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# National Battery Strategy 2025



Ministry of Economic Affairs  
and Employment of Finland

MEAE Sector Reports 2021:6

# National Battery Strategy 2025

## Executive Summary

Ministry of Economic Affairs and Employment Helsinki 2021

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## National Battery Strategy 2025

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### Abstract

The task of the working group appointed by Minister of Economic Affairs Mika Lintilä in June 2020 was to prepare a battery strategy for Finland in order to strengthen the innovative environment of the battery sector, accelerate Finland's sustainable and low-carbon economic growth and support the achievement of climate objectives in transport.

The working group proposes seven objectives for the strategy period 2021–2025: growth and renewal of the battery and electrification cluster, growth of investments, promotion of competitiveness, increased international awareness of the strategy, responsibility, definition of key roles in the sector's new value chains, and promotion of circular economy and digital solutions.

In order to achieve these objectives, the working group proposes the following measures: promote cooperation through a national cooperation body, expand the competence of the sector, strengthen international contacts, develop an environment conducive to investments, promote responsibility within the sector, strengthen the brand and communications about the sector, and develop funding.

The Battery Strategy outlines the measures that can help Finland become an internationally important actor in the battery and electrification sector. The preparation of the strategy reinforced the perception among the authors that achieving the objective is possible but there is no time to lose.

**Keywords** battery strategy, energy, economic and industrial policy, enterprises, industry, circular economy, mining, chemical industry, transport policy, research, enterprises, means of livelihood

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## Kansallinen akkustrategia 2025

<b>Työ- ja elinkeinoministeriön julkaisu 2021:6</b>		<b>Teema</b>	Yritykset
<b>Julkaisija</b>	Työ- ja elinkeinoministeriö		
<b>Yhteisötekijä</b>	Työ- ja elinkeinoministeriö		
<b>Kieli</b>	Englanti	<b>Sivumäärä</b>	26

### Tiivistelmä

Elinkeinoministeri Mika Lintilän kesäkuussa 2020 asettaman työryhmän tehtävänä oli valmistella Suomelle akkustrategia, joka vahvistaa akkualan innovatiivista ekosysteemiä, vauhdittaa Suomen kestäväää ja vähä-hiilistä talouden kasvua sekä tukee liikenteen ilmastotavoitteiden saavuttamista.

Työryhmä esittää strategiakaudelle 2021–2025 seitsemää tavoitetta: akku- ja sähköistymisklusterin kasvu ja uudistuminen, investointien kasvu, kilpailukyvyyn edistäminen, tunnettuuden kasvattaminen maailmalla, vastuullisuus, keskeiset roolit alan uusissa arvoketjuissa sekä kiertotalouden ja digitaalisten ratkaisujen edistäminen.

Tavoitteiden saavuttamiseksi työryhmä esittää mm. seuraavia toimenpiteitä: yhteistyön edistäminen kansallisen yhteistyöelimen avulla, alan osaamisen laajentaminen, kansainvälisen yhteistyön syventäminen, investointeja houkuttelevan toimintaympäristön kehittäminen, alan vastuullisuuden edistäminen, brändin vahvistaminen ja alasta viestiminen sekä rahoituksen kehittäminen.

Akkustrategia pyrkii osoittamaan ne toimet, jotka toteuttamalla Suomi voi kasvaa kansainvälisesti merkittäväksi toimijaksi akkualalla ja sähköistymisessä. Tavoite on mahdollista saavuttaa, mutta strategiaprosessin aikana kertynyt ymmärrys vahvistaa entisestään sitä käsitystä, että aikaa ei ole hukattavana.

**Asiasanat** akkustrategia, energia, elinkeinopolitiikka, teollisuus, kiertotalous, kaivostoiminta, kemianteollisuus, liikennepolitiikka, tutkimus, yritykset, elinkeinot

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## Nationella batteristrategin 2025

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### Referat

I juni 2020 tillsatte näringsminister Mika Lintilä en arbetsgrupp som hade till uppgift att bereda en batteristrategi för Finland. Denna strategi ska stärka det innovativa ekosystemet inom batteribranschen, göra den hållbara och koldioxidsnåla ekonomiska tillväxten i Finland snabbare samt stödja uppnåendet av klimatmålen för transportsektorn.

Arbetsgruppen föreslår sju mål för strategiperioden 2021–2025: tillväxt och förnyelse i batteri- och elektrifieringsklustret, fler investeringar, främjad konkurrenskraft, ökad välkändhet för klustret i världen, ansvarsfullhet, en central roll inom branschens nya värdekedjor samt främjad cirkulär ekonomi och underlättade digitala lösningar.

