

Why Invest in Autonomous Technology & Robotics?

As of September 30, 2024

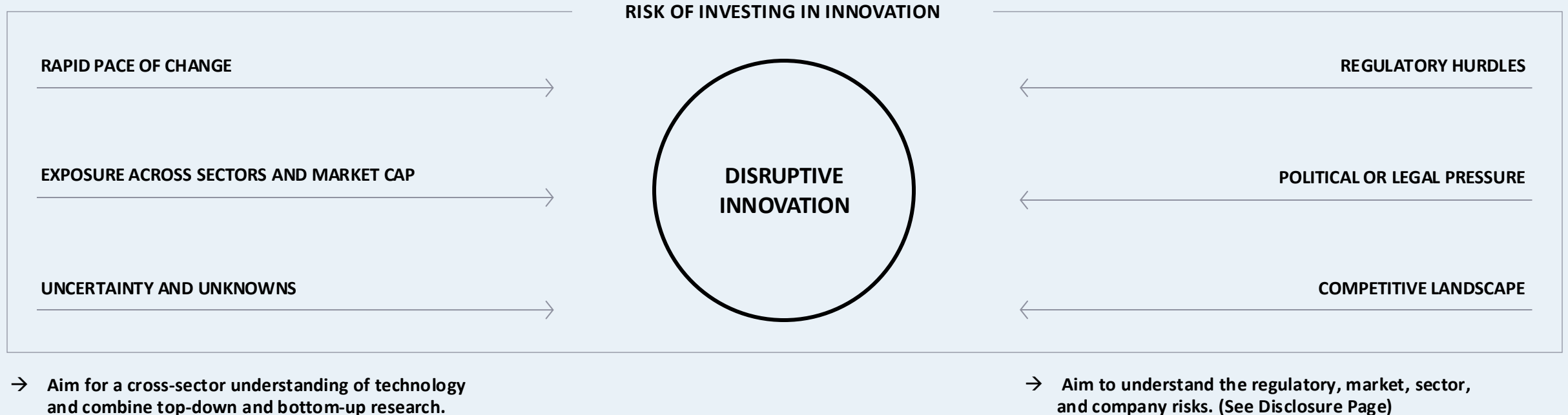




Risks of Investing in Innovation

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.





Risks & Disclosure Associated with Autonomous Technology & Robotics

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.

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.

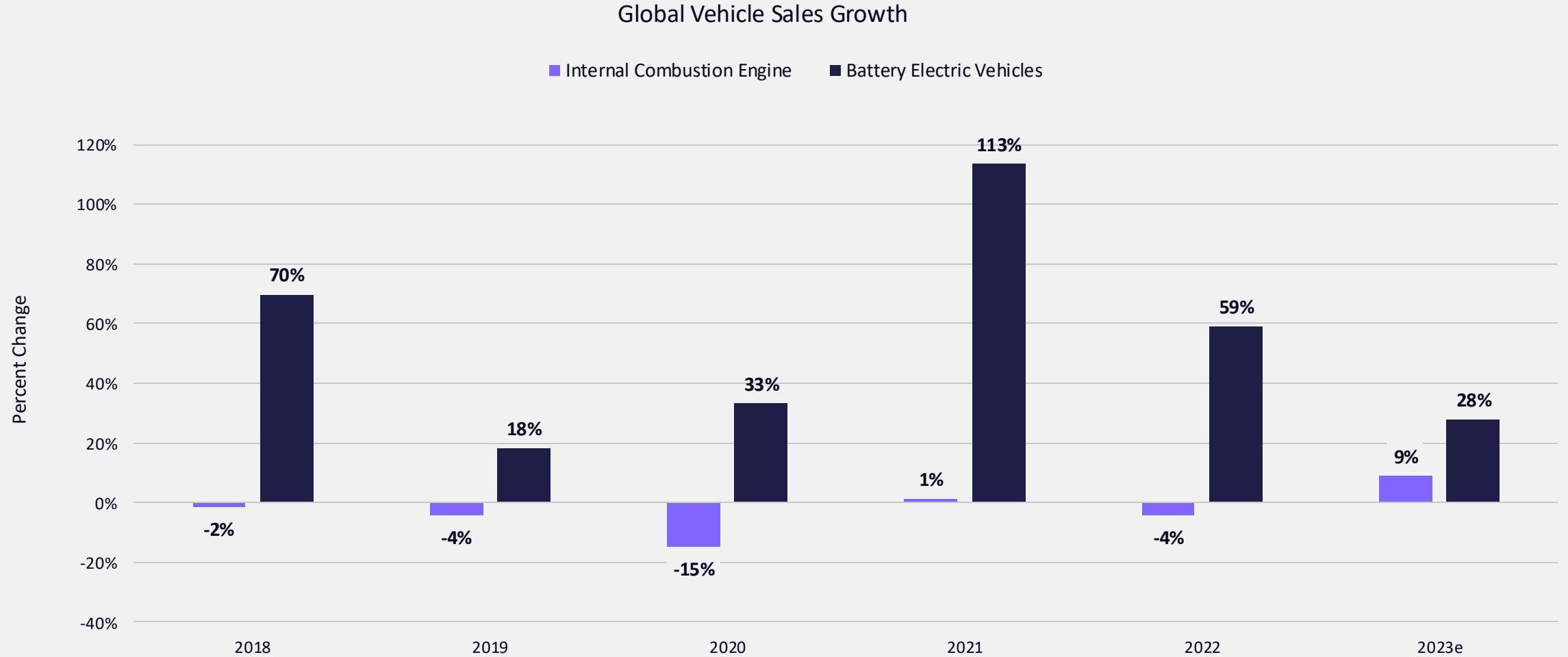
Internet Company Risk. Many Internet-related companies have incurred large losses since their inception and may continue to incur large losses in the hope of capturing market share and generating future revenues. Accordingly, many such companies expect to incur significant operating losses for the foreseeable 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.

Semiconductor Company Risk. Competitive pressures may have a significant effect on the financial condition of semiconductor companies and, as product cycles shorten and manufacturing capacity increases, these companies may become increasingly subject to aggressive pricing, which hampers profitability. Reduced demand for end-user products, under-utilization of manufacturing capacity, and other factors could adversely impact the operating results of companies in the semiconductor sector. Semiconductor companies typically face high capital costs and may be heavily dependent on intellectual property rights. The semiconductor sector is highly cyclical, which may cause the operating results of many semiconductor companies to vary significantly. The stock prices of companies in the semiconductor sector have been and likely will continue to be extremely volatile.

Industrials Sector Risk. The industrials sector includes companies engaged in the aerospace and defense industry, electrical engineering, machinery, and professional services. Companies in the industrials sector may be adversely affected by changes in government regulation, world events and economic conditions. In addition, companies in the industrials sector may be adversely affected by environmental damages, product liability claims and exchange rates. *Aerospace and Defense Company Risk.* 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. *Professional Services Company Risk.* Professional services companies may be materially impacted by economic conditions and related fluctuations in client demand for marketing, business, technology and other consulting services. Professional services companies' success depends in large part on attracting and retaining key employees and a failure to do so could adversely affect a company's business. There are relatively few barriers to entry into the professional services market, and new competitors could readily seek to compete in one or more market segments, which could adversely affect a professional services company's operating results through pricing pressure and loss of market share.

Machinery Industry Risk. The machinery industry can be significantly affected by general economic trends, including employment, economic growth, and interest rates; changes in consumer sentiment and spending; overall capital spending levels, which are influenced by an individual company's profitability and broader factors such as interest rates and foreign competition; commodity prices; technical obsolescence; labor relations legislation; government regulation and spending; import controls; and worldwide competition. Companies in this industry also can be adversely affected by liability for environmental damage, depletion of resources, and mandated expenditures for safety and pollution control.

Electric Vehicles Continue To Take Share From Internal Combustion Engine Vehicles



Sources: ARK Investment Management LLC, 2024. This ARK analysis is based on a range of underlying data from external sources, including EVVolumes.com, 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.



The Auto Industry Is Likely To Consolidate

If EV adoption continues to gain traction, traditional automakers may be forced to restructure and consolidate.

