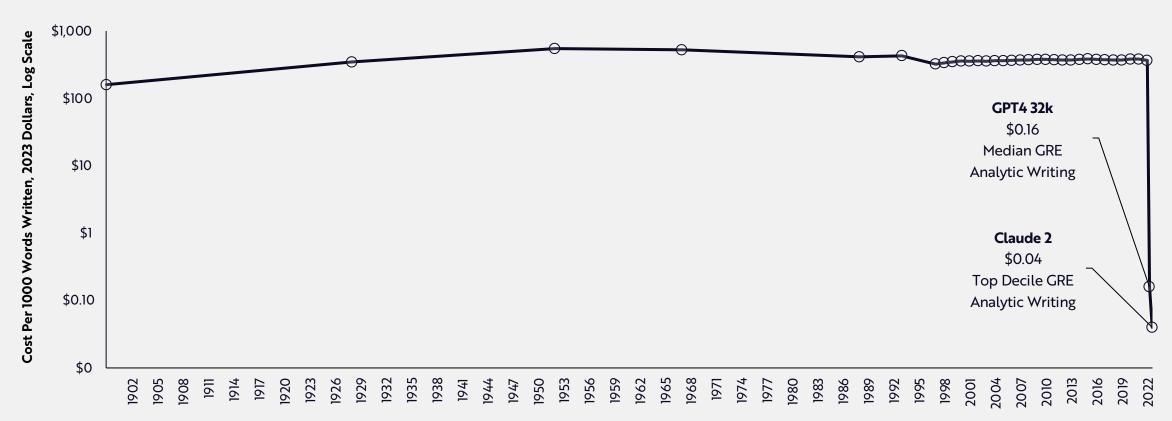


Sources: ARK Investment Management LLC, 2024. The data used to analyze productivity were collected from several different studies with varying numbers of participants and definitions of task quality. The sources used are Dell'Acqua et al. 2023 and GitHub 2022. Forecasts are inherently limited and cannot be relied upon. For informational purposes only and should not be considered investment advice or a recommendation to buy, sell, or hold any particular security. Past performance is not indicative of future results.

The Cost Of Authoring The Written Word Has Collapsed

Over the past century, the cost of authoring written content has been relatively constant in real terms. During the past two years, as the writing quality of LLMs has improved, the cost has collapsed.

The Cost of Authoring Written Content



Post 1997 assumes constant words per employed writer over time



Online Experiences Are Becoming More Immersive And Monetizable

History suggests that deeper immersion leads to higher monetization. After computer graphics expanded the market beyond text-based adventure games in the 1980s, gaming revenue soared 19% at an annual rate, from \$6 billion in 1985 to \$24 billion in 1993.

Now, multimodal Al—text, images, audio, and video—are creating more immersive and interactive experiences that should expand the market.



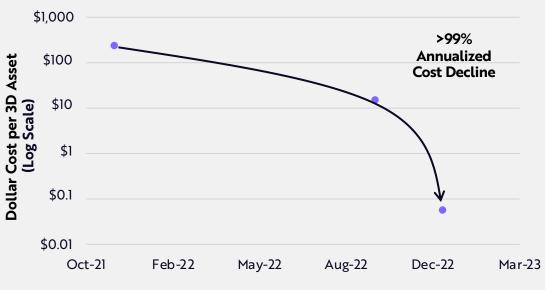


*"Text games" refer to both text-based and spreadsheet-based games. "All other games" exclude arcade game releases. Gaming revenue captures PC and console gaming revenue only **We estimate various platforms' ability to monetize on direct consumer spend only.. ***Revenue figures have been inflation-adjusted to 2023 US Dollars. Sources: ARK Investment Management LLC, 2024. This ARK analysis is based on a range of underlying data from external sources, which may be provided upon request. Forecasts are inherently limited and cannot be relied upon. For informational purposes only and should not be considered investment advice or a recommendation to buy, sell, or hold any particular security. Past performance is not indicative of future results.

