Beyond the start-up phase: Recipes for growth at mobility companies

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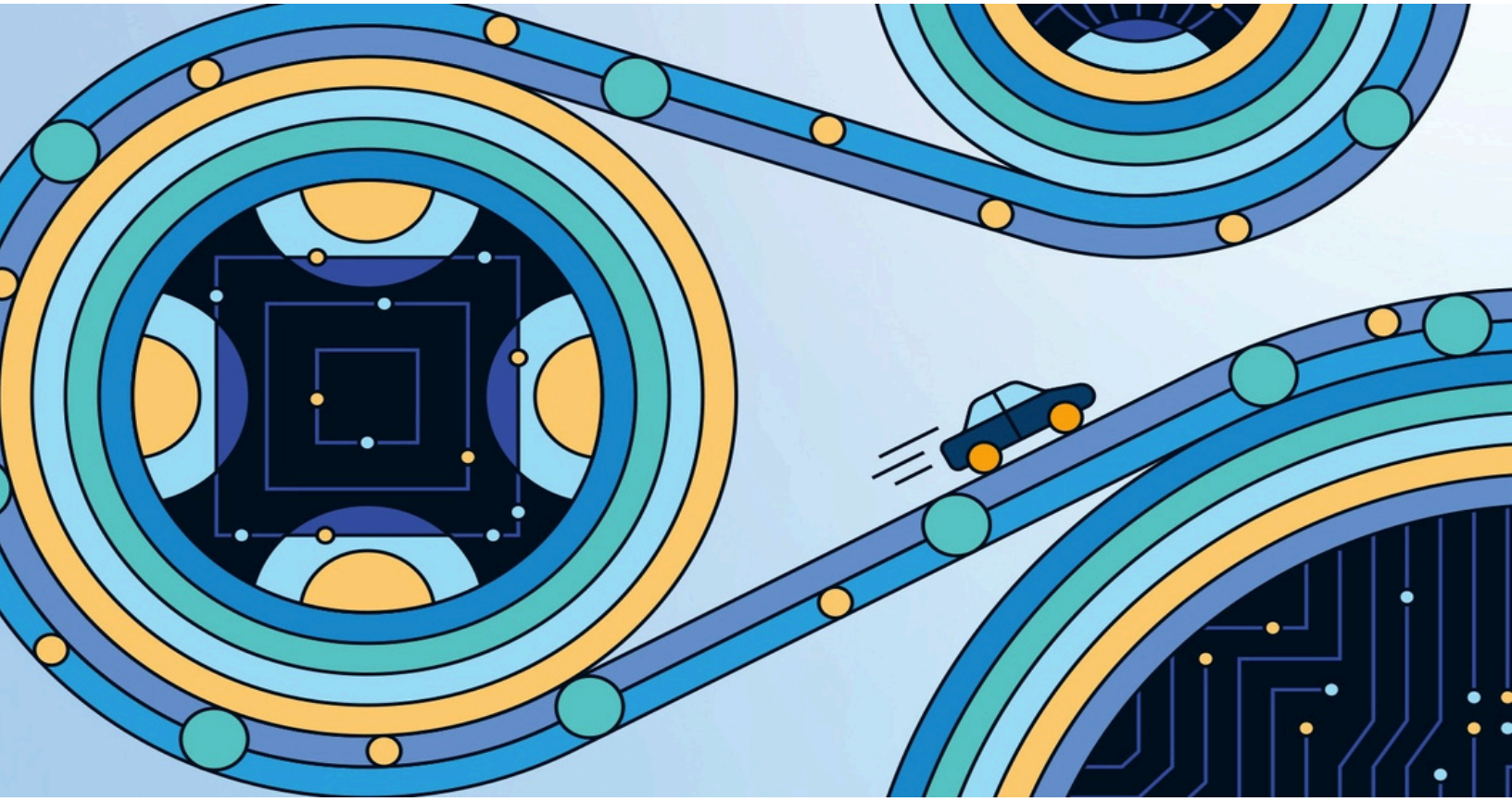

Most promising mobility start-ups fizzle out before they can scale their operations. With billions of dollars in investment at stake, they need a better path to growth.

