Horizon Europe Batteries

8th March 2022

Innovate UK KTN Global Alliance in collaboration with Foreign Commonwealth and Development Office (FCDO)

UKRI Innovate UK | ktn

Welcome and housekeeping

Welcome to our Horizon Europe event in collaboration with FCDO Batteries Consortium Building event

It's International Women's Day Today!

- Due to the large number of people registered all participants will be muted.
- After testing your speakers, please do remember to connect your audio by using the "Join Audio" icon at the bottom left of the screen or dial in via phone using the number provided in the joining instructions.
- If you have any technical problems, please use the chat to seek advice from the host (Jess Dobbyne).
- Questions and Answers Please also use the chat function
- Please use the chat function to introduce yourself, please note due to GDPR we cannot share the chat. Capture what you need

PLEASE NOTE – THE WEBINAR IS BEING RECORDED

The recording and slides will be made available via the KTN website

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The Agenda

- **09:30** – Welcome, introduction and aims of the day **Nick Mellors**, Regional Manager, Eastern Mediterranean and Central & Eastern Europe | UK Science and Innovation Network & **Dr Maria Śmietanka**, Deputy Director, Horizon Europe National Contact Point, National Centre Research and Development, Poland
- **09:35** – Introduction to Horizon Europe **Jane Watkins,** Regional Lead Europe, Innovate UK KTN
- **09:40** – Overview of Cluster 5 batteries work programme (Cluster 5 Destination 2 topics) **Wouter Ijzermans,** BEPA Batteries European Partnership Association
- **10:00** – Overview of UK batteries sector & Overview of Polish batteries sector **Ian Whiting,** UK BIC & **Aleksander Rajch**, Director, External Affairs, Board Member | PSPA
- **10:20** – Q&A
- **10:30** -Break
- **10:35** – How to build consortia for Horizon Europe and find the right partners? **Nic Wallet**, UK National Contact Point for Climate, Innovate UK
- **10:50** – National Contact Point Services **Magdalena Głogowska**, Polish National Contact Point for Cluster 5, National Centre Research and Development, Poland
- **11:00** – H2020 HIDDEN / VTT case studies **Marja Vilkman**, VTT Technical Research Centre of Finland
- **11:10** – Break
- **11:15** – Pitches
- **12:00** – Close
- **13:00** – NCP surgery and 1:1 meetings (Meeting Mojo)

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NCP 1:1 meetings from 1.00 -2.00pm (GMT)

The link for people to find NCPs in other countries is https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/support/ncp/.

National Contact Point Contact	Country
Nic Wallet	Innovate UK, United Kingdom
Magdalena Głogowska	National Centre for Research and Development, Poland
Aleksandra Miłobędzka	National Centre for Research and Development, Poland
Henrik Staubo	The Research Council of Norway, Norway
Cagri Yildirm	Tubitak, Turkey
Serhat Melik	Tubitak, Turkey
İpek Ucuncu	Tubitak, Turkey
Hanife Tuzcuoğlu	Tubitak, Turkey
Marianne Haavardsholm Aandahl	The Research Council of Norway
Oda Bjelland Mathiassen	The Research Council of Norway

Meeting Mojo: https://he-batteries.meeting-mojo.com

Networking and Connecting – Pitches Instructions and Running Order

- The pitch presentations will begin at 11.15 am.
- We will load and control your slides.
- We will unmute you to allow you to present your slides. Please ensure you have connected your audio and your microphone before the pitch sessions begin. You can test your speaker and microphone by clicking the arrow next to the microphone. This will bring up a dropdown of options, including ‘Test speaker & microphone.’
- The pitches will run in alphabetical order of organisation.
- You will have opportunity to pitch for 2 minutes.

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Pitch Running Order

Organisation	Country	Speaker
Alp Technology	UK	Federica Arcidiaco
Cellerate	UK	Richard Fields
Ceitec CTLab	Czech Republic	Michaela Skaroupkova
Cranfield University	UK	Daniel Auger
Inelso	Turkey	Hacer Gediz Taski
Lucasiewicz	Poland	Marek Wasilewski
Lucasiewicz	Poland	Katarzyna Lota
MIVolt	UK	Sayan Sengupta
Novasell	Poland	Łukasz Radosiński
Sigma Lithium Ltd	UK	Gleb Ivanov
Waven	Poland	Łukasz Cejrowski

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Networking and Connecting – Meeting mojo

- This is a separate platform to Zoom
- You can organise 1:1 meetings with other registered users
- You will be able to create your profile, search other users' profiles and book video chat meetings via the platform.
- You can search by organisation, by individual or by key word.
- Don't forget to confirm your requested meetings!

https://he-batteries.meeting-mojo.com

- Opportunity to network this afternoon. Will remain open until the for 1 week we can keep going if active!