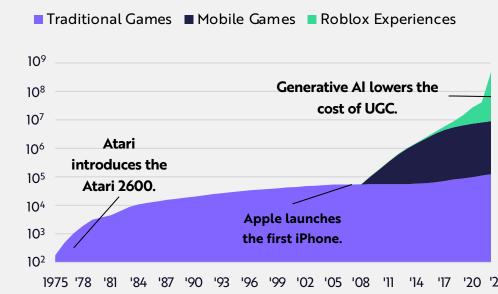
Thanks To Al-Assisted Creation, Gamers Could Become Developers

Al-assisted game creation on user-generated content (UGC) platforms could cause an explosion in gaming content. According to our research, after normalizing for output quality, the cost of generating a single 3D asset has dropped ~99% at an annual rate to less than \$0.06 since 2021. Al should democratize content creation and accelerate the growth in UGC. Roblox already has delivered more than ~470 million experiences globally, 52x the combined number of PC, console, and mobile app games.

Cost Decline In Generative AI For 3D Assets*



Cumulative Number (Log Scale)



Number Of Video Game Releases

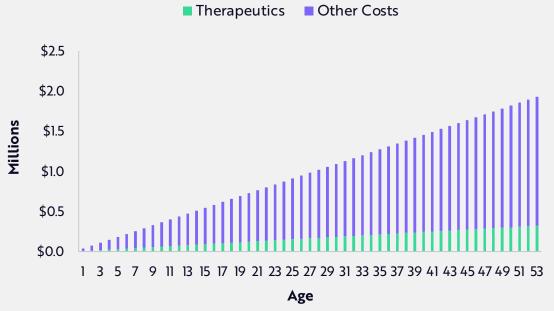
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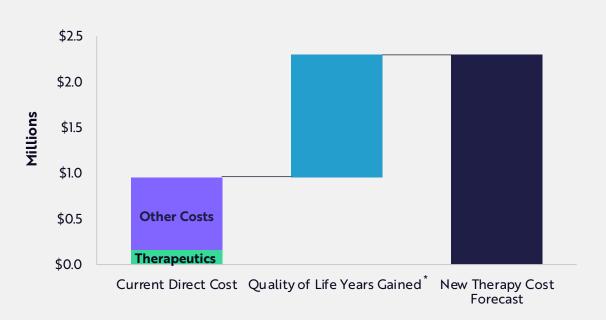
The Value Of Curing Rare Diseases Like Sickle Cell Anemia Is High

Among precision therapies, gene editing medicines like CRISPR-Cas9 have the potential to cure rare genetic diseases such as Sickle Cell Disease (SCD). SCD is an inherited red blood cell disorder that affects more than 100,000 people in the US and 20 million people globally, primarily in Africa. Today, therapeutics account for ~16% of the total spent on treating SCD disease in the US, but they have done little more than manage symptoms, as the life expectancy of SCD patients is only 56% that of the general population.





Reasonable Cost For Sickle Cell Disease Cure



*Quality of Life Years Gained = Health Utility * Duration For Health Utility, 0 means dead and 1 means full health



Data are as of December of 2023.

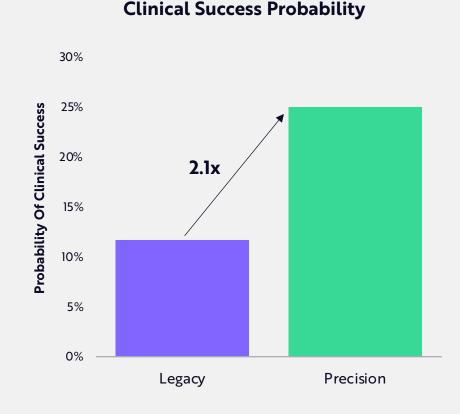
Drug Development Costs Could Drop Precipitously

Advances in fundamental biology, artificial intelligence, automation, and trial design should lower preclinical drug development costs significantly. They enable methods that eliminate less-promising candidates early in the drug development process, prevent downstream misallocation of R&D capital, and create a larger chemical search space early in the discovery phase. During the next decade, companies leveraging these techniques fully could lower costs per approval by almost 50%, in part by more than doubling the odds of success for those drug candidates that do enter clinical trials.