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The invention of the automobile in the late 1800s soon attracted entrepreneurs. Car manufacturers sprung up across the world, with the number in the United States increasing **from 30 in 1899 to about 500 by 1910**. The early industry's hallmark was rapid and constant innovation, which included the introduction of V-8 engines, the replacement of hand cranks with electric starters, and the addition of folding tops for weather protection.

- By the 1920s, innovation was still going strong, but **most US automotive companies had ceased operations** or failed to achieve scale, leaving three familiar names to lead the market: Chrysler, Ford, and General Motors. The winning companies distinguished themselves by developing the most distinctive, **high-quality products**, keeping costs in check, and always striving for operational improvement. **Ford's Model T**, for instance, had a transmission that made it easy to shift gears and benefited from new mass-production techniques that reduced costs and made car ownership affordable for the middle class. By the time Ford stopped Model T production in 1927, it had sold more than 15 million units.

- History is now repeating. The mobility industry has entered an age of innovation that rivals the early 1900s, as start-ups and traditional **OEMs invest in digitization** and the **ACES trends**: autonomous driving, connectivity, electrification, and shared mobility. Thousands of entrepreneurial businesses have emerged since 2010, and the winnowing process is now underway, with some start-ups closing their doors after receiving billions of dollars in funding. Across industries, more than 90 percent of start-ups fail before they can scale their operations.

Innovation always carries the **risk of failure**, and some complications are unavoidable, including unexpected shifts in consumer demand, new regulatory requirements, and the emergence of better technologies (see sidebar, *"Innovation always comes with risk")*. But some start-ups fail even if they have a great concept and a potentially large market, because they run out of funding before they can scale their business.

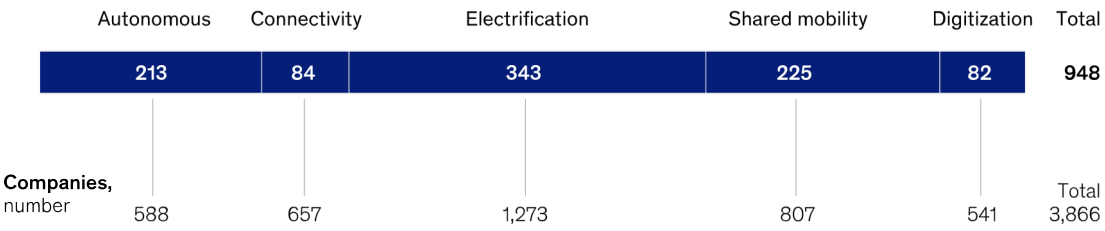
How can businesses increase the odds that they will not only survive but grow ?
Although no single strategy is right for every company, a greater focus on excellence in execution—everything that occurs between idea generation and achieving scale—could benefit all. After examining recent investment trends, this article examines six moves that can put start-ups on a strong growth trajectory.

Major investment and equally large risks :

Investors have funneled almost $950 billion to about 3,800 future-mobility start-ups since 2010. From 2022 through the second quarter of 2024, traditional automotive companies accounted for only about 7.5 percent of total inorganic investment; more than 90 percent came from companies in other sectors, such as oil and gas, or from venture capital, private equity, technology companies, and pension funds. This **breakdown** has been relatively stable since the 2010s. Funding from traditional OEMs and suppliers may be low because they direct billions to internal R&D ventures rather than make acquisitions or invest in future-mobility start-ups.

Electrification, shared mobility, and autonomous driving are the main investment clusters for future-mobility start-ups.

'ACES' and digitization cluster breakdown, total disclosed investment since 2010, $ billion



Annual funding for future mobility was highest from 2021 to 2022 (Exhibit 2) . At the peak, in late 2021, the 12-month rolling average for investment was more than $15 billion. Funding levels then trended down until late 2023, when they began trending upward again.