GM Delays EV Truck Production At Michigan Plant By Year

—Reuters Oct 17, 2023

VW Group Delays EV Battery Plant In Europe Amid “Sluggish” EV Demand

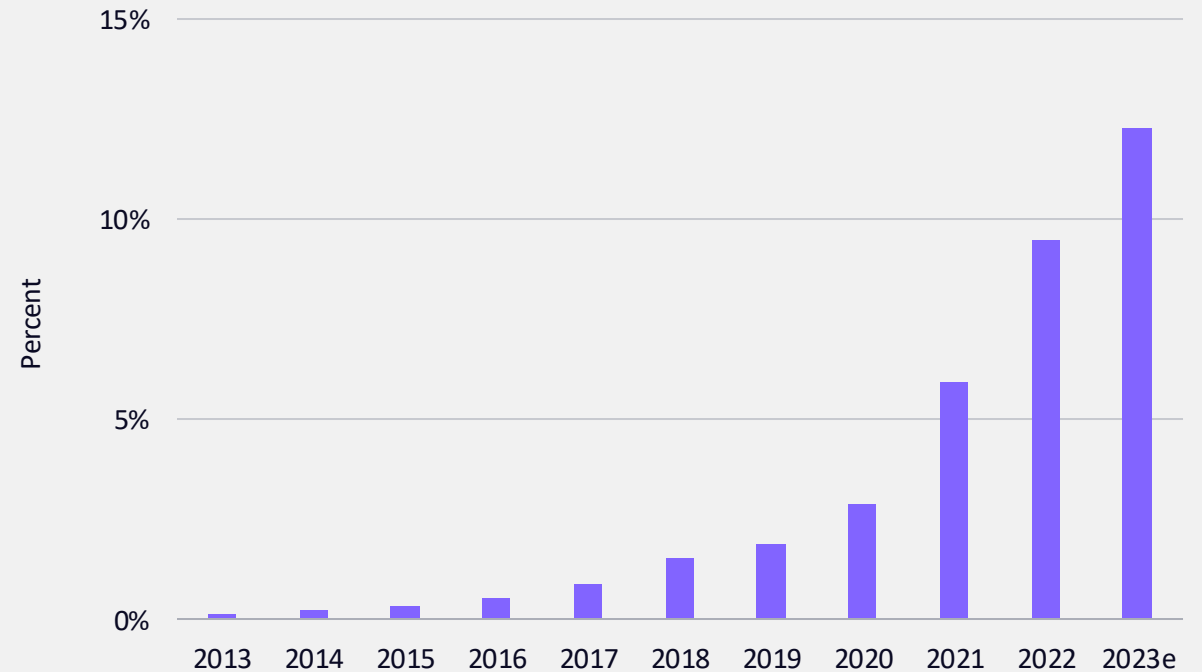
“There is for the time being no business rationale for deciding on further sites,” Volkswagen Group CEO Oliver Blume said.

—InsideEVs Nov 2, 2023

Ford Will Cut Weekly Production Of F-150 Lightning In Response To Slowing Demand

—The Verge Dec 11, 2023

Global Battery Electric Vehicle Sales Market Share*

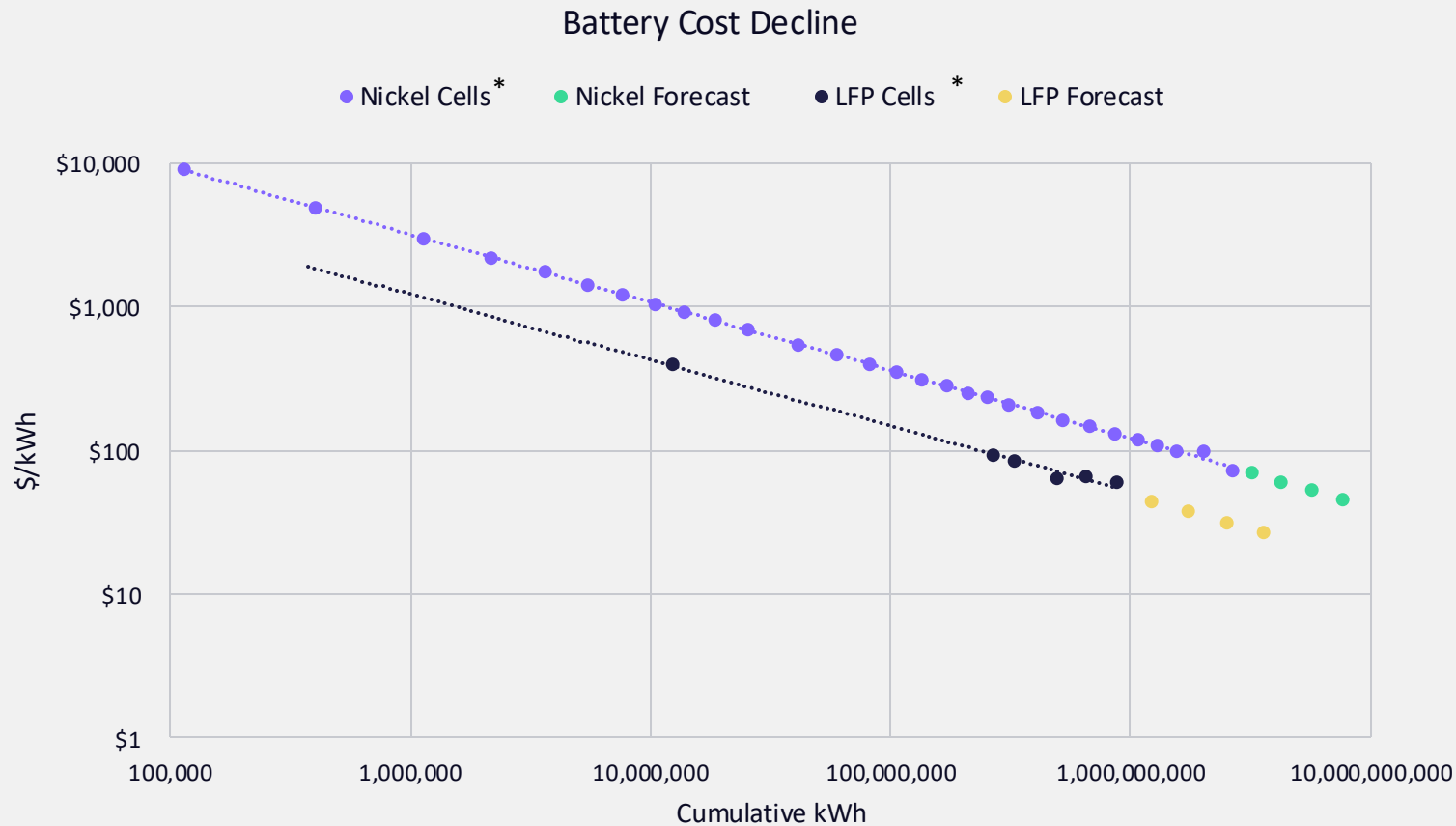


*BEV market share is calculated relative to all “light vehicles”, which are vehicles with a maximum Gross Vehicle Weight Rating (GVWR) of < 8,500 lbs. Sources: ARK Investment Management LLC, 2024, based on data from EVVolumes.com 2023, Hawkins 2023, Mihalascu 2023, Shepardson & Klayman 2023, Rosevear 2023, Transport Policy 2023. 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.

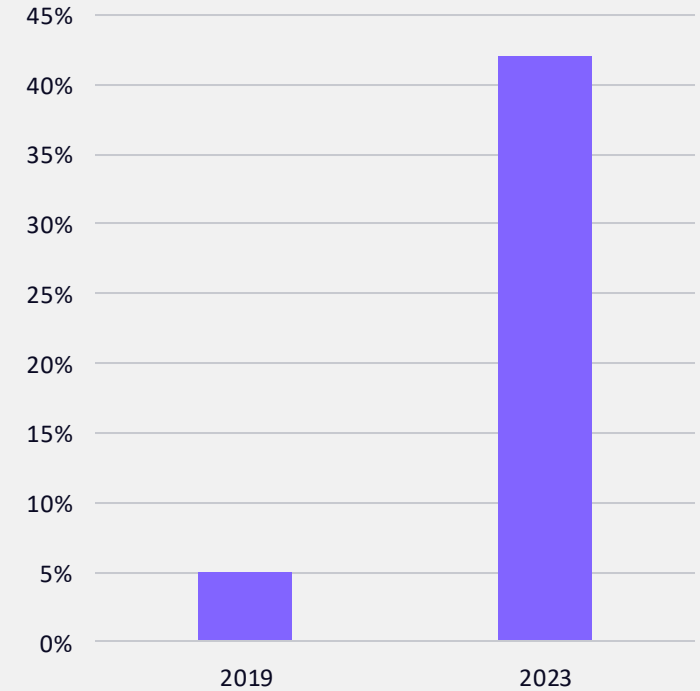


Wright's Law Has Modeled The Decline In Battery Costs Accurately

According to Wright's Law, for every cumulative doubling in the number of kWh produced, battery costs will fall by 28%. Lithium iron phosphate (LFP) cells are taking share from nickel-rich cells, illustrating the difficulty of forecasting commodity prices as battery chemistries change over time.