Efficiency Innovations Innovative Trial Design + Adaptive Clinical Trial Design + Precision Biomarkers + Decentralized/Virtual Trials **Fundamental Biology** + Single-Cell Biology + Proteomic Techniques + Virtual Compound Libraries + Biomarker Development + Humanized animal models Automation + Automated Liquid Handling + Automated Invivomics + Automated Microsynthesis + CRISPR "Perturb-Seq" Screens + Organ-on-a-chip Technology **Artificial Intelligence** + AI-Enabled Pathway Analysis

+ AI-Enabled Toxicity Prediction + In-Silico Molecular Modeling + ML-Driven Compound Screens



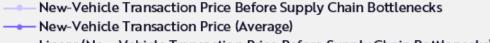




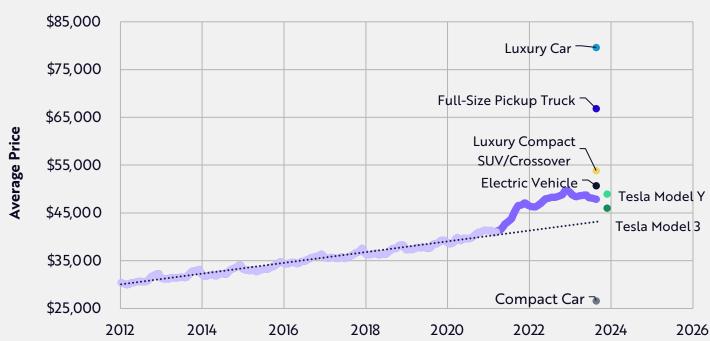
EVs Have Hit Price-Parity With Internal Combustion Engine Vehicles

As battery costs continue to decline, EV prices should fall, potentially driving exponential growth in unit sales.

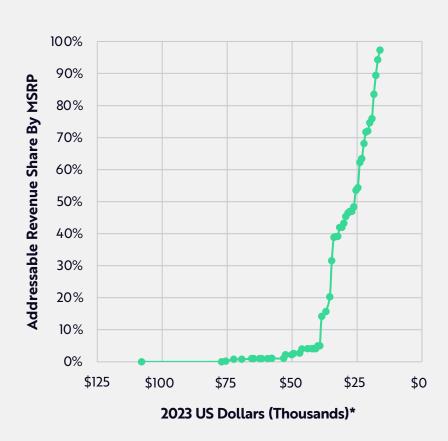
US New Vehicle Transaction Price



...... Linear (New-Vehicle Transaction Price Before Supply Chain Bottlenecks)