Arbetsgruppen föreslår bland annat följande åtgärder för att uppnå dessa mål: bättre samarbete med hjälp av ett nationellt samarbetsorgan, bredare kompetens inom branschen, djupare internationellt samarbete, en investeringsvänlig verksamhetsmiljö, arbete för ansvarsfullhet inom branschen och för ett starkare varumärke, branschkommunikation och bättre finansiering.

Syftet med batteristrategin är att visa genom vilka åtgärder Finland kan bli en internationellt betydande aktör inom batteribranschen och elektrifiering. Det är möjligt att uppnå målet, men den samlade förståelsen från strategiprocessen stärker uppfattningen att det inte finns någon tid att förlora.

**Nyckelord** Batteristrategi, energi, näringspolitik, industri, cirkulär ekonomi, gruvdrift, kemiindustri, trafikpolitik, forskning, företag, näringsgrenar

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# Sustainable Battery Strategy for Finland

In June 2020, The Ministry of Economic Affairs and Employment of Finland launched work to formulate a national battery strategy that will enable Finland to strengthen its role as a pioneer in sustainable battery manufacturing and recycling.

Minister of Economic Affairs Mika Lintilä appointed a working group to prepare the strategy by the end of 2020. The objective for the battery strategy work was to strengthen the Finnish battery ecosystem and boost sustainable, low-carbon economic growth in Finland. The battery strategy aims to promote regeneration of businesses, innovation work and growth potential, thereby creating new jobs. One goal was also to formulate proposals to promote R&D related to ecologically sustainable e-transport and alternative battery technologies.

The working group to prepare the national battery strategy was chaired by Mika Nykänen, Director General of the Geological Survey of Finland. The working group consisted of key battery industry operators from the business community, research institutions and public administration.

## Members of the strategy group:

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# Introduction

Why does Finland need a battery strategy? Let us look at the big picture. The European Union has decided to cut down on the use of oil and other fossil fuels. The EU is determined to promote the goals of the Paris Agreement, and to cut CO<sub>2</sub> emissions by half by 2030. The evolution of battery technologies and electricity production has made it possible to move towards low-emission transportation. In addition to the traffic, electrification is progressing in all fields of society. As the share of renewable energy increases, energy production becomes cleaner and more distributed. At the same time, the variation in production in different time periods increases. In order to match the production and consumption of electricity, the market needs to become more flexible and more and bigger energy storage solutions will be needed.

As we become less dependent on oil, demand for other raw materials increases. Batteries need lithium, cobalt, nickel and other minerals and metals. Recycling will not be able to cover this demand during this decade. The European Commission is determined to cut down on the dependence on import of these critical raw materials. This is where Finland comes into the picture: Finland has significant minerals reserves and a long tradition in mining and refining those reserves. Mining and mineral processing in Finland is strictly regulated and energy-efficient. Electricity produced in Finland is cleaner than in Europe on average, and the share of emission free electricity can still be increased significantly. In Finland, energy efficiency and circular economy thinking are widely recognised and accepted.

We believe that there is a huge opportunity for Finland in batteries and in electrification in general. However, in order to take advantage of this exceptional opportunity, we need a solid plan and rapid execution. The Battery Strategy for Finland delivers a strong vision, clear targets and well-defined actions for Finland to succeed in this global race – building on its strengths in the upstream activities of the battery value chain, i.e. raw materials, metal processing and battery materials, but also the long tradition in machine building, engineering and ICT, from the mobile phones of Nokia, to Linux operating systems and the Angry Birds. Through this Strategy, the Finnish government, along with four leading ministries side by side with the key stakeholders from the Finnish battery and electrification clusters, wants to send a strong and clear message: Finland is willing and able to contribute to the revolution of batteries and electrification, both as a proud member of the EU battery ecosystem, but also globally.

# The Vision

## Our vision:

In 2025, the Finnish Battery and Electrification sector will be a forerunner that provides skills, innovation, sustainable economic growth, well-being and new jobs for Finland.

The vision consists of six building blocks:

1. The Finnish battery cluster masters responsible production and optimal use of batteries and battery systems. Finland is recognised as a forerunner in building a sustainable battery value chain and introducing the principles of Circular Economy into the battery world.
2. The Finnish battery cluster is a valued member of the European and international battery ecosystem.
3. In the selected focus areas, the Finnish battery cluster is a leading technology and competence centre for materials, battery systems and heavy machinery and electrification of traffic, well known and respected by key players in the industry.
4. Education, training and research supporting the evolution of Circular Economy and sustainability provide experts and forerunners in the battery value chain for Finland. For leading international players in the field of batteries and electrification, Finland offers an attractive business and innovation platform where research and skills are on a high level.
5. Finland accumulates skills and talent to renew the industry in such a manner that Finnish companies can act as industrial forerunners who bring new skills, technology and services into the industry.
6. The innovations developed by the Finnish battery and electrification cluster speed up the transition towards an electrified society.