Global LFP Cathode Chemistry Share Of Passenger EV Sales



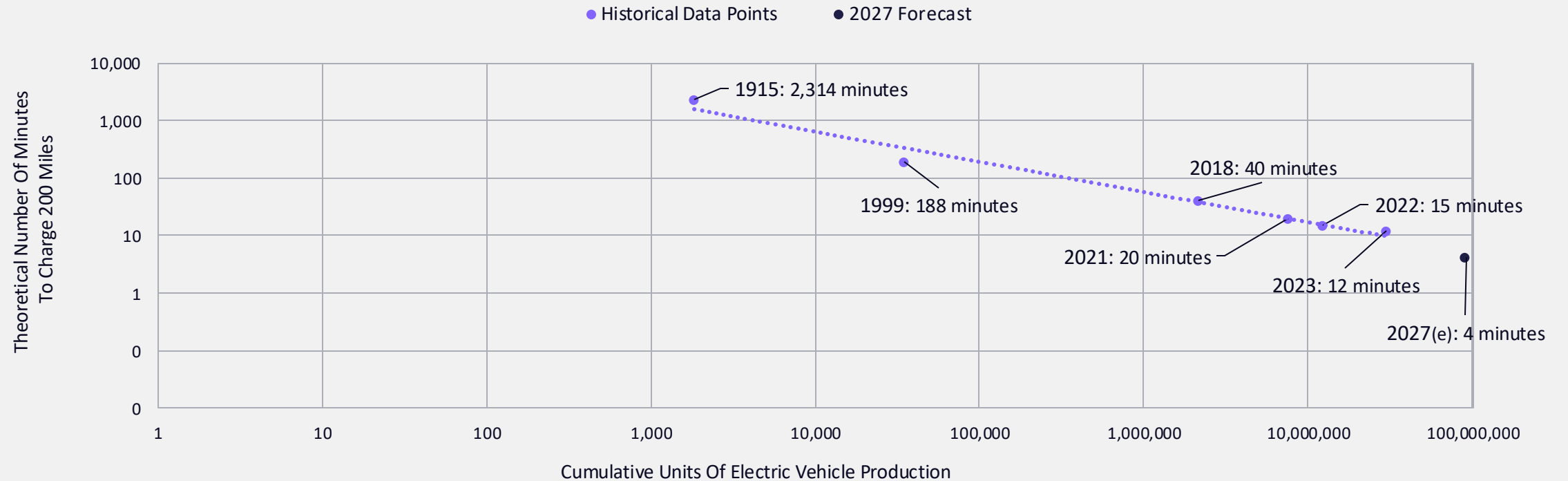
*Combination of modeled and historical data. Sources: ARK Investment Management LLC, 2024. This ARK analysis is based on a range of underlying data from external sources, including Bloomberg New Energy Finance 2023, which may be provided upon request. Forecasts are inherently limited and cannot be relied 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.



Wright's Law Points To Faster EV Charging Rates

The EV charging rate seems to be a good proxy for overall performance, including efficiency, range, and power. In the past five years, charging rates for 200 miles of range have improved nearly three-fold, from 40 minutes to 12, and could drop another three-fold to 4 minutes over the next five years. As EV charging reaches acceptable rates, manufacturers are likely to optimize for other features, including autonomous driving, safety, and entertainment.

EV Charging Rates For 200 Miles Of Range



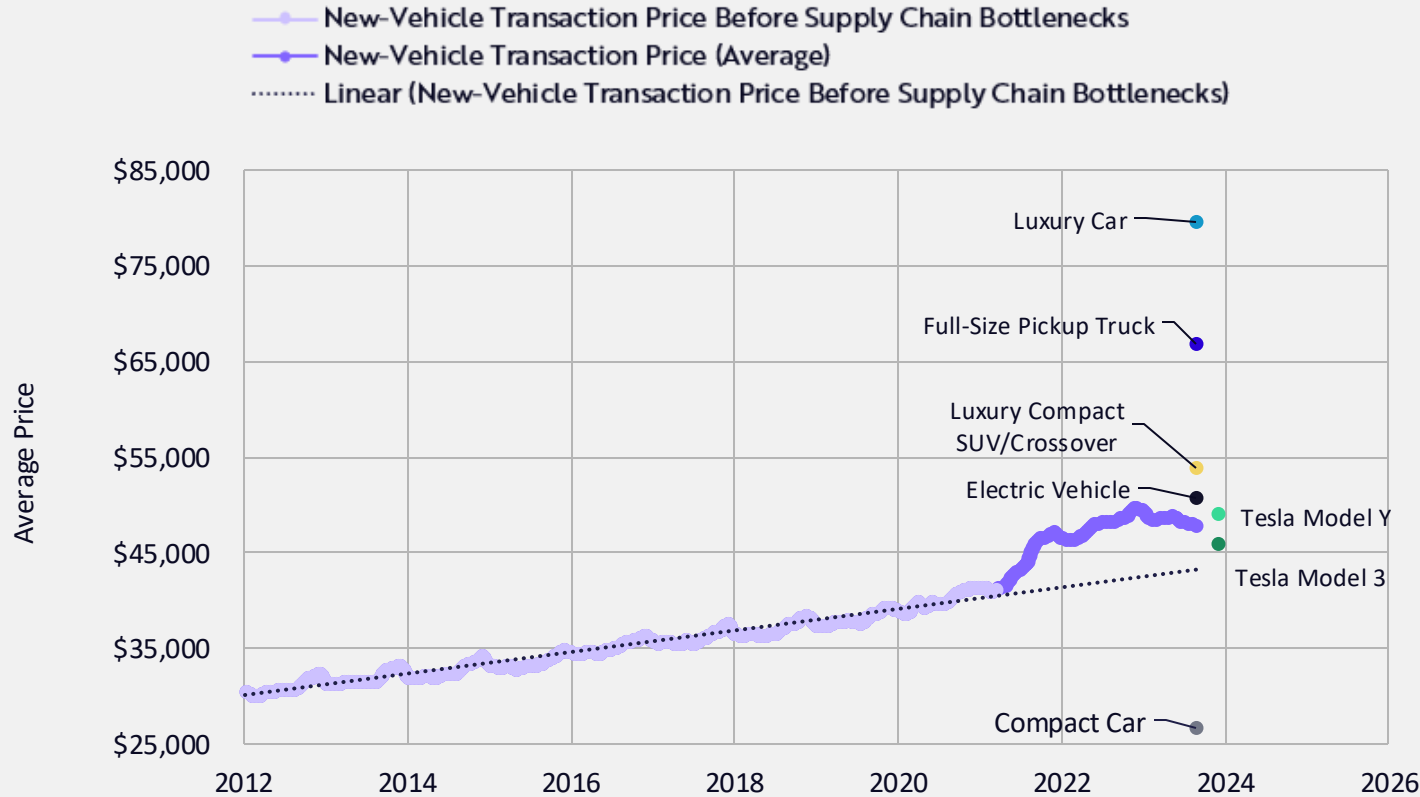
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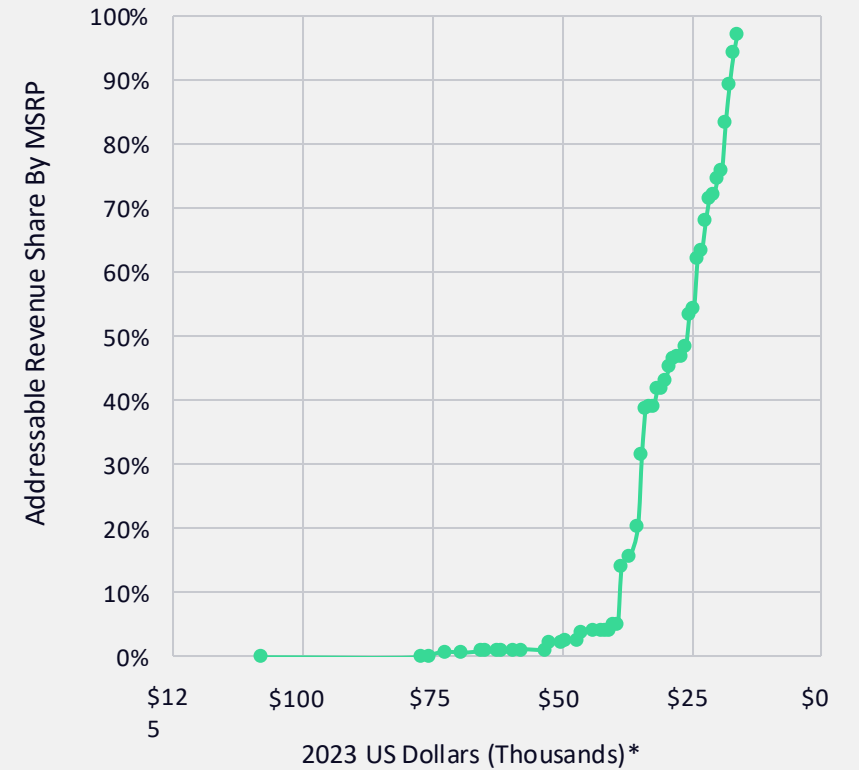
EVs Have Hit Price-Parity With Internal Combustion Engine Vehicles