Another market shift relates to deal value. For many years, investors undertook numerous small deals but only a few that involved large, game-changing sums. Recently, however, the number of deals has declined while value has increased.

Together, these trends suggest that investors are increasing their bets but are being much more selective—and that makes it more important to understand which start-up strategies are likely to deliver growth. The following moves may be among the most critical for start-ups trying to gain scale.

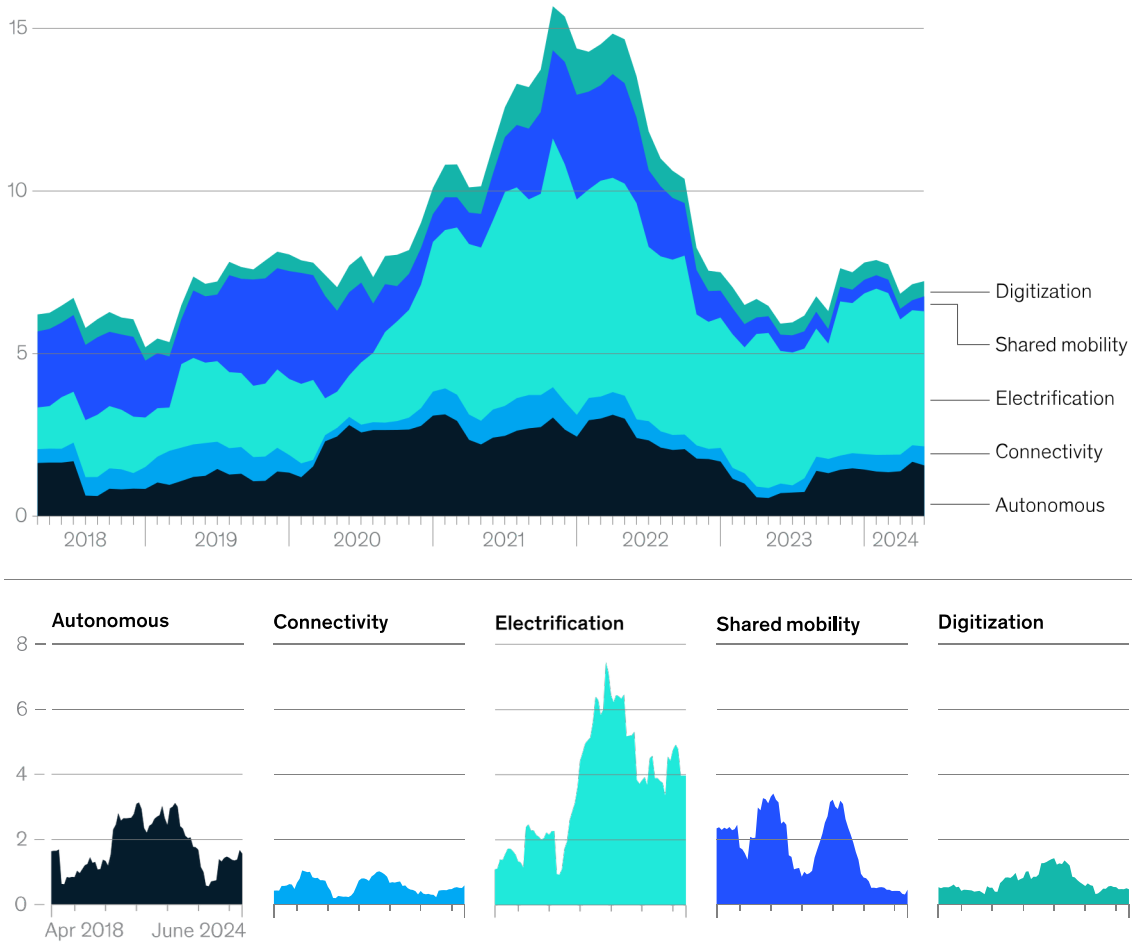
Focus on a narrow use case—but adapt as needed