We have crystallised our vision in the following way:

*"We create the low carbon future through batteries and electrification: Shift Climate. Build Circularity. Champion People. Create Innovations. Enable Growth."*

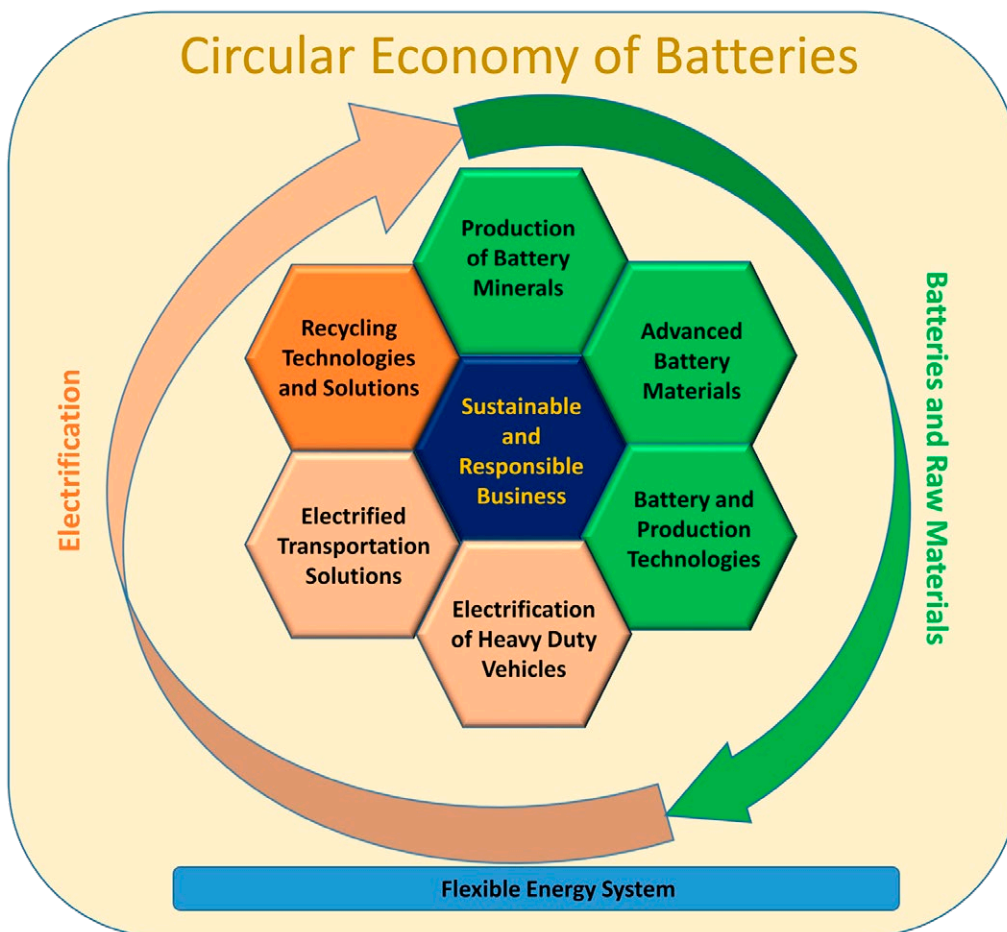
Our mission statement:

The Finnish battery and electrification cluster strengthens the role of Finnish companies, products and services in the global race, increases considerably the investments made to the Finnish battery and electrification value chain, and promotes the export of electrification, battery and recycling solutions produced in Finland. As a forerunner, the Finnish battery cluster speeds up the transition towards a more efficient use of energy, and to the low emission transportation.

## Focus areas

During the strategy process, we have identified seven focus areas (see picture 1).