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

US New Vehicle Transaction Price



Vehicle Price vs Addressable Market



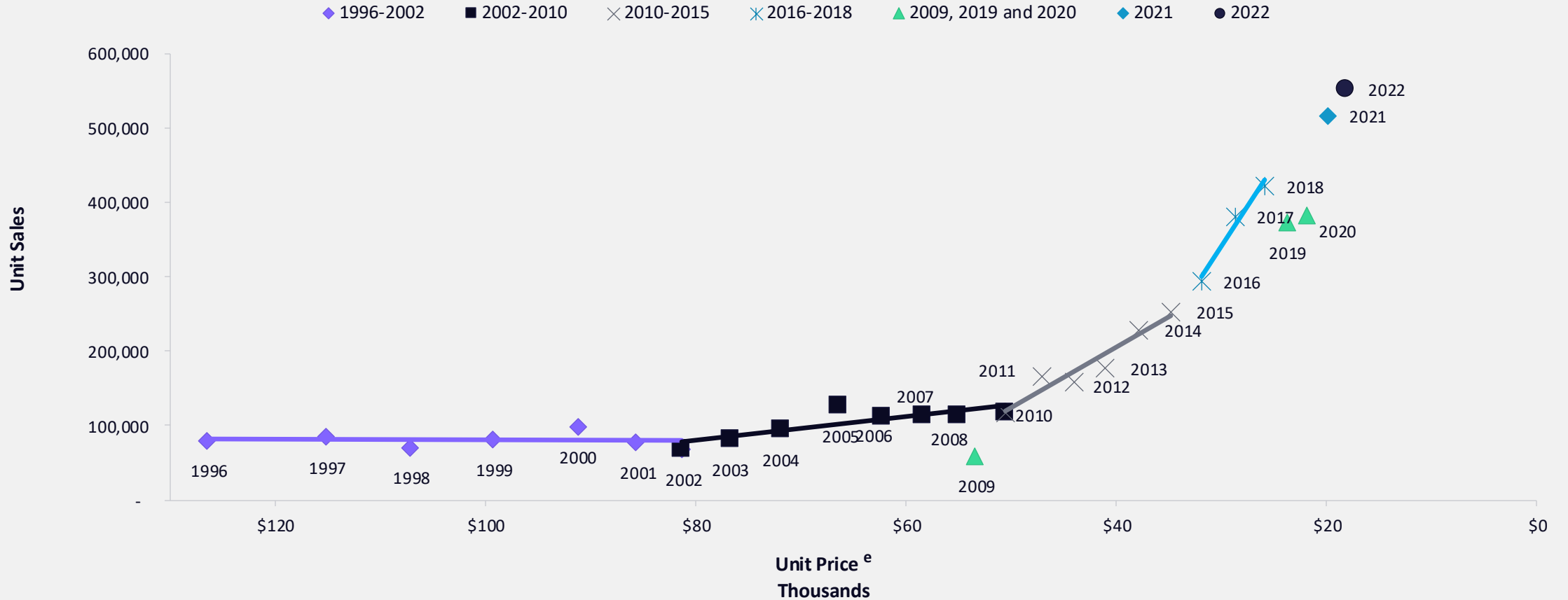
*Older data points adjusted to 2023 dollars using CPI. Segment average transaction prices are as of September 2023 as reported by Cox Automotive. Tesla Model Y LR price taken from Tesla website as of December 2023. Sources: ARK Investment Management LLC, 2024, based on data from Cox Automotive 2023.. 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.



Lower Prices Are Stimulating Demand For Industrial Robots

Industrial robot costs have been dropping 50% for every cumulative doubling in production.

Industrial Robots: Price Elasticity Of Demand

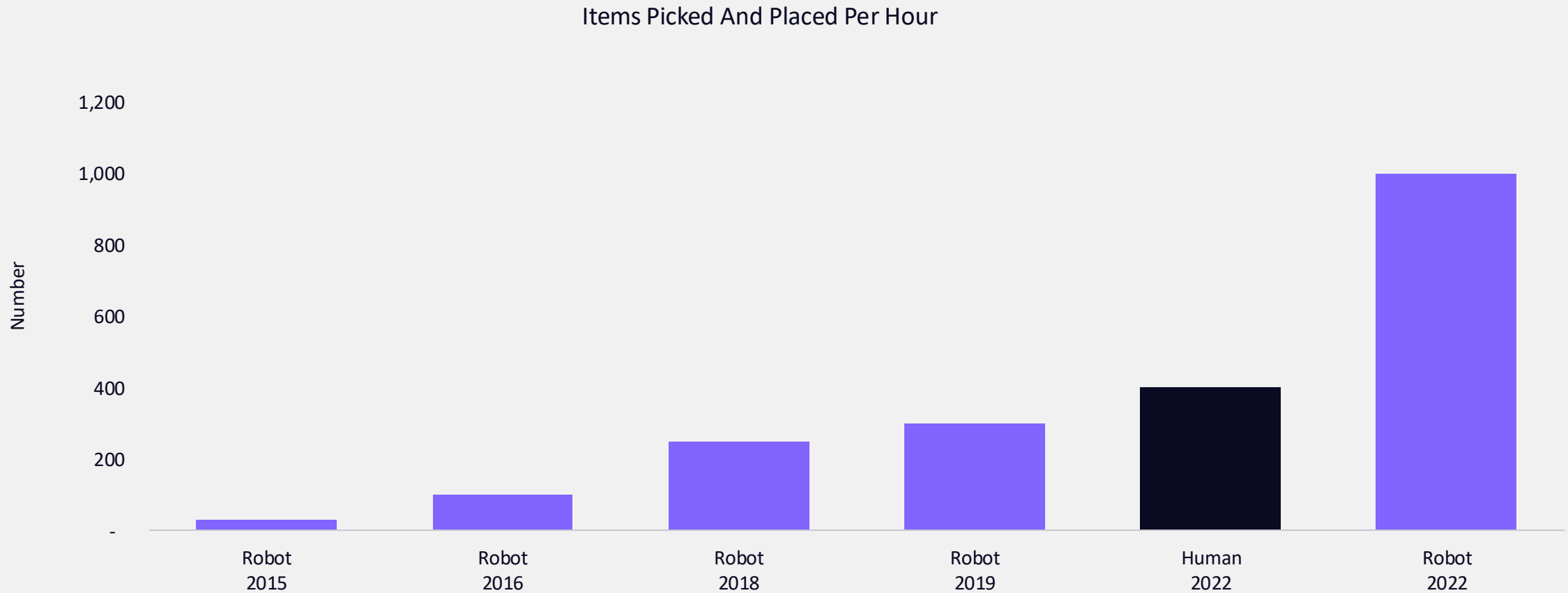


Sources: ARK Investment Management LLC, 2024, based on data from The International Federation of Robotics 2023. Forecasts are inherently limited and cannot be relied upon. For informational purposes only and should not be considered investment advice or a recommendation to buy, sell, or hold any particular security. Past performance is not indicative of future results.



Increased Performance Is Stimulating Demand For Industrial Robots

Advances in computer vision and deep learning have improved robot performance 33-fold in seven years. Robots are already surpassing human performance by greater than a factor of two and it's unclear where the upper limit will be.

