

The battery revolution

Shaping tomorrow's mobility and energy



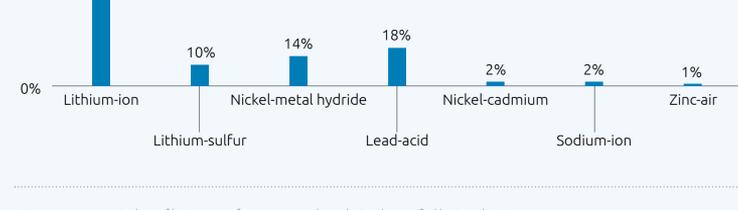
Batteries are powering a sustainable revolution

Surging demand for EVs and energy storage solutions (ESS) is driving a rise in investment in battery technology, including gigafactories, especially in the US and Europe

Battery technology is constantly evolving

- Lithium-ion batteries dominate the current global battery production
- Solid-state batteries answer the need for improved performance
- Sodium-ion batteries offer a low-cost, sustainable alternative
- Advanced battery management systems (BMS) are crucial for optimizing battery performance

Battery chemistries currently produced by manufacturers



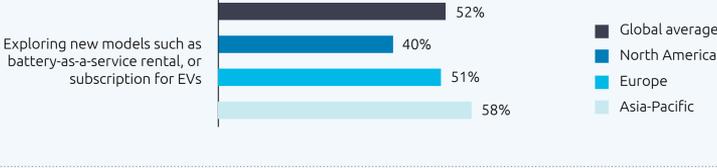
*Percentage represents share of battery manufacturers currently producing the specified battery chemistry. Source: Capgemini Research Institute, Future of batteries survey, September–October 2024, N = 338 battery manufacturing executives.

Advancements in the battery industry benefit multiple sectors

Automotive sector

Automotive manufacturers are exploring new business models to address infrastructure challenges and cost-effectiveness for EVs

Automotive organizations are exploring the battery-as-a-service (BaaS) model



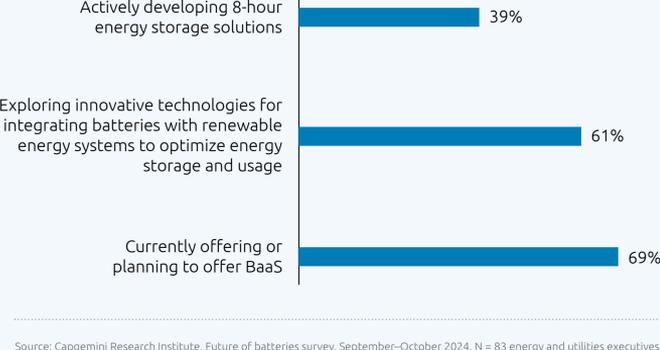
* Percentages represent the share of automotive executives. Source: Capgemini Research Institute, Future of batteries research, September–October 2024, N = 292 automotive executives.

The success of these business models depends on economies of scale, standardization, battery performance, and supportive regulatory frameworks

Energy and utilities sector

The growth in renewable-energy generation is driving demand for battery storage capacity to manage the surplus

Share of organizations that are exploring alternative battery solutions

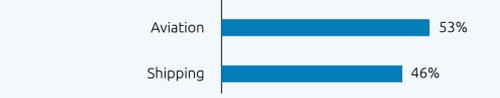


Source: Capgemini Research Institute, Future of batteries survey, September–October 2024, N = 83 energy and utilities executives.

Battery adoption in the energy and utility sector faces key challenges: financial viability, regulations, and technology

Multiple other industries are incorporating batteries into their operations

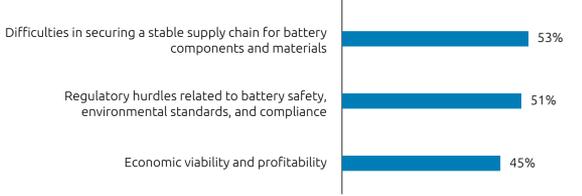
Industries projected to see the most disruption in the next 5–10 years due to battery innovation



* Percentages represent the share of executives who strongly believe that the industry will be disrupted. Source: Capgemini Research Institute, Future of batteries survey, September–October 2024, N = 751 executives from battery, automotive, energy and utilities.

The future of batteries depends on overcoming multiple challenges across the value chain

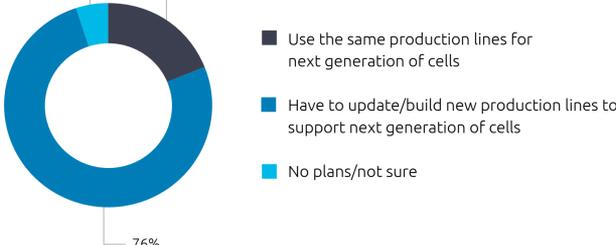
Major challenges for battery manufacturers



* Percentages show the proportion of executives who rate the specified challenge as a major hurdle. Source: Capgemini Research Institute, Future of Batteries survey, September–October 2024, N = 338 battery executives.

Major production shifts are needed to support next-gen batteries

Next generation of cells



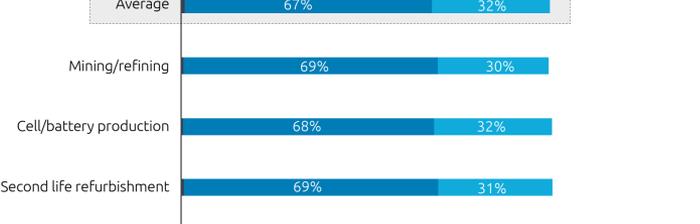
Source: Capgemini Research Institute, Future of Batteries survey, September–October 2024, N = 338 battery executives.

Talent shortage and upskilling is a key concern for batteries actors

As many as 60% of executives face skills shortages in battery technology and manufacturing, particularly in thermal management and power electronics

The pressing need to overcome the significant environmental and social impact

Two-thirds of organizations are still in the initial phases of integrating sustainability initiatives



Source: Capgemini Research Institute, Future of Batteries survey, September–October 2024, N = 751 executives from battery, automotive, energy and utilities.

Key levers to accelerate the battery industry



Source: Capgemini Research Institute analysis.

Download report

Subscribe to our research