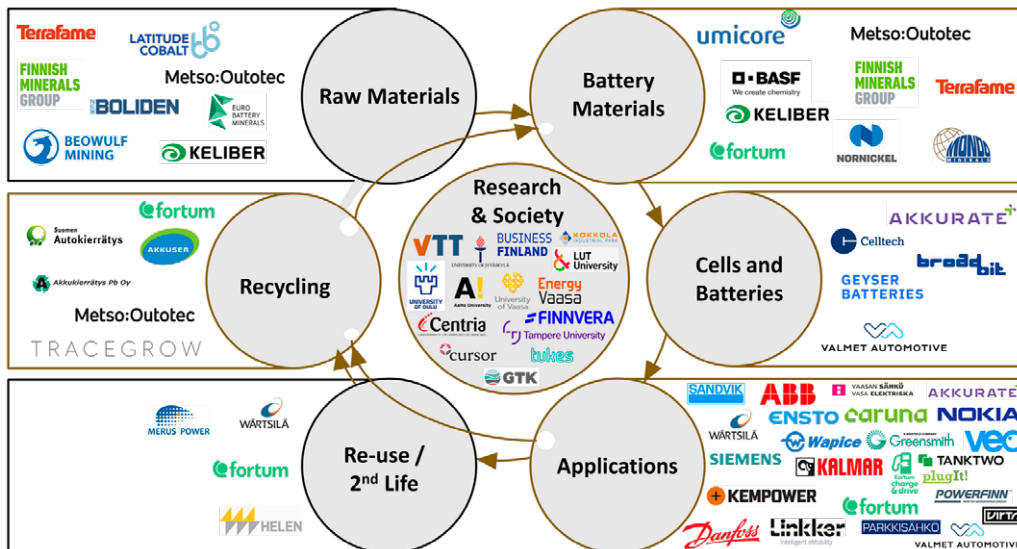
**Figure 1.** Focus areas of the national battery strategy.



# Environmental Analysis and SWOT

The strengths of the Finnish battery value chain are mainly in the upstream of the value chain, i.e. in exploration and mining of battery minerals, such as nickel, cobalt and lithium. Currently there are several ongoing projects focusing on refining battery minerals into battery materials, such as lithium hydroxide, nickel sulphate or cobalt sulphate. Finland has also a long tradition in electrified systems and applications. Figure 2 presents some of the key players in the Finnish battery value chain.

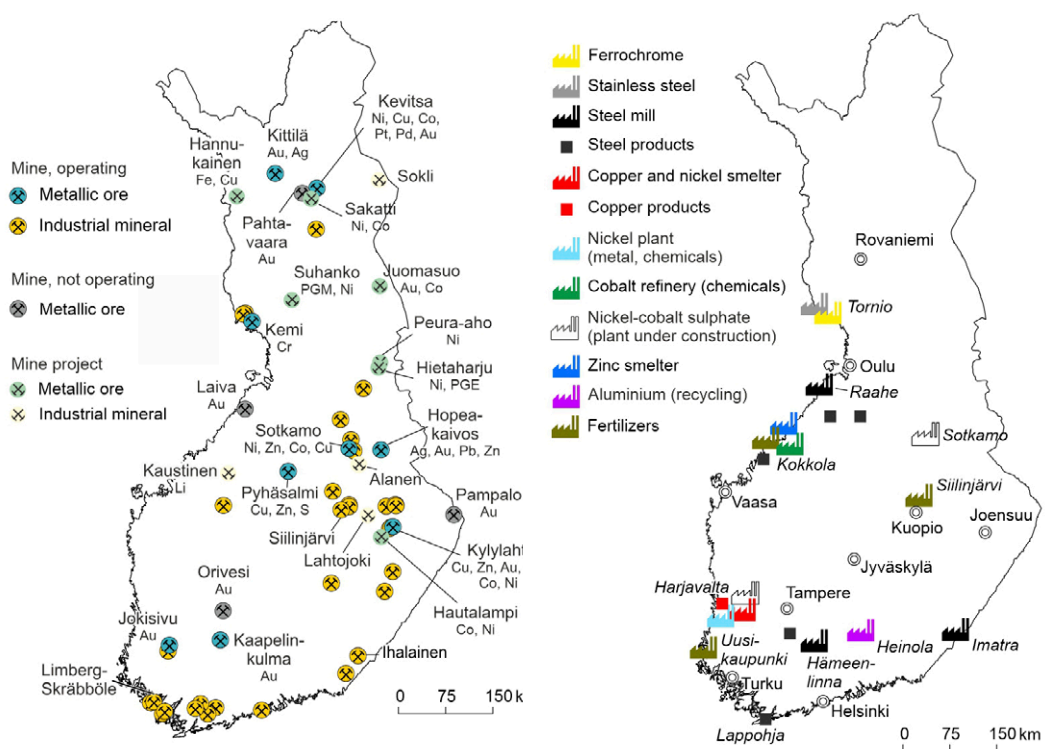
**Figure 2.** Key players of the Finnish battery value chain. (Adapted from the materials of Business Finland, Gaia Consulting and Spinverse)



# Battery Minerals

The national reserves and metal processing capacity of Finland are considerable within the European context. Finland produces battery minerals, in particular nickel and cobalt. We develop also technology for the processing and refining of battery minerals. Finnish research and education rank high in the European and global scale. Figure 3 illustrates existing mines and mining operations, and key locations for smelting and refining.