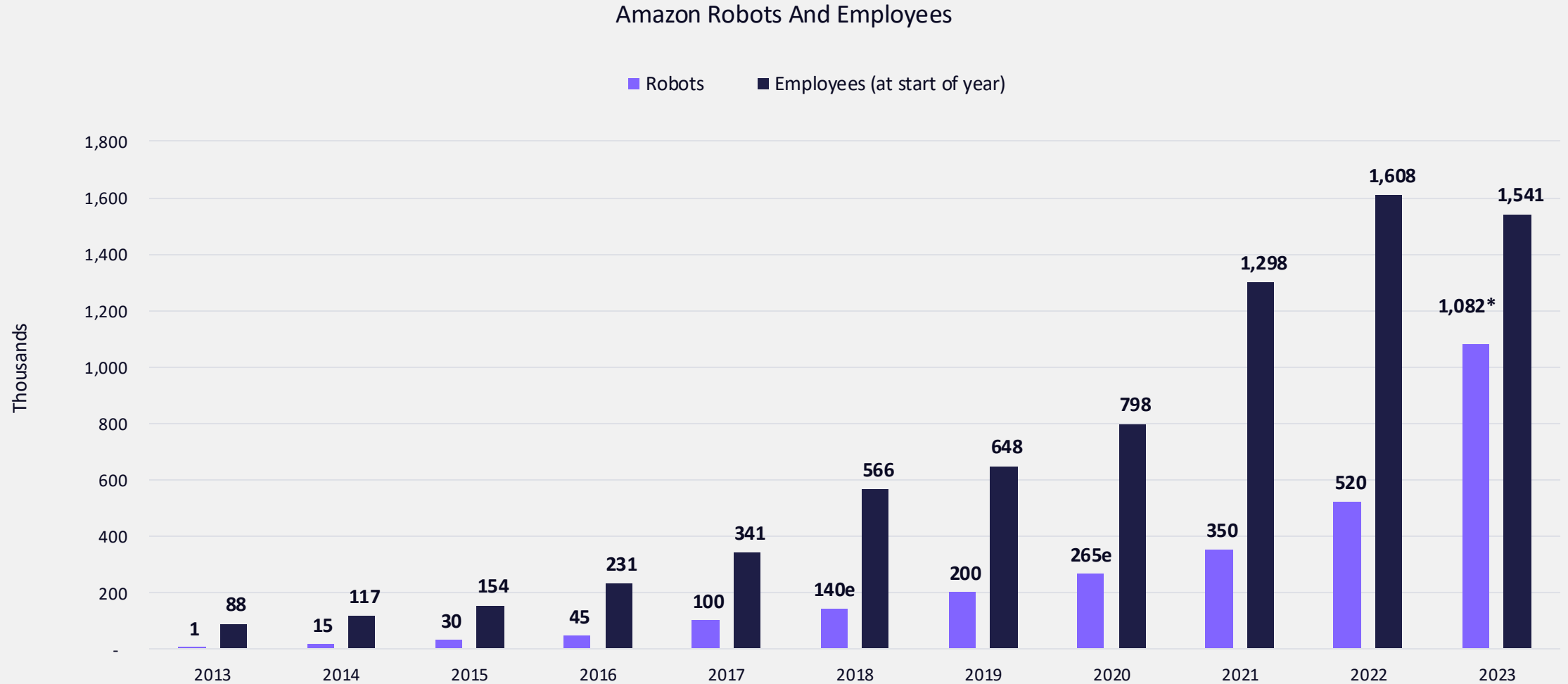


Sources: ARK Investment Management LLC, 2024. This ARK analysis is based on a range of underlying data from external sources, which may be provided upon request. Forecasts are inherently limited and cannot be relied upon. For informational purposes only and should not be considered investment advice or a recommendation to buy, sell, or hold any particular security. Past performance is not indicative of future results.



Many Companies Are Likely To Deploy More Robots Than Humans

Robots are freeing humans from tedious physical tasks.

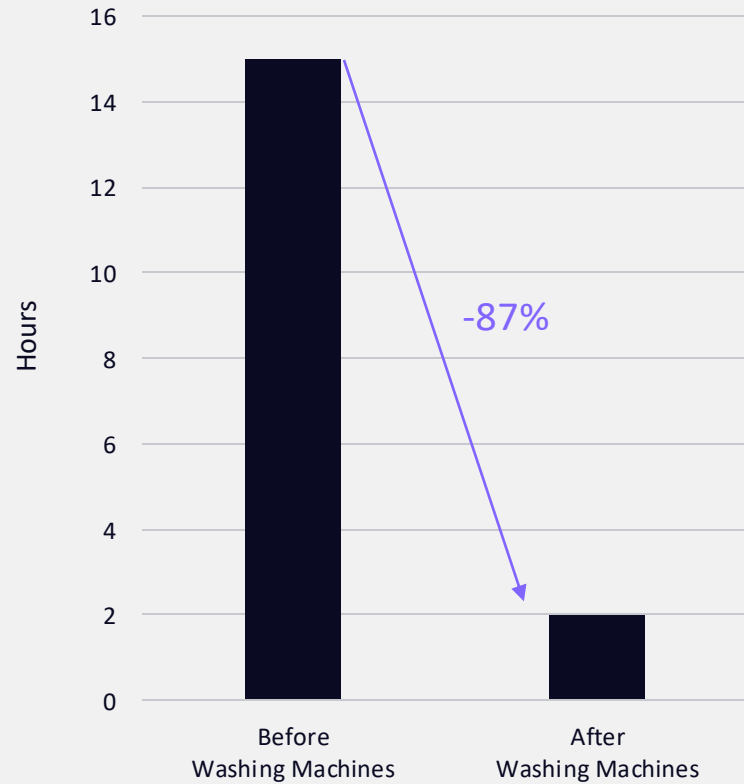


*Modeled/annualized. Figures denoted with an "e" are ARK estimates. Sources: ARK Investment Management LLC, based on data from Amazon 2023 as of June 26, 2023. Forecasts are inherently limited and cannot be relied upon. For informational purposes only and should not be considered investment advice or a recommendation to buy, sell, or hold any particular security. Past performance is not indicative of future results.