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Introduction and Aims of the Day

Nick Mellors, Regional Manager, Eastern Mediterranean and Central & Eastern Europe | UK Science and Innovation Network

Dr Maria Śmietanka, Deputy Director, Horizon Europe National Contact Point, National Centre Research and Development, Poland

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Horizon Europe

Jane Watkins

European Programmes

Innovate UK KTN

ktn-uk.org/global-alliance

European Framework Programmes

- Funding programmes created by the European Union/European Commission to support and foster research and innovation
- Began in 1984 and each last for 7 years and align to the EU's Multiannual Financial Framework (MFF)

Horizon 2020

- The previous Framework Programme (FP). It began in 2014 and had its last call for proposals in 2020. Total budget for Horizon 2020 was ~ €80bn

Horizon Europe

- The 9th FP and successor to Horizon 2020 will run from **2021 to 2027**
- **€95B total budget** - Work Programmes are available

The **UK has agreed to Associate to Horizon Europe**

UK

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UK ‘Association’ means continued UK participation

The **UK has agreed to Associate to Horizon Europe**

- UK entities will have **equivalent participation rights** to those from Member States
- UK entities **can lead projects as coordinators**
- **UK has continued access to Horizon Europe research and innovation funding**, infrastructure and markets
  - Able to access funding from all parts of the Programme including the ERC (European Research Council), MSCA (Marie Skłodowska-Curie Actions), Partnerships, the EIT (European Institute of Innovation and Technology), the direct actions of the JRC (Joint Research Centre). The UK will be an associate to the COST programme and to EURATOM and ITER. Can access the majority of the EIC (European Innovation Council) the **except the EIC Accelerator equity fund**
  - Work programme level exclusions only in exceptional and justifiable cases (e.g., some Defence & Security)
- **Participation and influence** on programme **governance** structures (e.g. programme committees)
- **UK experts** can continue to take part in peer review (register as an expert here)
- **The ‘Associated Countries’ concept is not new -** Horizon 2020 had 16 Associated Countries including Israel, Norway and Turkey

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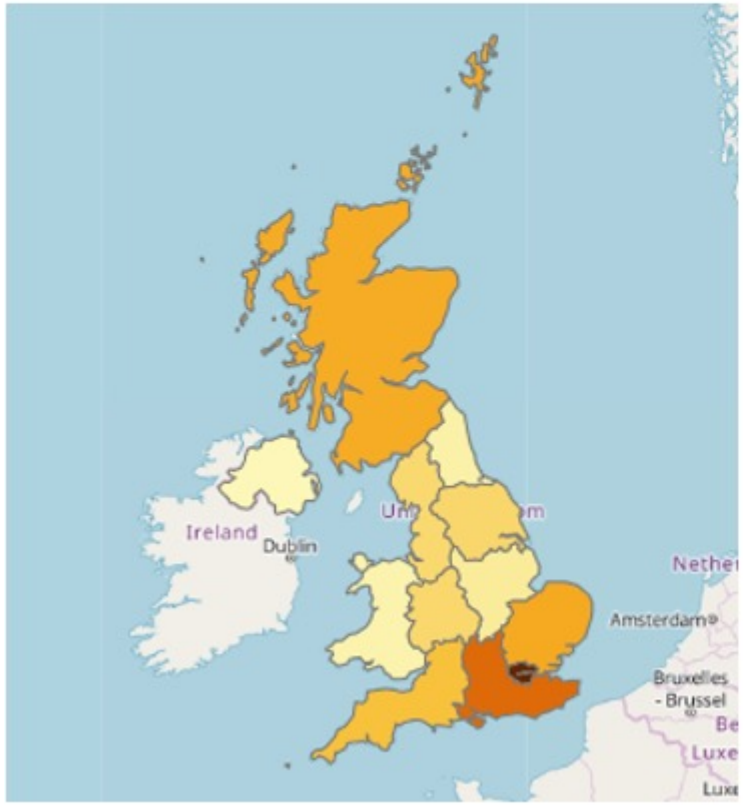
Size of the prize – Horizon 2020 UK stats

14.75% success rate
(EU average 11.91%)