**Figure 3.** Mines, refining and smelting capacity in Finland. (Source: Geological Survey of Finland, 2020)



In addition to exploration, mining and processing of primary raw materials for batteries, Finland is very active also in the field of recycling of batteries and battery materials.

Our strategy group has analysed the strengths, weaknesses, opportunities and threats of the Finnish battery ecosystem. In strengths and opportunities, factors such as our rich reserves of battery minerals, stable operational environment supported by skills and capabilities related to social and environmental responsibility supporting a positive country image were emphasised. In weaknesses and threats, key concerns were related to remote location (far away from the big markets), small size of the domestic market reflecting also to the availability of public funding and skilled labour vis-à-vis many competing countries. A summary of the SWOT analysis can be found in Figure 4.

**Figure 4.** SWOT analysis of the Finnish battery cluster.

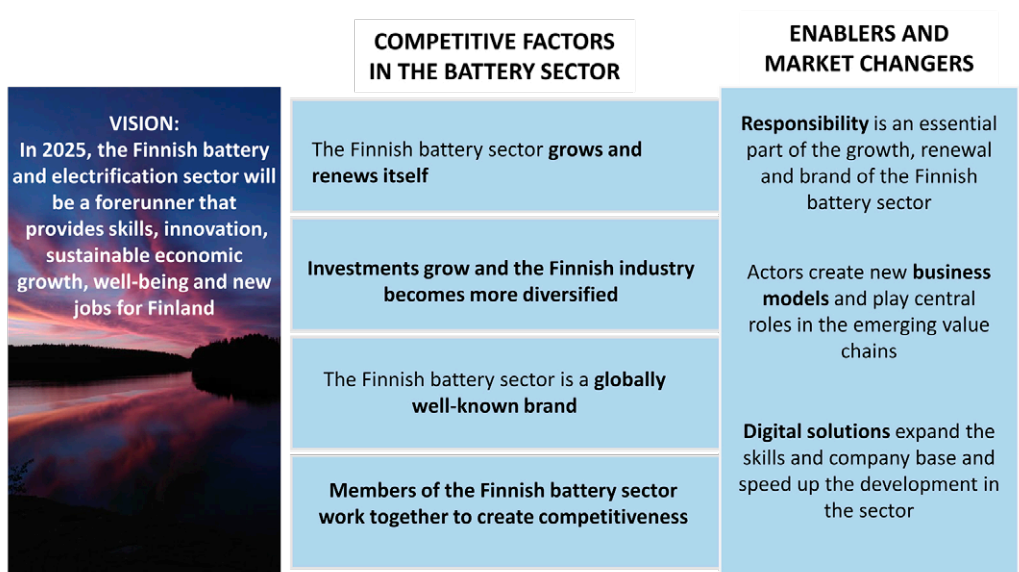
<p style="text-align: center;"><b>STRENGTHS</b></p> <ul style="list-style-type: none"> <li>• Good cooperation between public and private sector</li> <li>• Reserves of battery minerals</li> <li>• Socially and ecologically sustainable production</li> <li>• Recycling of battery materials</li> <li>• Synergies between machine building &amp; electrotechnical industries and electrification &amp; digitalisation</li> <li>• Good reputation as a reliable and advanced nation</li> <li>• Solid innovation environment</li> </ul>	<p style="text-align: center;"><b>WEAKNESSES</b></p> <ul style="list-style-type: none"> <li>• Small and remote market far away from the European industry and material flows</li> <li>• Lack of investments / capital</li> <li>• Slow permitting process</li> <li>• Negative image of mining industry</li> <li>• Restrictions in utilising mineral reserves</li> <li>• Fragmented and limited skills</li> <li>• Lack of skilled workforce</li> </ul>
<p style="text-align: center;"><b>OPPORTUNITIES</b></p> <ul style="list-style-type: none"> <li>• Ability to create competitive advantage through responsible production</li> <li>• Forest industry joining the battery value chain (bio-based anode materials)</li> <li>• Electrification as a megatrend</li> <li>• Climate targets supporting electrification</li> <li>• Strong existing industry in battery systems, heavy-duty vehicles and electrotechnical solutions</li> <li>• Using by-products of mining and metal processing industries as raw materials for batteries</li> </ul>	<p style="text-align: center;"><b>THREATS</b></p> <ul style="list-style-type: none"> <li>• Being left outside of the global value chains</li> <li>• Inability to move downstream in the battery value chain</li> <li>• Slow utilisation of mineral potential</li> <li>• Slow phase in the renewal of the heavy-duty vehicle industry</li> <li>• Deteriorating skills if we fail to attract new young and international talent to Finland</li> </ul>