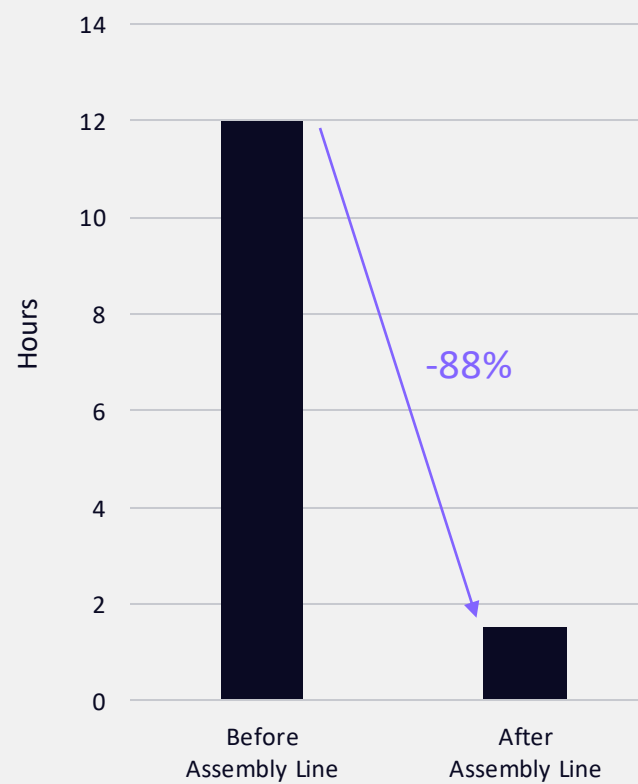


Automation's Impact On Productivity Has Transformed Industries

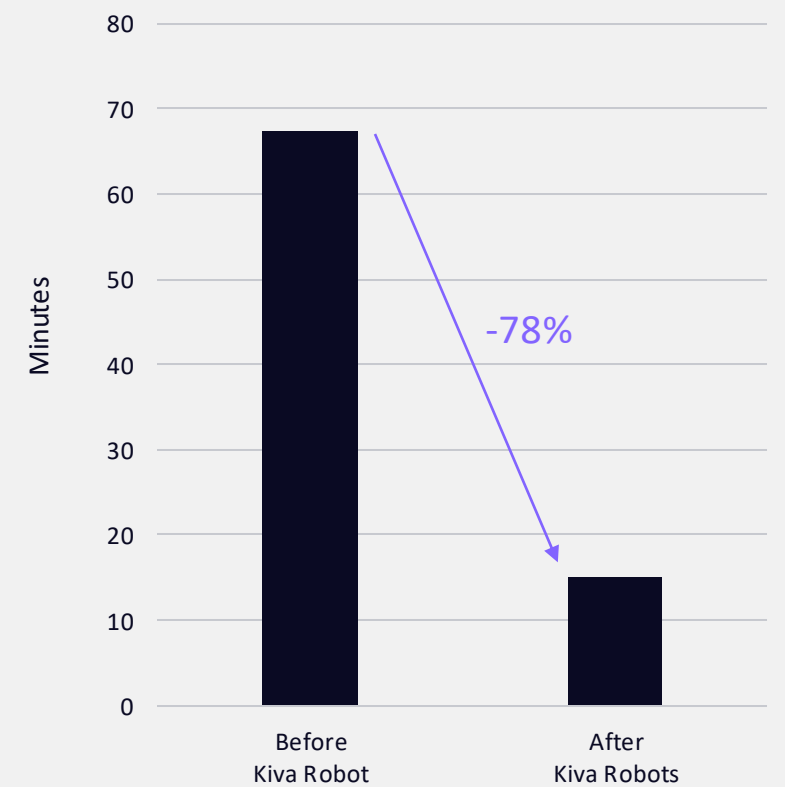
Time To Do Laundry



Time To Manufacture A Car



Time From Click To Ship At An Amazon Warehouse

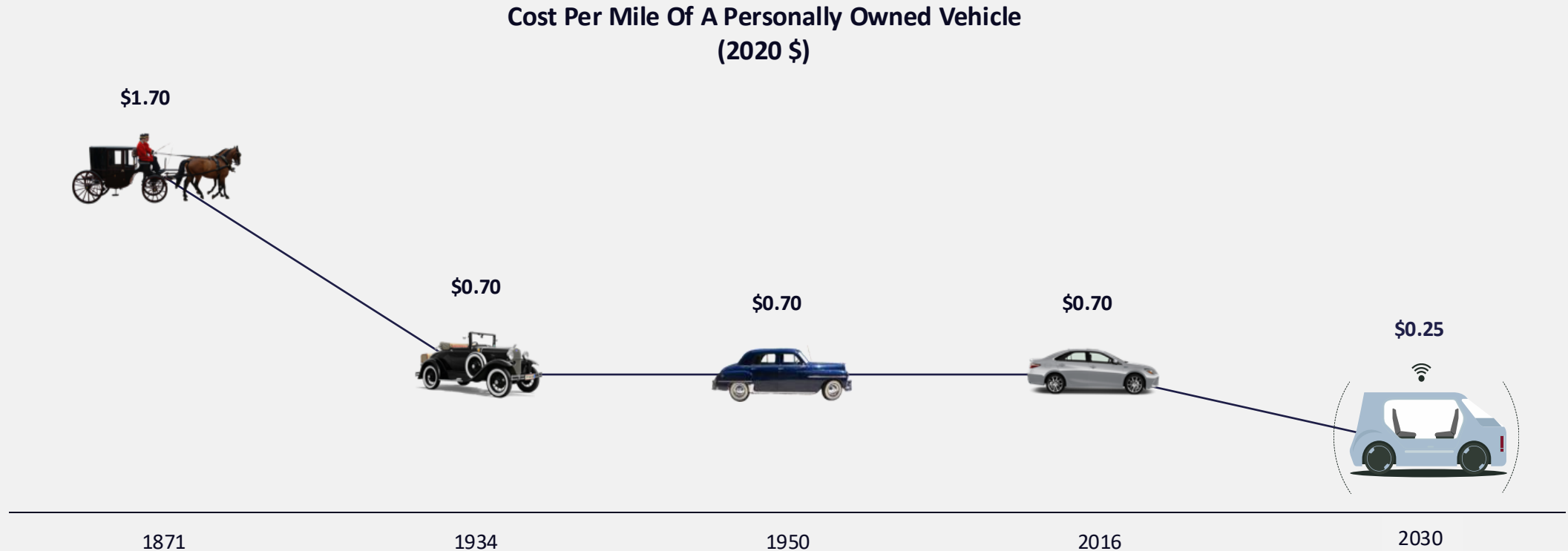


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Autonomous Ride-Hail Is Likely To Increase Access To Convenient Point-to-Point Transportation

Adjusted for inflation, the cost of owning and operating a personal car has not changed since the Model T rolled off the first assembly line more than 100 years ago. ARK estimates that autonomous taxis at scale could cost consumers as little as \$0.25 per mile, spurring widespread adoption.



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.

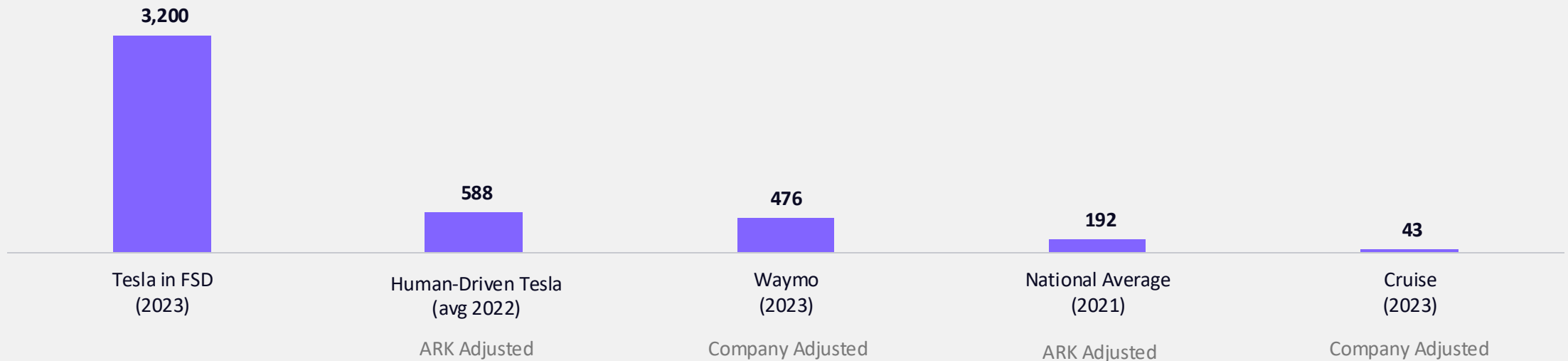


Autonomous Vehicles Are Safer Than Human-Driven Vehicles

In 2015, ARK estimated that the rate of autonomous vehicle accidents would be ~80% lower than that associated with human drivers, reducing the ~40,000 auto-related fatalities per year in the US and the ~1.35 million globally. Current data support our original estimates.

In full self driving (FSD) mode on surface streets, a Tesla appears to be ~5x safer than a Tesla in manual mode, and ~16x safer than the national average. Waymo's autonomous cars are ~2-3x safer than the national average, while Cruise—now sidelined by regulators—seems to have underperformed the national average considerably.

**Miles Between Crashes On Surface Streets Only
(Thousands)**



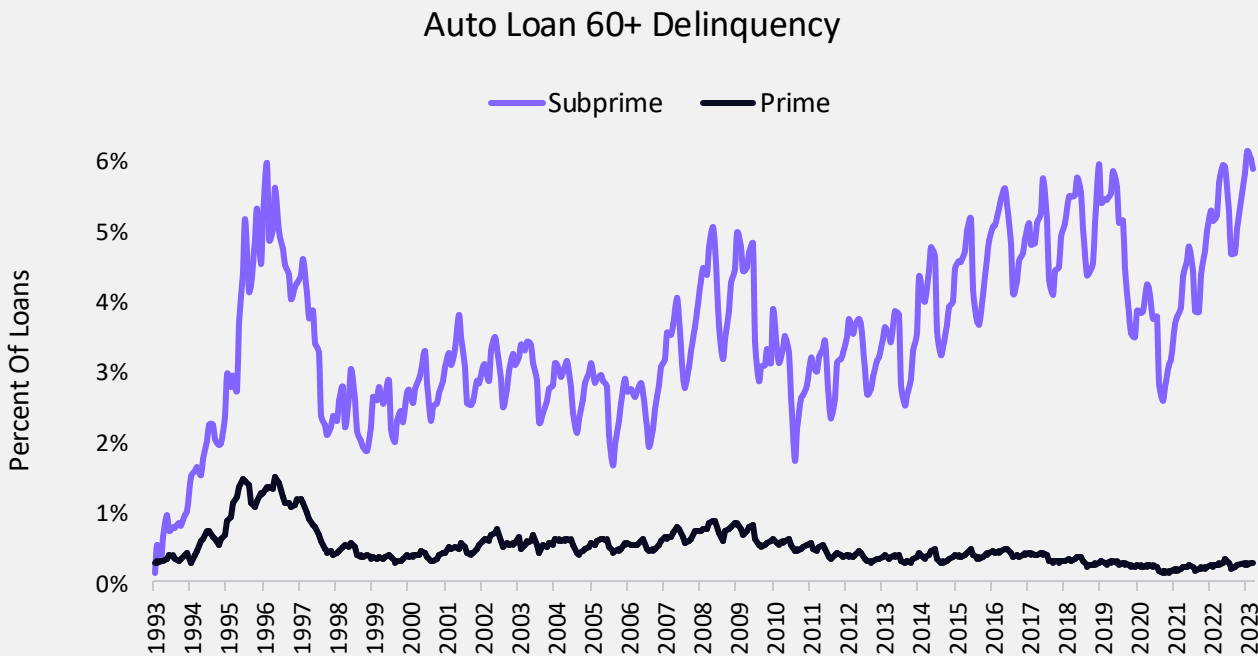
Sources: ARK Investment Management LLC, 2024. This ARK analysis is based on a range of underlying data from external sources, including CDC 2024, Kusano 2023, NHTSA 2023, Tesla 2023, 2024, and Zhang, 2023, which may be provided upon request. Forecasts are inherently limited and cannot be relied upon. 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 Electric Vehicle Adoption Could Disrupt The US Auto Loan Industry

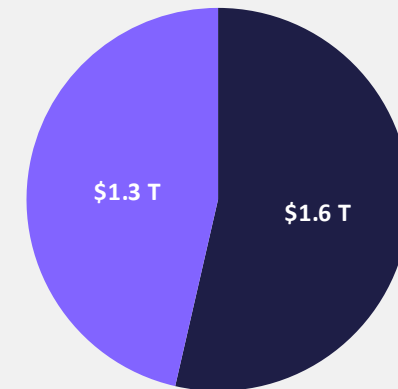
During the past three years, interest rate hikes have increased new vehicle monthly car loan payments by ~27%, from \$581 to \$739. As a result, the number of subprime auto loans delinquent by 60+ days recently hit an all-time high.