Many companies have successfully developed autonomous vehicles (AVs) and moved beyond the start-up stage. As one example, consider *Waymo,* which emerged out of *Google's Self-Driving Car Project.* This company initially had one broad ambition: to create AVs capable of independently navigating roads. This mandate led the company to investigate applications in multiple areas, including robo-taxi services, trucking and logistics, urban public transportation, and passenger cars. Soon, however, *Waymo* decided to concentrate on robo-taxis to get on a "solid path of value creation." The company's ride-hailing business has grown rapidly, with more than four million rides completed in 2024 and more than 150,000 trips now occurring weekly in Austin, Los Angeles, Phoenix, and San Francisco.

As the robo-taxi business begins generating **substantial revenues,** *Waymo* is expected to have more capital to refine its technology and develop other business opportunities, such as those incommercial trucking, that are now a **secondary priority or on hold.**

Mobility funding dropped after the peak in 2021–22 but has begun to recover.

Disclosed investments for future mobility, by 'ACES' and digitization cluster, 12-month rolling average, $ billion



Innovation always comes with risk

Every innovation sounds great when it's still at the design stage. The **problems**, including **serious regulatory and technological risks**, often fail to materialize until late in the product development stage, or when companies have just launched a new product and want to scale production. Some obstacles may be insurmountable, making product failures an unavoidable part of the innovation process.
A few recent experiences in the solar industry show how promising products may not live up to expectations. In one case, engineers built a road covered in solar panels in Normandy, France. Despite careful planning, the solar road only generated about half of the energy anticipated because higher-than-expected traffic interfered with the sun's ability to reach the panels.In another case, a US-based solar start-up called Solyndra developed innovative cylindrical panels composed of cells made of copper indium gallium selenide. This material differentiated the panels from those of competitors, which were primarily composed of polysilicon. But the price of polysilicon dropped dramatically beginning around 2009, and Solyndra's product became much more expensive than other panels. This development, combined with other factors, such as a **drop in the price of natural gas**, resulted in very low demand and contributed to Solyndra's bankruptcy. The company's experience shows that even solid innovations can quickly become obsolete if technology advances or external developments take the market in unexpected directions.

One caveat: Companies that focus on a single area must be prepared to adapt. Some of the most compelling automotive start-ups originally focused on one product or service but changed direction because of internal or external dynamics.

Have a truly distinctive design, product, or technology

The first electric vehicles (EVs) emerged in the1800s but were soon eclipsed by internal

combustion engine (ICE) vehicles. Over the years, interest in EVs waxed and waned until the 1990s, when growing concerns about emissions and climate change prompted OEMs and start- ups to give them more attention.

Although several OEMs had EVs on the road in the 2000s, **Tesla became the standout.** The company's Roadster, which began production in 2008, was the **first to use lithium-ion batteries**, but the car's outstanding driving range—200 miles—was the distinction that really attracted consumers. Although the Roadster's price tag put it out of range for most consumers, this vehicle helped many people realize that EVs could be a true alternative to ICE cars.

- **Tesla's reputation for distinction** may have helped subsequent vehicle generations. The Tesla S3, which launched in 2017 at a price much lower than the Roadster's, became the world's best-selling EV a few years later and hit more than one million units in cumulative sales by 2021—the first EV to reach that milestone. The average sales time for a Tesla S3 is now 17-fold faster than that of other top EVs.

- The 2025 *Consumer Electronics Show* revealed that **other companies are aiming to produce EVs** with innovative twists—be they distinctive features or capabilities—to distinguish themselves from the competition. Examples include *Aptera Motors,* which has created a prototype EV with solar panels on various parts of the vehicle. Among other benefits, the car can drive up to 40 miles per day using solar power alone, reducing the need for charging. Another innovator, *Honda,* is working on prototype EVs, slated for production in 2026, that will allow "eyes off" driving through software that enables some autonomous-driving features.