## Strategic objectives

According to our vision, in 2025 the Finnish battery cluster will be a forerunner that provides skills, innovation, sustainable economic growth, well-being and jobs for Finland. In order to reach this vision, seven strategic objectives have been identified to guide the development of the Finnish battery and electrification cluster. A summary of the seven objectives is in Figure 5 below.

Figure 5. Summary of the seven strategic objectives.



### Strategic objective 1: The Finnish battery and electrification sector grows and renews itself

The battery and electrification sector grows and renews itself by taking responsibility and ecological sustainability into account. The Finnish battery and electrification sector is a leading player in selected parts of the value chain. Members of the Finnish battery sector participate actively in international networks and working groups.

Public policy, regulatory framework and financial instruments support and steer investments towards innovative actions. The national research, development and

innovation (RDI) ecosystem becomes stronger and the members of the battery and electrification cluster actively take advantage of the national and European funding available.

**Sub-objectives:**

1. Finnish actors take good positions in international value chains
2. Competence and skills in selected focus areas are on a high level on an international scale

## **Strategic objective 2: Increase in investments in the battery and electrification sector**

Companies make new investments based on existing strengths of the value chain and identified market needs. The operational environment encourages companies to renew their business and to invest in the future. Smooth and predictable permitting and approval processes speed up investments in the battery sector, making Finland a favourable location for responsible mining and processing. Infrastructure, regulation and logistics all support Circular Economy investments. In the eyes of investors and industrial players, Finland presents itself as a forerunner and contributor of sustainable development.

**Sub-objectives:**

1. Significant new investments in the Finnish battery value chain
2. Permitting is smoother and easier to predict
3. New battery innovations see the light of day in Finland, leading to new business and increased revenue

## **Strategic objective 3: Members of the battery and electrification sector work side by side to increase competitiveness**

Broad collaboration improves the competitiveness of the sector and promotes the strategic objectives. Development of research, pilot and test platforms and environments is in line with the changing requirements of the industry and end-users. A new virtual campus for battery and electrification related research brings together Finnish and international researchers and companies, with the help of a new post-doc school for researchers.

Educational offering increases along the needs and wishes of the industry. Dialog between universities and business sector intensifies. The amount of innovative, cross-disciplinary research increases, combining for instance energy, ICT, and forest industry research with battery and electrification research. Members of the sector participate actively also in the international regulatory and standardisation work.

**Sub-objectives:**

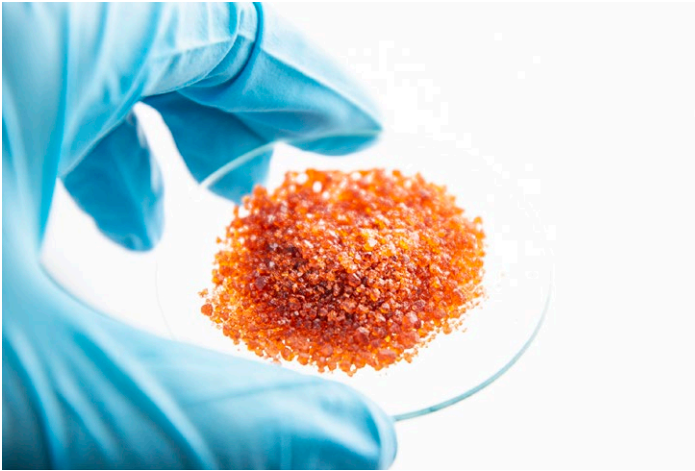
1. More efficient and fruitful cooperation between research world and business sector
2. Increasing joint-development between the leading battery companies and a broader network
3. Finnish companies participate actively in the international standardisation work

**Strategic objective 4: The Finnish battery and electrification sector is a well-known brand globally**

The Finnish battery sector attracts companies and researchers to Finland. Actors of the sector are internationally respected and recognised experts in their areas of expertise. Communication and the brand of the Finnish battery sector build on true competitive advantages and customer needs, thus increasing the international competitiveness of the Finnish battery and electrification cluster. Finland promotes the European battery ecosystem along the principles of Circular Economy and responsible business. International visibility increases the attraction of Finland in the eyes of experts and companies. The battery industry is presented as an industry of the future.