16,303 participations

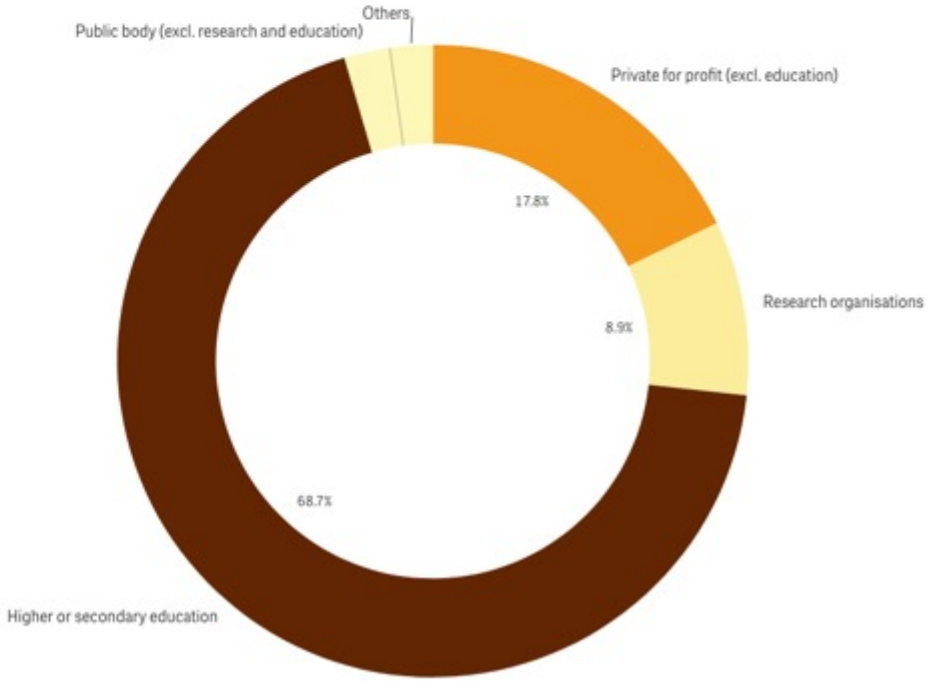
9,802 signed grants

€7,41B EU contribution

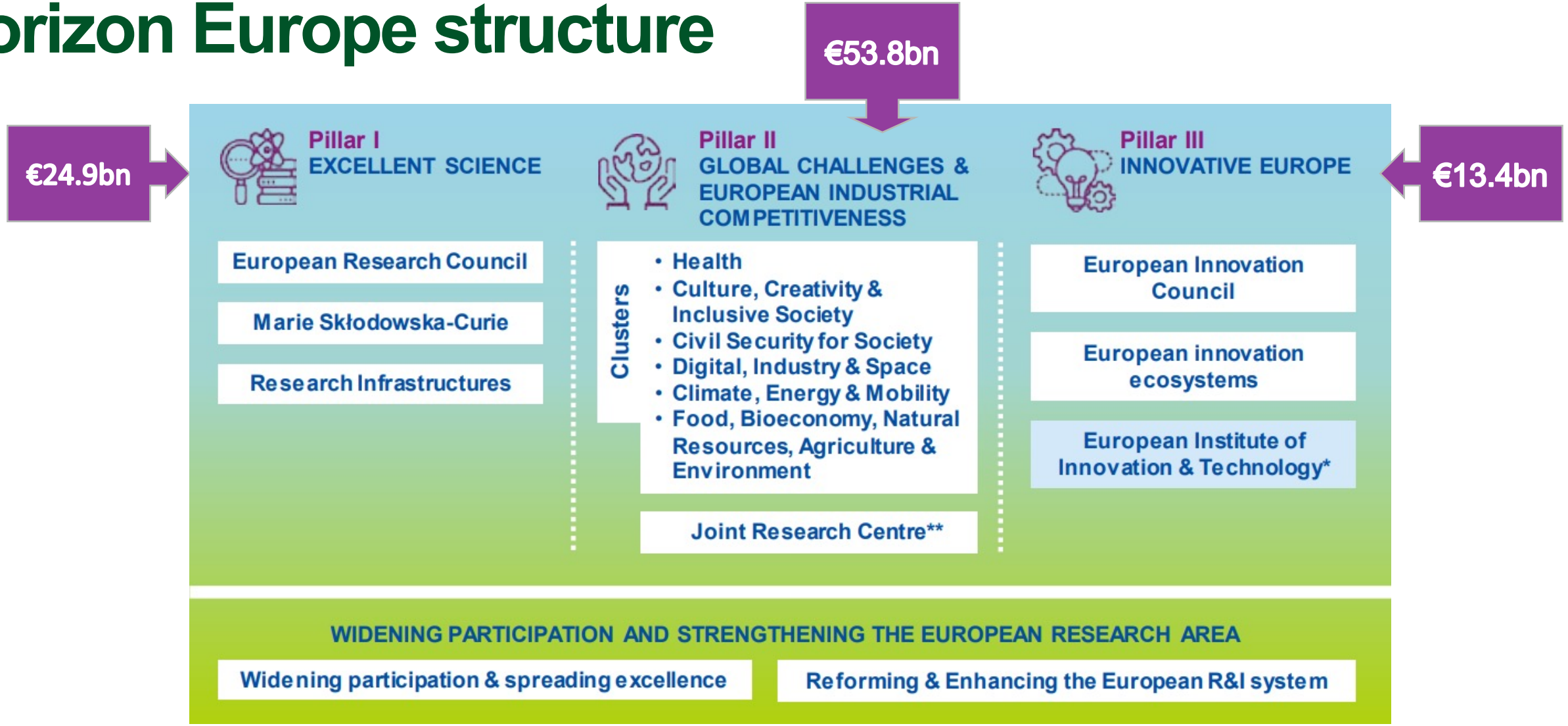


2,845 SME participations

€933M EU contribution



Horizon Europe structure



- **€95.5bn** total funding agreed for **2021-2027**
- NB budget figures exclude UK and other Associate Country contributi
- Canada, Japan, Australia etc. Interested status (TBC)

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Project Types

Research and innovation actions (RIA)

- Activities aiming primarily to **establish new knowledge or to explore the feasibility** of a new or improved technology, product, process, service or solution.
- May include basic and applied research, technology development and integration, testing, demonstration and validation on a small-scale prototype in a laboratory or simulated environment.

Innovation actions (IA)

- Activities directly aimed at **producing plans and arrangements or designs** for new, altered or improved products, processes or services
- Possibly including prototyping, testing, demonstrating, piloting, large-scale product validation and market replication.

Coordination and support actions (CSA)

- Activities contributing to the objectives of the Horizon Europe Programme, excluding R&I activities (with some exceptions – see the General Annexes to the Work Programme)

Main Types of Project	• **RIA – Research and Innovation Actions** – up to **100%** funding rate. Page limit usually 45 pages. • **IA – Innovation Actions** – up to **70%** funding rate (except non-profit, 100% applies). Page limit usually 45 pages. • **CSA – Coordination and Support Actions** – up to **100%** funding rate. Page limit usually 30 pages.
Award Criteria	• **Excellence** • **Impact** • **Quality** and **Efficiency** of implementation

Why participate?

- High funding rate: up to 100% of eligible costs
- The only guaranteed and predictable funding for certain sectors
- No artificial constraints (consortium size, budget allocation to non-industrials...)
- Access to cutting edge technologies, infrastructure & talent
- Increased visibility at EU & global level
- Build domestic and international partners/customers
- Solving global grand challenges through collaborative R&D
- Influence standards, regulations and research policies

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BREAK

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CLOSE

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Networking and Connecting – Meeting Mojo

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- Don't forget to confirm your requested meetings!

https://he-batteries.meeting-mojo.com

- Opportunity to network this afternoon. Will remain open until the for 1 week we can keep going if active!
- Networking cards
- To submit a **networking card**. Please fill **this template** in and return it to **jessica.dobbyne@ktn-uk.org** as soon as possible.