Be the first to market in a product category

Companies that are first to market in a product category often make a splash that increases their brand recognition and wins customers, allowing them to capture substantial market share before competitors enter the scene.

- Of the many companies that have followed this strategy, Tesla can once again serve as an example. After introducing the **first fully electrified car in the 2000s**, the company began building a customer base long before most other EV start-ups did. These factors have contributed to *Tesla*'s growth, and it is currently the leading EV OEM in the world.
- As an early entrant, *Tesla* helped shape the market and established many of the EV features, processes, and technologies that are now regarded as standard or optimal, such as **innovative batteries** and **in-house design of chips.** *Tesla* also established new practices for service and maintenance that use the company's leading-edge technologies and digital focus. For instance, *Tesla* decided to provide over-the-air software updates for its vehicles, as well as remote diagnostics and technician support, to improve customer convenience and reduce shop visits. *Tesla* also revolutionized sales by connecting directly with consumers, often through online channels, rather than relying on dealerships. **Many other EV companies have adopted Tesla's sales model** because it can result in increased profits.

Early entrants often have ample time to **build and upgrade their production networks before demand surges**. That preparation gives them an advantage over later entrants, who must scale more quickly and thus may not have time to **optimize either their processes or facilities** before at-scale production begins. *Tesla* now has a strong network of factories in China, Europe, and the United States to produce batteries, energy storage products, electric motors, vehicle powertrains, and other components. In addition to ensuring a solid supply of **EV batteries** and parts, the factories allow *Tesla* to accelerate both innovation and sales growth.

The first-entrant strategy can produce outsize benefits, but the risks are equally great because the public typically takes time to warm up to innovations, making at-scale adoption a distant target. Unless companies can secure significant funding, they may run out of money before the market embraces their product. **Early leaders** should also be aware that their lead is not guaranteed indefinitely because of unexpected developments, such as the emergence of new technologies or outside events that influence a company's reputation and prompt loyal customers to consider other options for the first time.

Be a well-paced follower

Rather than racing to be first to market, some businesses deliberately pursue a cautious-follower strategy by waiting for early entrants to establish their presence, stimulate demand, and refine technologies. This approach allows them to avoid many of the expenses and setbacks, such as postlaunch software bugs, that early entrants experience, and it gives them time to understand the customer base before they enter the market. What innovative features did customers value in the first products? Did customer complaints relate to specific performance issues? Answering these questions may increase the odds of success.

- Consider an **autonomous-vehicle company** that enters the market in 2024. It would have less name recognition and a smaller customer base than early entrants, but its costs and development timelines would likely be shorter because of recent technology advances, including those facilitated by AI. The latecomer's AVs would also have the latest features from the outset, and they might avoid some of the glitches that early entrants experienced.

- Cautious followers must be strategic about their entry point. If they wait too long, their competitors may become so well established that it will be difficult to take any market share from them. Within the smartphone sector, the leaders have gained such an advantage that no other company has been able to gain substantial market share. **Companies must also be realistic about technological advances.** If they spend too much time trying to improve features to best the competition, they might enter the market too late or discover that the desired product features would require an unfeasibly high bill of materials or complex, time-consuming operations. **If companies examine technology and cost trade-offs early in development, they might avoid such pitfalls**.

Gain market share through M&A or partnerships

For start-ups, deals typically fall into four categories:

—**strategic arrangements,** in which companies collaborate without equity exchange

—**equity investments,** in which a company buys a stake in another one—often, but not always, an incumbent purchasing an interest in a disrupter

—**technological partnerships,** in which companies jointly create new innovations

—**commercial partnerships,** in which two companies collaborate to sell products

For a small start-up, an equity investment from a major incumbent can be a ticket to growth. In one McKinsey analysis, start-ups that formed partnerships with Fortune 100 companies attracted an average of $6.7 billion in funding—90 percent more than the $3.5 billion received by disruptors without partnerships. Their alliances with larger, well-funded companies may have reassured investors that they would be able to weather the inevitable hard patches that start-ups encounter as they scale their operations.