**Sub-objectives:**

1. Finnish and foreign experts see the Finnish battery sector as an attractive alternative
2. Finnish actors are desired partners for international consortia
3. Finnish actors participate actively in the international regulatory and standardisation work



Finland is well-known for high-level research of battery materials and especially recycling of batteries. Cobalt sulfate is an essential element of lithium-ion batteries. (Photo: Valeria Azovskaya, BATCircle)

## Strategic objective 5: Responsibility is an essential part of the growth, renewal and brand of the Finnish battery sector

Responsible operations and sustainable use of natural resources are the prerequisite of current operations and future development of the Finnish battery cluster. The battery sector works actively towards a smaller carbon footprint and bigger carbon handprint. Being able to measure and reliably demonstrate that the Finnish battery sector works in a responsible and sustainable manner gives us a competitive edge. Finnish companies rank high in international comparisons when analysing environment or other indicators of responsibility. Thereby they are capable of responding to increasing demand for responsibility from their clients. Responsible operations, traceability, safety and carbon neutrality are guiding principles for the Finnish battery sector. This message is also actively communicated to clients and other stakeholders.

### **Sub-objectives:**

1. The Finnish battery sector has developed a concept of traceability in cooperation with European and global players, and the concept has been put into practice in Finland
2. Finland is a leading country in the recycling of battery materials in Europe
3. Carbon neutrality and sustainable production are guiding principles for the product and service development of the Finnish battery sector
4. The key indicators of the Finnish battery sector are in line with sustainability requirements of clients and the society
5. Requirements for chemical safety are up to date in order to identify potential risks in advance



One of the strengths of Finland is research of advanced battery materials.  
(Photo: Jorma Uusitalo)

## Strategic objective 6: Finnish actors play key roles in the emerging value chains

Actors in the Finnish battery and electrification sector acquire central positions in the emerging battery value chains that combine the changing needs of the markets and the technical, especially those related to digitalisation, solutions available. Understanding new business, business models and services will play a major role in the growth and evolution of the Finnish battery and electrification sector. Finnish companies are brave forerunners and active players in the emerging value chains. New business is created especially in the fields of responsible business and traceability solutions.

### **Sub-objectives:**

1. Services are an essential part of the Finnish battery and electrification cluster's business
2. Finnish battery and electrification sector has expanded its business through entrepreneurship-driven commercialisation of inventions

## Strategic objective 7: Digital solutions expand the skills and company base and speed up the development of the battery sector

Companies operating in the Finnish battery and electrification sector are capable of using knowledge and data efficiently as a part of their business and processes. The possibilities offered by digitalisation are efficiently used in the sector, and thereby increasing the competitiveness of the Finnish economy and creating value. The Finnish battery and electrification sector applies digital platforms, technologies and services throughout the

whole value chain: in research, product design, production, optimisation of usage and in the Circular Economy solutions.

**Sub-objectives:**

1. The Finnish battery sector applies digital solutions as a part of research, innovation and production processes, and when developing new technologies and products
2. Knowledge and data are innovatively used in digital platforms for the benefit of new products and business models for e-mobility and flexible energy systems

## Strategic actions

In our national battery strategy, we have identified seven high-level actions, which we then split into sub-tasks that are more concrete.

### Strategic action 1: Enhancing national cooperation

As a small country, Finland has one clear advantage: we can easily build national level cooperation between the business sector, the public sector and the research and education sector. The first strategic action, or recommendation, is to encourage and foster efficient, productive and relevant cooperation by creating a national body that rounds up the various stakeholders in the national battery and electrification sector.

A few examples of key responsibilities of the national body:

- To ensure that the battery value chain gets enough visibility in innovation and industrial policies.
- To speed up, as a joint effort of various ministries and other industry players, implementation of the strategic objectives and actions listed in the battery strategy.
- To identify the biggest hurdles to the growth and development of the battery sector and to draw plans to overcome them.
- To form national positions to key questions related to the evolution of the battery industry.
- To strengthen cooperation, interaction and information flow amongst the members of the battery value chain.
- To establish sub-groups to promote and/or solve specific questions related to various key themes.