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PITCHING SESSION

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Pitch Running Order

Organisation	Speaker

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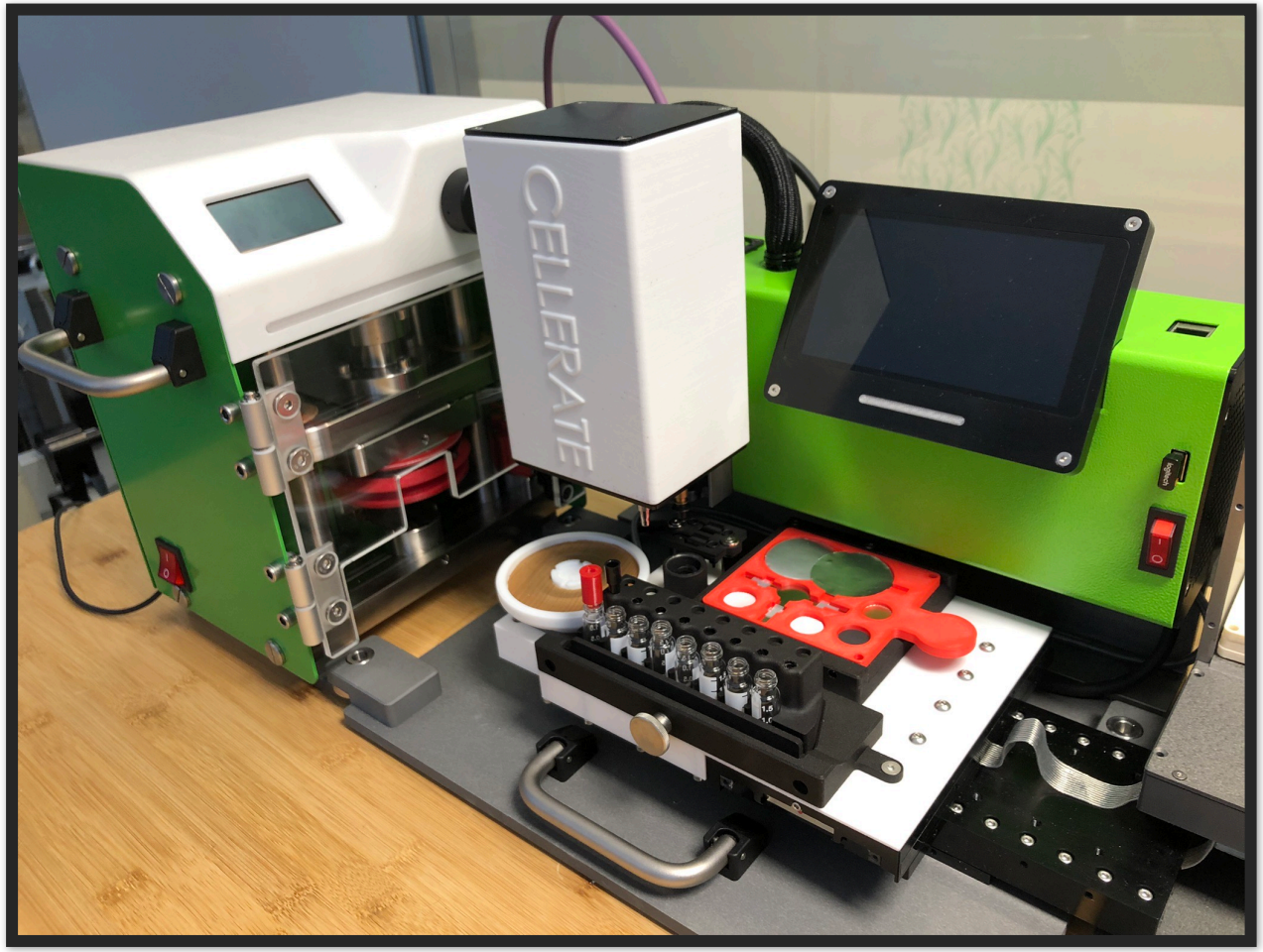
CELLERATE

- Battery R&D and QC is still based on tools developed over 30 years ago
- Cellerate is an SME developing **automated tools** to improve data quality and accelerate R&D
- Our first product is a **test cell assembler and sealer** that makes coin and pouch cells with high throughput, and images them to detect various defects
- We have a growing team of **robotics and software engineers** capable of designing advanced products
- We are looking to **partner with experts across battery R&D**, especially those facing advanced chemistry and processing problems, or who need to build significant quantities of high quality test cells.
- We also seek organisations looking to readily and precisely put sensors into battery test cells, as we believe **we can accelerate development of their technology**.



Dr Richard Fields
CEO, Cellerate Ltd.
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United Kingdom
www.cellerate.co.uk

LABMAN

KIT
Karlsruhe Institute of Technology

NDT Battery Inspection

Proposed Approach

We provide the multi-scale and multi-instrumental workflow of 3D analyses of batteries. X-ray computed tomography (CT) can nondestructively access inner features of whole battery samples in 3D giving information electrode's morphology, processes happening during charging/discharging, due to degradation, or detect defects. We can further image regions of interests in micrometre scale to analyse individual grains of material in electrodes.

We want to address Battery quality inspection.

We would like to cooperate on battery development and provide our expertise in non-destructive 3D analysis of batteries. As a research center of excellence we can participate on academic and also on industrial projects.

Organisational Capabilities

- 10 years experience in X-ray computed tomography and image processing
- Experience with scientific research and industrial cooperation
- Expert team
- 4 CT systems, from micro to nano CT

We are academic organization with the background of Brno University of Technology.

Experience

We have long experience in non-destructive analysis using CT with many papers published in high-rank scientific journals. We collaborated in various projects with both industrial and academic partners.

We cooperate with global developers of CT systems (Waygate Technologies, Thermo Fisher Scientific, Rigaku) and with academic institution around the world, i.e., Karolinska Institutet (Sweden), Institut Pasteur (France), Synchrotron Elettra (Italy), University of Leoben (Austria). We are authorized to perform a tests using CT by Czech Accreditation Institute according to CSN EN ISO/IEC 17025 standard.