- In 2017, the autonomous-driving company Mobileye received a significant investment from the much-larger Intel. After becoming the majority owner, Intel was able to offer automakers a larger package of autonomous-driving components, making them more appealing to OEMs that wanted to **simplify purchasing and supply chains**. The **funding infusion** helped keep Mobileye on a growth path, and it is now valued at much more than it was at the time of Intel's initial investment. When Intel reaffirmed that it wanted to keep its majority stake in 2024, Mobileye's stock rose even further.

- Volkswagen has also been collaborating with Mobileye for many years. Recently, it strengthened the partnership by asking Mobileye to create **production-ready automated driving systems for several of its luxury brands.** Later, Mobileye is expected to provide platforms for some of Volkswagen's commercial vehicles. Volkswagen benefits from the sophisticated technology, which may accelerate its autonomous driving efforts. Meanwhile, Mobileye is ensured of new orders for its platforms, which should accelerate growth.

Other types of mergers and acquisitions can also stimulate growth, and they do not always involve a large company investing in a smaller start-up. Consider the car-sharing company Miles Mobility, which initially took a measured approach to growth and limited its operations to a small number of cities, allowing it to understand each market thoroughly. **Miles remained open to attractive growth options**, however, and purchased **Volkswagen's WeShare car-sharing business** in 2022. At the time, WeShare operated 2,000 EVs in Berlin and Hamburg and already had about 200,000 customers in those locations.

The deal allowed Miles to establish a presence in some new cities quickly. It also made faster progress toward its stated goal of increasing the percentage of EVs in its fleet. Volkswagen also benefited from the deal, since Miles agreed to purchase 10,000 EVs from the company and assume all fleet-management responsibilities. While Miles only had about 9,000 vehicles premerger, it now operates about 21,000, marking it the largest car-sharing fleet in Europe.

Spend big but wisely

Bigger is not always better when it comes to funding. A large investment could generate greater growth than a small bet, but it comes with more risks because of the amount of money at stake and thus deserves more scrutiny. Companies that divide vast sums of money among too many products may also encounter problems because managers cannot give each one the resources and attention it deserves.

- *Lime,* the world's largest company offering shared electric bikes and scooters, has made several noteworthy investments since its founding in 2017 that have successfully contributed to its growth. Strong groundwork and research has preceded each investment, and the company also emphasizes continuous improvement. Recently, for instance, Lime decided to invest **$55 million to expand its global bike fleet by 30,000—a 15 percent increase**. Before making this investment, the company strengthened its offerings and vehicle technology while simultaneously building strong government relations in multiple markets to ensure that the company would satisfy all local requirements. Finally, Lime optimized its operations and adopted **swappable battery technology** to expedite maintenance and vehicle availability, leading to improved unit profitability and better growth prospects.

- *Torc Robotics* is also among the many companies that have made some large but well-considered investments to stimulate growth. The company initially created autonomous platforms for many different vehicles, especially passenger cars and heavy-equipment carriers in the mining and defense sectors. Torc's focus narrowed in 2019, however, when Daimler Truck became the majority shareholder. The company now devotes most of its R&D funding to **autonomous** commercial trucks for the US market because of this subsector's promise. **In addition to investing in AI,** Torc is investigating sensor improvements and other technologies that satisfy the specific safety and navigational needs of trucks, such as the ability to spot obstacles far enough in advance to allow sufficient braking time. The focus on a single category increases the odds that Torc can fund all promising truck-related projects.

In the early 2000s, the most important mobility innovations included GPS navigation, Bluetooth connectivity for hands-free calls, massaging seats, and rear-view cameras. Today's innovations go far beyond these comfort and convenience features because **ACES and digitization do not simply improve mobility**—they transform it and could lead to a new age of growth. Although **risk is inherent in innovation**, too much is at stake to accept that **most start-ups will fail.** Rather than repeating past mistakes, today's entrepreneurs should learn from their predecessors and adopt winning execution and product development strategies that can accelerate their growth.

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