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)

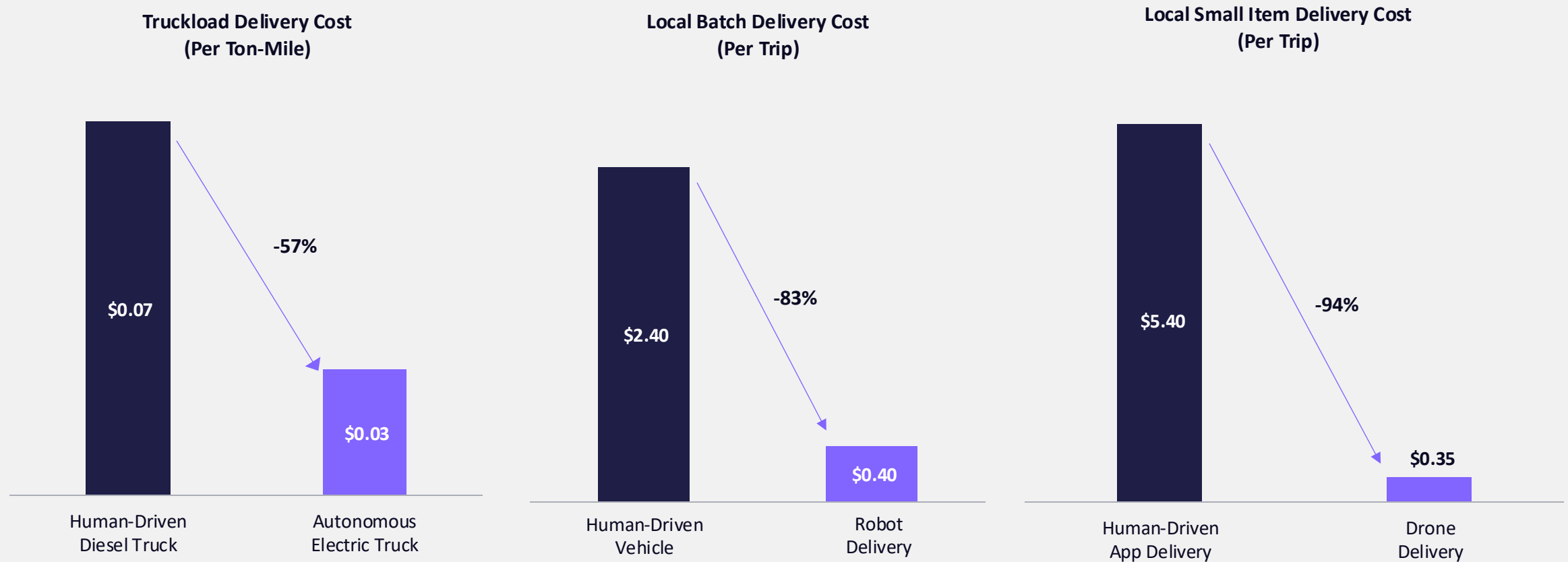


Note: Wright's Law states that for every cumulative doubling of units produced, costs will fall by a constant percentage. *Motor Vehicle Loans Owned and Securitized data as of Q3 2023. ARK Investment Management LLC, 2024. This ARK analysis is based on a range of underlying data from external sources, 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 Vehicles That Roll And Fly Could Lower Supply Chain Costs Dramatically

According to our research, autonomous vehicles should operate at higher utilization rates than human-in-the-loop systems, creating more cost-effective last-mile delivery systems.



Note: Drone price per mile has been updated with our latest assumptions for replacement costs, launching and charging infrastructure, insurance, and labor costs. Fees for drone and robot delivery are shown net of infrastructure costs (outside of charging and launch/land), which we believe could either be born by the drone or robot delivery operators or shared with logistics or retail partners. ARK Investment Management LLC, 2024. This ARK analysis is based on a range of underlying data from external sources as of December 7, 2023, 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.

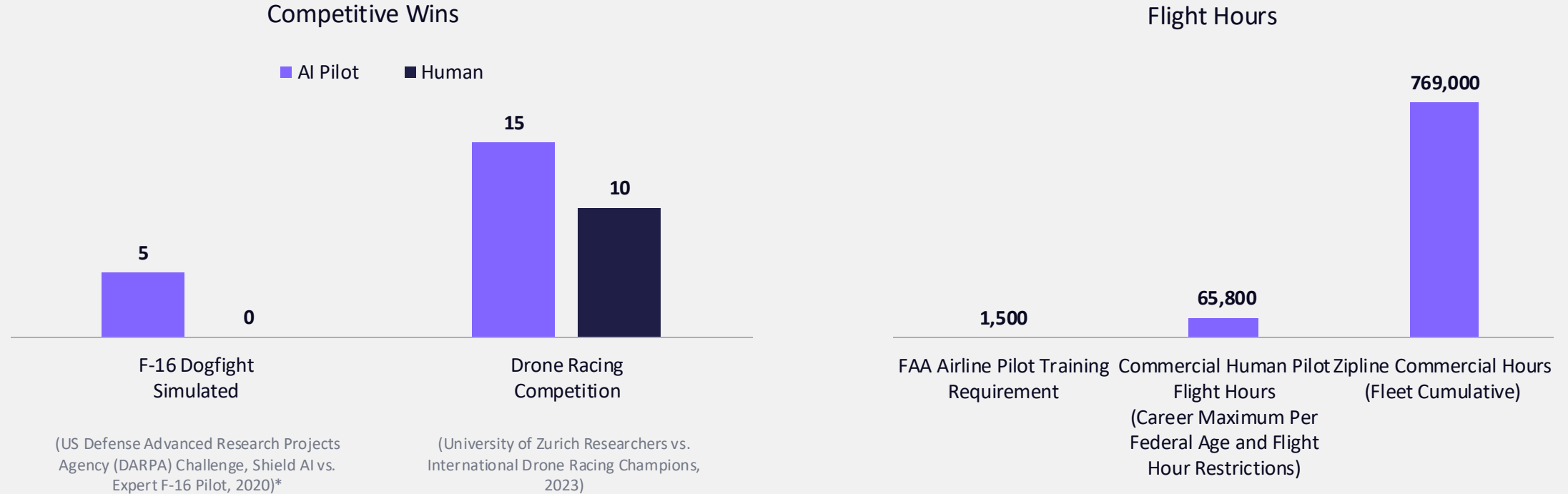


AI Pilot Performance Seems Superior To That Of Human Pilots

AI pilots have immense data advantages over humans. Zipline drones have logged more commercial flight miles than would have been possible by humans.

In head-to-head simulated F-16 dogfights with a human expert fighter pilot, Shield AI won 5-0.*

In drone races, AI trained by deep reinforcement learning outperformed professional human pilots 15 out of 25 times, with lap times ~10% faster.



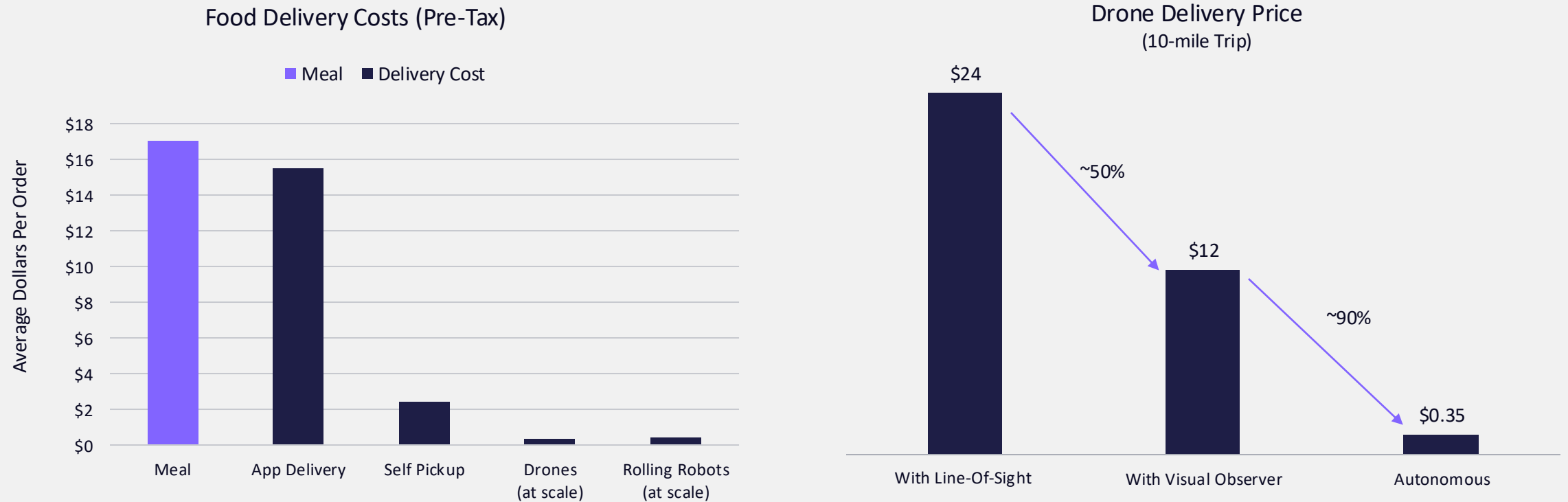
*Note: Heron Systems, now part of Shield AI, won the dogfight. ARK Investment Management LLC, 2024. This ARK analysis is based on a range of underlying data from external sources as of December 7, 2023, which may be provided upon request. Numbers are rounded. Forecasts are inherently limited and cannot 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.