Administrative Information

Academic partner

Your contact details including:

Michaela Skaroupkova
ctlab@ceitec.vutbr.cz
+420 541 142 875
Czech Republic
Your organisation's PIC

HORIZON-CL5-2022-D2-01-09

Physics and data-based battery management for optimised battery utilisation

Proposed Approach

The 'best' approach to battery management depends on the quality of information at any given point in time. Our vision is to develop an approach to battery management that exploits the best physics and data at all points throughout a product lifecycle.

We propose to develop an approach that evolves with data and models – we will start with the 'best known' models, use on-vehicle state-of-the-art parameter modelling techniques to extract useful information in a data volume that can feasibly the stored for later processing, and we will then use regression techniques and machine learning to identify trends, differential user patterns, and fault indicators that can be periodically added to the battery management system. All this will be done in a practicable way, with realization implementations an integral aim from 'day one'.

We are looking for pack manufacturers, BMS software/electronics developers and universities with skills in electrochemical modelling to complement our skills in estimation, reduced-order modelling and artificial intelligence.

Organisational Capabilities

We have over a decade's experience of vehicle electrification. In particular, we have substantial experience in developing :

- state estimation algorithms
- models for new battery technologies
- Rapid parameter estimation
- thermal modelling
- hybrid battery control allocation strategies.

We are an academic organisation (a university) and this work fits with our mission to conduct transformative industry-oriented work.

Experience

We have an experienced and internationally published Battery Systems team led by D. Auger and A . Fotouhi. Previous experience includes major UK projects (Future Vehicles, Revolutionary Electric Vehicle Battery, LiS:FAB) and European projects (ALISE, LISA). We have a strong track record of novel work, notably the world's first state of charge and state of health estimation algorithms for Li-S batteries. Previous partners include OXIS Energy, Airbus and LEITAT Technological Center. We also have close links with major automotive OEMs.

Administrative Information

We are planning to be a partner

Your contact details including:
Dr Daniel Auger, E: d.j.auger@cranfield.ac.uk,
T: +44 1234 758062, United Kingdom

PIC 999440762

Horizon Europe Clean Energy Webinar
Cluster 5 / Destination 3

Proposed Approach

As Inelso, we can handle :

- smart metering,
- data monitoring and controlling,
- machine learning, deep learning and AI based system/platform development,
- IoT,
- multidisciplinary system integration,
- digital twin
- micro grid
- Renewable energy

Organisational Capabilities

What skills, capabilities, facilities does your organisation have that will be vital for this project?

- smart metering,
- data monitoring and controlling
- multidisciplinary system integration,
- digital twin
- micro grid
- Renewable energy

Is your organisation academic, SME, big business, etc?

Inelso is the SME company which provides business intelligence for all business line.

Experience

More than 10 R&D Project were completed. SCADA system was installed at more than 1000 point of renewable energy such as solar plant, wind turbine etc. SCADA system was installed at more than 1000 point of distribution and transmission grid.

Include your ability to attract the ‘Big Names’ in the sector (e.g. leading academics, major thought leaders)

Agile Project Management, Major Contribution as Technology Provider, Demonstration Experience, Strong R&D team at master's and doctorate level.

Administrative Information

Are you planning on being the Coordinator or a Partner?

We would like to take a role as partner.

Your contact details including:

Hacer Gediz Taskin
hacer.gediz@inelsoenergy.com
Phone: +905078436874

What country are you from

Turkey

Your organisation’s PIC: 890706187

Łukasiewicz
Institute of Non-Ferrous Metals

Proposed research activities :

- participation as one of the research centers in the development of a strong knowledge data base in the broad field of battery technology (from cradle to grave) by providing knowledge and information in the field of raw materials processing, manufacturing of advanced chemical materials, design of battery cells and modules, energy storage technologies, battery systems, fuel cells, new types of electrochemical cells, including lithium and sodium cells and supercapacitors, power source technologies, including technologies for backup and special thermal batteries, improvement of battery recycling technologies - environmentally friendly and sustainable procedures for disassembly, recycling and refining, recovery of raw materials in a closed loop

Expected results:

1. Establish a knowledge base on battery technologies;
2. Contribute to a network for the exchange of information on battery technologies.

Organisational Capabilities

- R&D centre with a focus on chemical power sources
- R&D centres with a focus on advance material technologies, functional materials, power and composite materials
- Research and manufacturing experience since 1947
- Highly specialized equipment for advanced material technologies as well battery testing under international standards

Experience

participation in numerous international (H2020, EIT Raw Materials) projects in the field of raw materials processing, manufacturing of advanced chemical materials, recycling and refining, recovery of raw materials
as well
Chemical Power Sources Testing Laboratory - Accredited by Polish Centre for Accreditation since 1997; Quality Management System in conformity with PN-EN ISO/IEC 17025

Administrative Information

- Partner

http://www.imn.gliwice.pl/index/en
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POLAND
PIC: 998501220

HORIZON-CL5-2022-D2-01-07
Digitalisation of battery testing, from cell to system level, including lifetime assessment
HORIZON-CL5-2022-D2-01-09
Physics and data-based battery management for optimised battery utilisation.