Vehicle Price vs Addressable Market

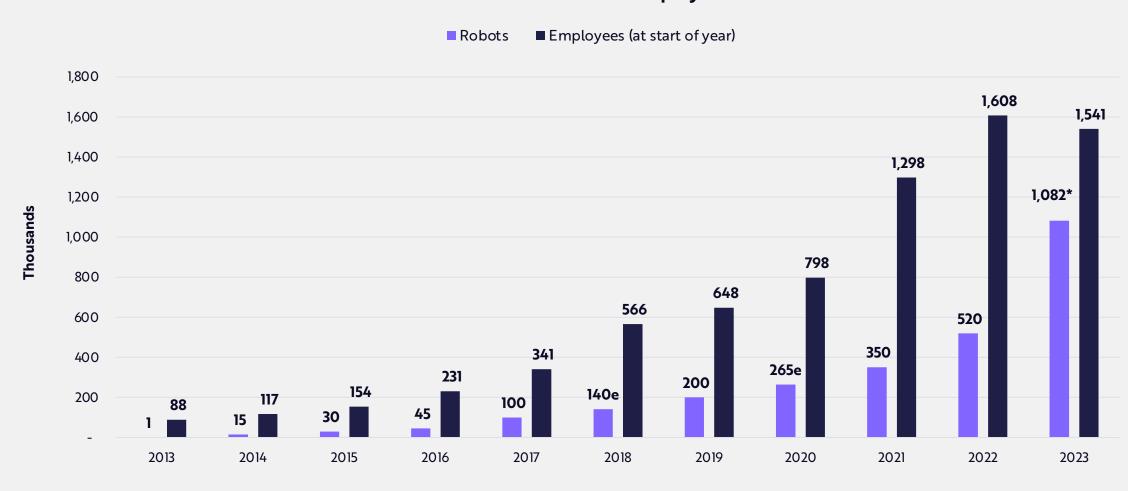




Many Companies Are Likely To Deploy More Robots Than Humans

Robots are freeing humans from tedious physical tasks.

Amazon Robots And Employees

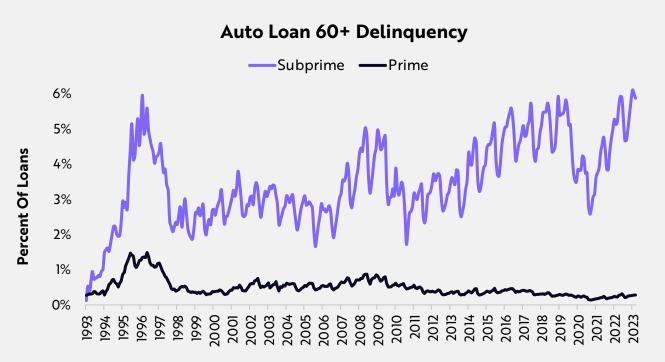




Autonomous Electric Vehicle Adoption Could Disrupt The US Auto Loan Industry

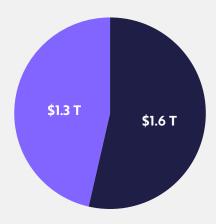
During the past three years, interest rate hikes have increased new vehicle monthly car loan payments by ~27%, from \$581 to \$739. As a result, the number of subprime auto loans delinquent by 60+ days recently hit an all-time high.

Thanks to Wright's Law, EV prices should continue to fall, shifting more miles onto electric platforms and decreasing the value of gas-powered vehicles. As a result, the ~\$1.6 trillion in auto loans currently sitting on financial institution balance sheets, issued predominantly for gas-powered vehicles, could be at risk over the next 10 years.



Auto Vehicle Fleet Composition (Trillions Of Dollars)*

- Motor Vehicle Loans Owned And Securitized By Banks
- Motor Vehicle Loans On Consumer Balance Sheets (ARK Estimate)