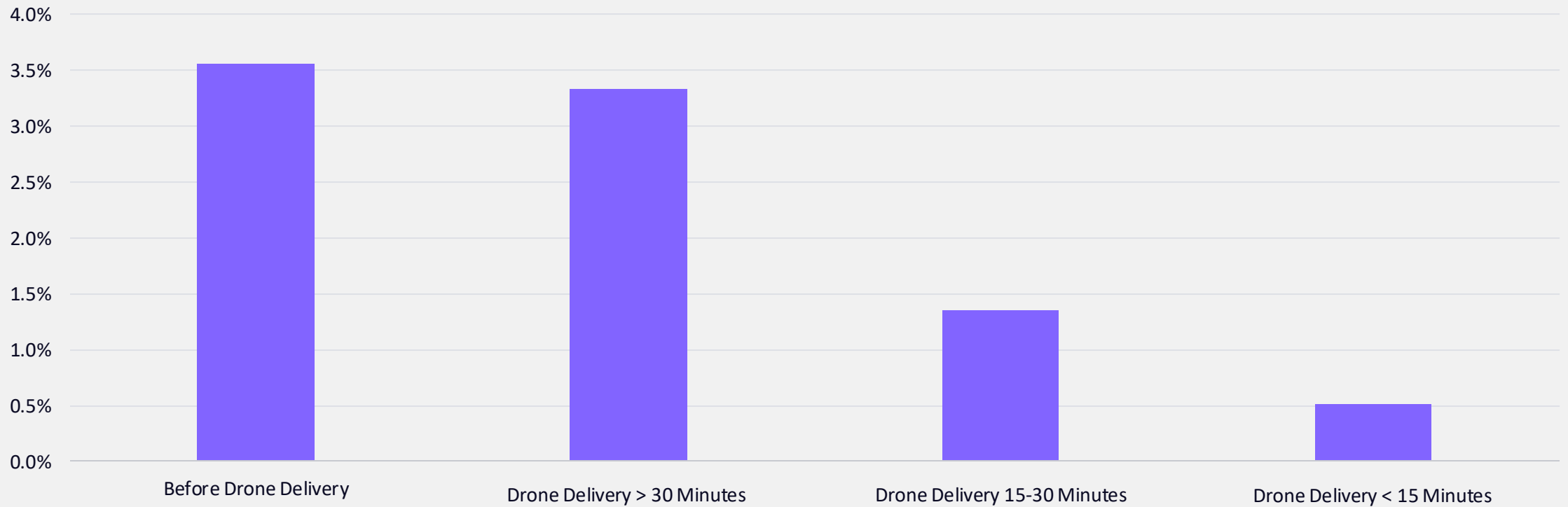
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Drones Are Saving Lives

In geographies without road infrastructure, Zipline drones can deliver blood in fewer than 15 minutes, improving the mortality associated with postpartum hemorrhages by 80%.

Postpartum Hemorrhage Mortality Rate
Before And After Drone Delivery Of Blood Transfusions In Rwanda



Sources: ARK Investment Management LLC, 2024, based on data from Jeon et al. 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.





5 Reasons Investors Should Consider ARKQ

- 1. Exposure To Innovation:** Aims for thematic multi-cap exposure to disruptive innovation elements including robotics, autonomous vehicles, energy storage, 3D printing, and space exploration.
- 2. 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.

[1] Diversification does not assure a profit. The information herein is general in nature and should not be considered financial advice. An investor should consult a financial professional regarding the investor's specific situation.



ARK Autonomous Technology & Robotics ETF — ARKQ

Advancements in robotics, 3D printing, modern infrastructure, space exploration, and energy storage technology are enhancing productivity while reducing costs. ARKQ is focused on the disruptive innovations transforming manufacturing, production, and infrastructure.

- Ticker: [ARKQ](#)
- Fund AUM: [\\$780.3 Million](#)
- Typical Number of Holdings: [30-50 U.S. Equities/U.S.-listed ADRs](#)
- Expense Ratio: [0.75%](#)

TOP 10 HOLDINGS	Weight (%)
TESLA INC	14.7%
TERADYNE INC	9.5%
KRATOS DEFENSE & SECURITY SOLUTIONS INC	9.1%
IRIDIUM COMMUNICATIONS INC	6.3%
ROCKET LAB USA INC	5.1%
TRIMBLE INC	4.6%
AEROVIRONMENT INC	4.5%
UIPATH INC	3.5%
DEERE & CO	3.4%
KOMATSU LTD	3.3%

63.8%

MARKET CAPITALIZATION	(%)
Mega (\$100B+)	34.8%
Large (\$10 - \$100B)	27.2%
Medium (\$2 - \$10B)	31.1%
Small (\$300M - \$2B)	4.3%
Micro (\$50 - \$300M)	2.4%

PORTFOLIO COMPOSITION	(%)
Autonomous Mobility	45.3%
Advanced Battery Technologies	11.6%
Intelligent Devices	10.5%
Adaptive Robotics	8.9%
Neural Networks	8.2%
Reusable Rockets	6.4%
Next Gen Cloud	5.0%
3D Printing	3.5%

SECTORS	(%)
Industrials	35.6%
Information Technology	34.1%
Consumer Discretionary	18.1%
Communication Services	8.4%
Energy	1.3%
Health Care	1.2%

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.

Source: ARK Investment Management LLC; All data as of September 30, 2024.



Thematic Strategies Focused on Disruptive Innovation



ARKK
ARK Innovation ETF



ARKX
ARK Space Exploration & Innovation ETF



ARKW
ARK Next Generation Internet ETF



PRNT
The 3D Printing ETF



ARKQ
ARK Autonomous Tech. & Robotics ETF



IZRL
Israel Innovative Technology ETF



ARKG
ARK Genomic Revolution ETF



ARKF
ARK Fintech Innovation ETF



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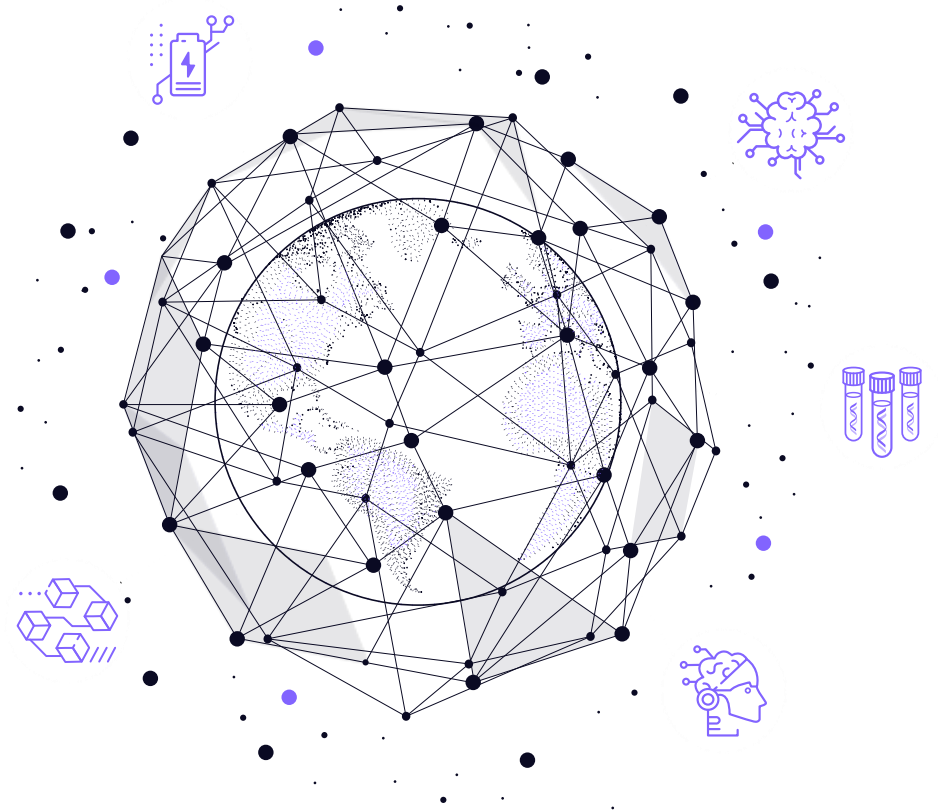
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Factsheet, prospectus, and latest performance reports are available for download on our website: ark-funds.com/investor-material

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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 ARKQ: **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. **Consumer Discretionary Risk.** Companies in this sector may be adversely impacted by changes in domestic/international economies, exchange/interest rates, social trends and consumer preferences." **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. Detailed information regarding the specific risks of ARKQ ETF can be found in the prospectus. **Industrials Sector Risk.** Companies in the industrials sector may be adversely affected by changes in government regulation, world events and economic conditions. In addition, companies in the industrials sector may be adversely affected by environmental damages, product liability claims and exchange rates. **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.

Additional risks of investing in ARKQ include market, management and non-diversification risks, as well as fluctuations in market value and NAV. Shares of ARKQ 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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