Łukasiewicz
Institute of Non-Ferrous Metals

Proposed research activities :

1. Providing input data based on cell and battery tests:
- for developing digitalisation of battery testing
- for developing algorithms for enabling proper operation of the BMS;
2. Validation of the developed methods in the Chemical Power Sources Testing Laboratory;

Expected results:

1. Improved battery design, for longer lifetime, and better reliability and safety;
2. New physics and data-based approaches for battery management, with the potential to enhance performances, lifetime, reliability and safety of battery systems for transport and stationary applications.

Organisational Capabilities

- R&D centre with a focus on chemical power sources
- Research and manufacturing experience since 1947
- Highly specialized equipment for battery testing under international standards

Experience

Chemical Power Sources Testing Laboratory - Accredited by Polish Centre for Accreditation since 1997; Quality Management System in conformity with PN-EN ISO/IEC 17025

The Laboratory provides: electrical, mechanical, environmental, thermal stresses, safety tests, disassembly analyses, thermographic camera temp. measures and post-failure expert opinions

Administrative Information

- Partner

http://www.imn.gliwice.pl/index/en
Katarzyna Lota
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+48 61 279 78 01
POLAND
PIC: 998501220

HORIZON-CL5-2022-D2-01-05 – Potentially, projects in single-phase immersion cooling technology with dielectric esters for high-performance and safe-by-design battery systems for transport and mobile applications.

MIVOLT® LIQUID IMMERSION COOLING

Proposed Approach

What is your understanding of the part of the problem you can solve? Using dielectric ester fluids for battery immersion cooling to enhance performance (ultra-fast charging rates, battery longevity, power density) and safety (thermal runaway propagation) of the battery system.

What part of the Scope do you want to address? Be specific. Thermal management of battery systems for high C-rate application with dielectric ester fluids. Potentially all aspects related to the fluid can be addressed by us.

If you are looking for partners, what type of partners are you looking for? OEMs (end-users) with applications in land, marine or air, and Tier 1 battery module and pack manufacturers/technology providers who are interested to work on immersion cooling technology.

Organisational Capabilities

What skills, capabilities, facilities does your organisation have that will be vital for this project? Supplying eco-friendly dielectric ester fluid for battery immersion cooling, along with our capabilities in - (a) selection of correct materials based on material compatibility (b) fluid performance, (c) fluid life cycle and ageing, (d) battery abuse, (e) fluid maintenance and handling

Is your organisation academic, SME, big business, etc (and explain the benefits to this project of whichever you are) We are classed as a SME.

Experience

What previous, relevant, work or track record can you bring to the team? (a) We have successfully completed Project I-CoBat as part of Faraday Battery Challenge, (b) we are presently working on another Innovate UK funded ATI project 'InCEPTion' for E-VTOL application, (c) We have been recently awarded two other APC projects for automotive and two-wheeler segments. Apart from these we shall bring in - (d) our expertise of innovating dielectric ester fluids for more than 40 years, and (e) our learnings drawing on our experience in other development for over 3 years.

Include your ability to attract the 'Big Names' in the sector (e.g. leading academics, major thought leaders) We are engaged with and presently collaborating with reputed universities, leading academics and industry leaders in our ongoing projects.

Administrative Information

Are you planning on being the Coordinator or a Partner? We intend to be a partner on suitable projects related to battery immersion cooling.

Your contact details including:
Name, email and phone number
What country are you from
Your organisation's PIC

Sayan Sengupta
SayanSengupta@mimaterials.com
+44 7715 090 235
Company HQ in Manchester, UK

Proposed Approach

ISSUE – EVs BATTERY MAY CAUSE FIRE, many have tried to prevent this from happening, but no one has succeeded.

WHEN OTHERS FAIL,
NOVASELL THRIVES

The composite coating technology developed by us significantly reduces the negative effects of a battery fire, prevents their progression and facilitates rescue action. Our technology guarantees proper heat dissipation, heat and flame isolation, initial gas permeability and pressure release, novel self-healing properties and increased mechanical resistance.

We are looking for: technical knowledge concerning failure mode analysis of specific solutions in EV in order to prepare technology demonstrator, technical knowledge in the design of battery casing and battery packs for EV solutions, business development and distribution

Organisational Capabilities

We are SME under M+MInwestyn Ltd. A leading applicator of PFP in Poland.