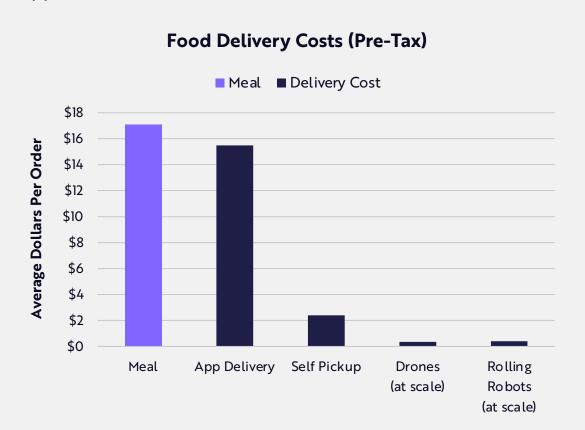


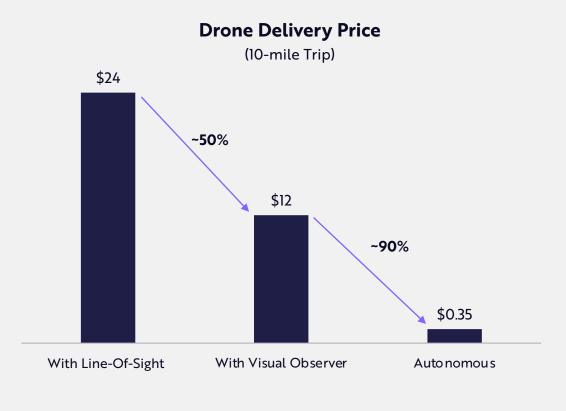
Note: Wright's Law states that for every cumulative doubling of units produced, costs will fall by a constant percentage. *Motor Vehicle Loans Owned and Securitized data as of Q3 2023. ARK Investment Management LLC, 2024. This ARK analysis is based on a range of underlying data from external sources, as of January 3, 2024, which may be provided upon request. Forecasts are inherently limited and cannot be relied upon. For informational purposes only and should not be considered investment advice or a recommendation to buy, sell, or hold any particular security. Past performance is not indicative of future results.

Autonomous Drones Should Reduce Food Delivery Costs, Thanks To Regulatory Approvals

Boosted during and after COVID, food delivery fees have doubled the average cost of baseline menu orders.

Beyond line-of-sight drones without visual observers should reduce food delivery costs dramatically, thanks to recent FAA approvals.









The ARK Innovation ETF (ARKK) Aims to Offer



1. Access to Growth

Investors who seek to access companies at the forefront of technology-enabled innovation, in some of the most promising areas of the economy, with potential for long-term growth.



2. Portfolio Diversification

Potentially Suited for investors who like to diversify their existing portfolio with strategies that offer low correlation to a number of core asset classes held in most investors' portfolios.



3. Moderate-to-High Risk-Reward Profile

A constant focus on secular changes and disruptive innovation can compliment traditional strategies and core portfolios. May be suited for investors who have a moderate-to-high risk profile and intend to stay invested for the medium-to-long term.



5 Reasons Investors Should Consider ARKK

- 1. Exposure To Innovation: Aims for thematic multi-cap exposure to innovation across sectors. ARK believes the securities held in ARKK present the best risk-reward opportunities from ARK's innovation-based themes.
- Growth Potential: Aims to capture long-term growth with low correlation of relative returns to traditional growth strategies and negative correlation to value strategies.
- 3. Tool For Diversification¹: Offers a tool for diversification due to little overlap with traditional indices. It can be a complement to traditional value/growth strategies.
- 4. Grounded In Research: Combines top-down and bottom-up research in its portfolio management to identify innovative companies and convergence across markets.
- 5. Cost Effective: Seeks to provide a lower cost alternative to mutual funds with true active management in an exchange traded fund (ETF) that invests in rapidly moving themes.

ARK Innovation ETF — ARKK

The ARK Innovation ETF aims for multi-cap exposure to innovation across sectors. ARK believes the securities held in ARKK present the best risk-reward opportunities from ARK's innovation themes.

ARKK Ticker:

• Fund AUM: \$9.23 Billion

• Typical Number of Holdings: 35-55 U.S. Equities/U.S.-listed ADRs

• Expense Ratio: 0.75%

TOP 10 HOLDINGS

COINBASE GLOBAL INC	11.1%
TESLA INC	7.4%
UIPATH INC	7.2%
ROKU INC	6.9%
ZOOM VIDEO COMMUNICATIONS INC	6.8%
BLOCK INC	6.5%
ROBLOX CORP	4.3%
CRISPR THERAPEUTICS AG	4.0%
TWILIO INC	4.0%
UNITY SOFTWARE INC	3.8%
	62.2%
MARKET CAPITALIZATION	(%)
Mega (\$100B+)	11.3%
Large (\$10 - \$100B)	62.9%
Medium (\$2 - \$10B)	23.6%
Small (\$300M - \$2B)	1.7%
Micro (\$50 - \$300M)	0.2%

