

**Lithium-ion batteries will dominate the battery business**  
IDTechEx  
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by Dr Peter Harrop, Chairman, IDTechEx

*The brand new report from IDTechEx Research, [Lithium-ion Batteries 2016-2026](#), finds that at around \$140 billion in 2026, the lithium-ion battery business will dominate the battery business.*

Only IDTechEx has the full analysis of the lithium-ion battery market and other energy storage. The new overview report, [Lithium-ion Batteries 2016-2026](#), encompasses summaries of topics such as flexible batteries, electric bus batteries and post-lithium batteries that are presented in more detail in appropriate drill down reports by IDTechEx. Lithium-ion batteries gives great detail on the technology roadmap, applications, safety issues, future advances, applications, competitive situation and more in predictive fashion. Tools used include the profitability V curve and past trends of improvement in key parameters.

This [report](#) has over 170 detailed slide-format pages of new forecasts, analysis and infographics seeing the future with depth on technology trends, needs and market forecasts. The report is intended for chief executives, business planners, marketing VPs, investors and the like seeking how these devices will benefit society and create prosperity. Consequently, there is technical terminology fully explained and summary charts and forecasts in easily grasped form but no equations and no rambling history. The emphasis is almost entirely on the present and the future such as how parameters will improve and lower costs, new shapes and mechanical properties, improved safety and non-flammable non-toxic versions will open up new markets.

Over 400 manufacturers are compared in chemistry, assembly and sales thrust. Nowhere else is this amount of detail: nothing else even comes close. There is depth on the latest technology breakthroughs where they are extremely significant such as silicon anodes and flexibility and their market impact. The key parts of recent presentations by all the key players are embedded in this work, almost entirely researched in 2016 by award winning PhD level IDTechEx analysts travelling worldwide. Interviews, IDTechEx databases, web searches and conference attendance were extensively used.

The structure of the report is a comprehensive Executive Summary and Conclusions with forecasts, issues, roadmaps etc. then Introduction looking at battery basics and lithium-ion in particular. An Applications chapter maps parameters and solutions with detail on the largest market of the coming decade – the trillion dollar electric vehicle business in 2026.

Subsequent chapters delve into the new characteristics needed and the technology to achieve them, notably “Li-ion for high energy density, low cost, long life” then “Li-ion becomes thin, flexible, stretchable” the technology analysis being subservient to what is needed for commercial success. After that we look closely at, “Li-ion becomes non-flammable, non-toxic, structural” with some extra achievements such as transparency. Finally, the report has that unique new listing of over 400 manufacturers of Li-ion cells by country, anode, cathode, electrolyte, structure and application.

Some of the key findings that are detailed and explained are:

The main market value has recently changed to large versions and electric vehicles and this will continue. This creates a paradox where the number of manufacturers is proliferating past 400 (we profile most of them in this report) but only a few can make relatively safe, acceptable, affordable large versions – the main market demand. This is because it is easy to make small versions of limited life using primitive factory conditions.

The Japanese and Koreans are named that control the key technology and, with the Chinese, the production. The Tesla Gigafactory using Japanese Panasonic Technology will exceed all this capacity but our calculations show that many gigafactories will be needed in the decade. We say where will others will be built. We explain why competitive advantage in Li-ion batteries will now be primarily based on energy density, safety record, cost, production capacity and being in the protected large market of China. However, winners will not need all of these boxes ticked. Competitive disadvantages and companies under threat are detailed. We explain which alternatives to Li-ion are strongest. With many examples, we describe a feeding frenzy building up with purchasers coming from more widely afield in both territory and interest. We identify how successful niche players are proliferating and attracting bidders.

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## **Contact Us**

Alison Lewis

[a.lewis@IDTechEx.com](mailto:a.lewis@IDTechEx.com)

UK: [+44 \(0\)1223 812300](tel:+44201223812300)

USA: [+1 617 577 7890](tel:+16175777890)

Japan: [+81 90 5566 1533](tel:+819055661533)