## **Strategic action 2: Scaling up the skills of the battery and electrification cluster**

In order to ensure the competitiveness of our battery and electrification sector, we need to develop excellent skills in this field. Furthermore, we need to develop an in-depth understanding of the international battery business landscape. Examples of actions identified during the strategy process:

1. To create a virtual campus or university that integrates all the battery and electrification training and education into a single point of knowledge, available for both students and personnel of companies.
2. To establish a national doctoral school focusing on topics relevant for the national battery cluster.
3. To establish an education programme for Battery Engineers.

## **Strategic action 3: Expanding EU and international cooperation**

Building a successful battery and electrification business calls for deliberate and long-term work to get involved in the international value chains. Getting advocates of the Finnish battery and electrification cluster into the right tables requires cooperation on a national level. In order to achieve these goals, the following actions have been identified:

1. To coordinate and ensure that Finnish experts and companies are visible in the EU-level activities and have influence on important decisions within the EU battery ecosystem.
2. To raise Horizon Europe financing instruments and partnerships in a bigger role in the research, development and innovation (RDI) strategies of key players within the Finnish battery ecosystem.
3. To continue and strengthen further the trend in the national research and innovation funding that Finnish RDI activities network even more with the Nordic, European and global communities.



## **Strategic action 4: Establishing an operating environment that attracts investments to Finland**

In order to attract international battery investments in Finland, we need to make sure that the operating environment is more favourable than what the competing countries can offer. The following actions have been identified:

1. To nominate Battery Ambassadors whose responsibility is to promote the strengths and benefits of the Finnish battery and electrification sector. Furthermore, the Ambassadors build a profile of Finland as an important and successful battery land, and help in attracting new investments.
2. To improve the availability of skilled labour in Finland for battery and electrification industries.
3. To develop further the flow of permitting by enhancing the concept of single point of contact, digitalisation of the permitting process, and to add more resources to appropriate government organisations in order to avoid bottlenecks and delays in the process.
4. To enhance the collaboration between authorities.

## **Strategic action 5: Making Finland a forerunner in sustainable and responsible battery production**

Sustainability and operating in a responsible manner are cornerstones of the growth, renewal and brand of the Finnish battery cluster. In order to make sustainability and corporate responsibility more than just talk, the following actions have been identified:

1. To develop digital tools based on Life Cycle Assessment (LCA) to analyse and demonstrate the carbon footprint and carbon handprint of the Finnish battery and electrification cluster.
2. To enhance legislation to support sustainability and corporate responsibility of the sector.



Finland has potential to become a key player in the electrification of traffic in Europe. (Photo: Valmet Automotive)

### **Strategic action 6: Developing the brand of the Finnish battery and electrification cluster**

In order to attract the best talent and skills in batteries and electrification to Finland, the Finnish battery sector needs to send a clear message, emphasising the strengths of the Finnish cluster. This calls for the following actions:

1. To increase the volume of targeted communication showing the strengths of the Finnish battery and electrification sector, and to highlight interesting cases.
2. To organise conferences and other events, for instance, a side event at Slush, the no. 1 annual start-up event in Europe.
3. To participate actively in international battery forums and to promote the national battery and electrification cluster as a whole rather than only single companies.

### **Strategic action 7: Developing bigger and more agile funding**

The growth and renewal of the battery and electrification industry and the electrification of traffic and other areas calls for funding for large, high-risk and long-term investment projects. It is necessary that the public sector support this development by sharing the risk in major investment projects. The following actions are proposed:

1. To extend the timeframe of funding and to increase the size of funding.
2. To actively identify funding opportunities from the EU for research, development and innovation projects and various types of pilot and demonstration and investment projects.

## The conclusion

Never before in history have batteries played such a big role in business or in society in general. As the role of oil and internal combustion engines diminishes, they will be replaced with batteries and electrification. This transformation requires huge amounts of critical raw materials. Finland can play an important role in this process, not only through mineral reserves and their processing, but also through innovative production technologies and processes.

The key findings of our national battery strategy work can be summarised in three words: skills, responsibility and competitiveness. Battery value chain and electrification play a central role in reaching the climate and other environmental targets. In this process, it is vital to make sure that batteries are part of the solution, not part of the problem. The batteries making the “digi green” transformation possible must be produced in a sustainable and responsible way.

Finland is well positioned in the global battery race, but Finland – like the rest of Europe – is not today considered as a forerunner in this competition. Asian countries are well ahead of us, but Europe is determined to catch them up. We believe that Finland can have a role in this global transformation, or creative destruction, and our National Battery Strategy provides tools for that. As we have become painfully aware during the strategy work, there is no time to waste if we want to be successful in this race.

The emerging new battery industry is one of the biggest opportunities Finland has encountered during the past few years. There are big risks in joining this race, but the risk of doing nothing is even bigger.

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