PORTFOLIO COMPOSITION	(%)
Next Gen Cloud	19.9%
Intelligent Devices	16.1%
Neural Networks	12.2%
Precision Therapies	9.9%
Digital Wallets	8.8%
Multiomic Technologies	8.5%
Digital Assets	6.9%
Smart Contracts	5.6%
Autonomous Mobility	4.8%
Advanced Battery Technologies	3.7%
Programmable Biology	2.1%
Adaptive Robotics	1.5%
SECTORS	(%)
Information Technology	29.4%
Health Care	22.4%
Financials	20.6%
Communication Services	13.6%
Consumer Discretionary	10.5%
Materials	2.3%

Holdings are subject to change and should not be considered as investment advice, or a recommendation to buy, sell or hold any particular security. It should not be assumed that an investment in the securities identified was or will be profitable.

Weight (%)



Thematic Strategies Focused on Disruptive Innovation



ARKKARK Innovation ETF



ARKXARK Space Exploration & Innovation ETF



ARKWARK Next Generation Internet ETF



PRNTThe 3D Printing ETF



ARK Autonomous Tech. & Robotics ETF



IZRL Israel Innovative Technology ETF



ARKG ARK Genomic Revolution ETF



ARKF ARK Fintech Innovation ETF



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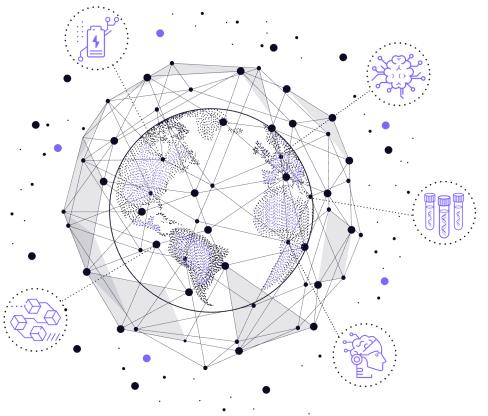
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Factsheet, prospectus, and latest performance reports are available for download on our website: ark-funds.com/investor-material

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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.

Investing in securities involves risk and there's no guarantee of principal.

Fund Risks: The principal risks of investing in the ARKK include: 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. Health Care Sector Risk. The health care sector may be adversely affected by government regulations and government health care programs. Communications Sector Risk. Companies is this sector may be adversely affected by potential obsolescence of products/services, pricing competition, research and development costs, substantial capital requirements and government regulation. Information Technology Sector Risk. Information technology companies face intense competition, both domestically and internationally, which may have an adverse effect on profit margins. Additional risks of investing in ARKK include equity, market, management and non-diversification risks, as well as fluctuations in market value and NAV. Disruptive Innovation Risk. 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. Companies that initially develop a novel technology may not be able to capitalize on the technology. Companies that develop disruptive technologies may face political or legal attacks from competitors, industry groups or local and national governments. These companies may also be exposed to risks applicable to sectors other than the disruptive innovation theme for which they are chosen, and the securities issued by these companies may underperform the securities of other companies that are primarily focused on a particular theme.

The Fund's exposure to cryptocurrency may change over time and, accordingly, such exposure may not always be represented in the Fund's portfolio. 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.

An investment in an ETF is subject to risks and you can lose money on your investment in an ETF. There can be no assurance that the ETF will achieve its investment objective. The ETF's portfolio is more volatile than broad market averages. Shares of ARKK are bought and sold at market price (not NAV) and are not individually redeemed from the ETF. ETF shares may only be redeemed directly with the ETF at NAV by Authorized Participants, in very large creation units. There can be no guarantee that an active trading market for ETF shares will develop or be maintained, or that their listing will continue or remain unchanged. Buying or selling ETF shares on an exchange may require the payment of brokerage commissions and frequent trading may incur brokerage costs that detract significantly from investment returns.

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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