- **Fire retardant, self-sealing, anti-fragmentation synthetic composite (rapid application)**
- **Know-how concerning fire engineering**
- **Expierenced team of fire safety engineers and R&D**
- **Fire and formulation lab**

Experience

- **Over 7 y. experience in design and implementation of passive fire protection systems for steel**
- **Formulation, testing of fire retardant paints**
- **R&D laboratory facilities including:**
  - **materials and formulation analysis (FTIR, LD, SEM, Viscosimetry)**
  - **High Power Computing Lab (Ansys Fluent)**
  - **corrosive, environmental chambers for formulation testing**
  - **full scale furnaces for fire tests (EN 13381:8)**

An experienced team including 6 PhDs: M. Mamzerowski (CEO, fire safety engineer), Ł.Radosiński PhD. (CTO, opto and nanotechnology), M. Borusiński PhD. (ballistic specialist), A. Porębska PhD. (formulation and toxicology expert), M. Wajsprych PhD. (chemical technology and engineering), A. Mrozowski PhD. (BD) , Paweł Sonnak Msc. (automotive engineer)

Administrative Information

Are you planning on being the Coordinator or a Partner?

Łukasz Radosiński
Lukasz.radosinski@novasell.pl
+48 884 070 082
www.novasell.pl
Poland

Dendrite free metallic Li anode (3D Li)

SIGMA LITHIUM
Lithium Power For Batteries

Proposed Approach

Batteries with metallic Li anode are expected to double the energy density. However they are known to take charge very slow and may have safety issues because of dendrites formation

Oxford based Sigma Lithium Ltd has developed the technology of porous metallic Li anode with surface area of 5-10 times higher than that of standard Li anode. It is dendrite free and deliver at least 50% energy increase and 5-10 times power improvement against state-of-the-art Li-ion battery.

Looking for partners in integrating 3DLi anode in advanced Li-ion, Li-S and all-solid-state batteries

Organisational Capabilities

Sigma Lithium is running a pilot R&D facility for small batch manufacturing of proprietary 3D-Li anodes. We offer 3D metallic Li anode material for advanced valuation and integration into high power and high energy Li-ion and all-solid-state batteries.

Sigma Lithium is the Oxford start-up company, we are happy to provide both 3D-Li anode and services aimed at integration of 3D-Li into customer tailored electrochemical systems.

Experience

The technology has been successfully proven with the major multinational Li manufacture; Sigma team has over 20 years experince in Li-metal electrochemistry and in upscaling Li-S battery from coin to 10Ah pouch cells.

The technology was validate by the University of Cambridge, Department of Materials Science and Metallurgy.

Administrative Information

Planning to partner rather than being a coordinator.

Contact:
Gleb Ivanov, CEO, Sigma Lithium Ltd
gleb.ivanov@slithium.com; +44 7799 038332
Great Britain

WAVEN - RF Energy Rechargeable Batteries

Proposed Approach

What is your understanding of the part of the problem you can solve?
Waven consistently develops RF energy harvesting technologies to extend batteries runway and lifetime by self recharging function and deep discharge prevention thanks to the RF energy harvesting plug'n'play solution developed by Waven.

What part of the Scope do you want to address?
Self Healing and deep discharge prevention in batteries with use of the Waven's proprietary RF energy harvesting solution.

If you are looking for partners, what type of partners are you looking for?
Waven is looking for the partners with expertise in battery cell innovation and development for integration with Waven RF energy harvesting technologies.

Organisational Capabilities

What skills, capabilities, facilities does your organisation have that will be vital for this project?
Waven is build with strong cross-industry team where team members come from renewable energy industry, space enterprise, academic and research institutions and have experience in technology development, commercial product development and global industrial production implementations.

Is your organisation academic, SME, big business, etc (and explain the benefits to this project of whichever you are)
Waven is an innovative SME with proprietary know-how in the area of RF energy harvesting.

Experience

What previous, relevant, work or track record can you bring to the team?
Waven brings unique and proprietary RF energy harvesting technology which allows for batteries discharging with surrounding radio frequency waves (Wi-Fi, GSM, etc). First models of Waven RF energy harvesting batteries recharge at 900 MHz and 2400 MHz primarily.

Include your ability to attract the 'Big Names' in the sector (e.g. leading academics, major thought leaders)
Waven technology can be used at the level of AA battery format and scaled with any combination of battery recharge with RF harvesting. We, at Waven, believe that RF energy harvesting will have wide range of applications where reliability and power security especially in low energy consumption applications is required.

Administrative Information

Are you planning on being the Coordinator or a Partner?
Waven is looking to become either partner for supplying the RF energy harvesting technology or as a Coordinator for projects with partners specialized in in battery cell innovation and development.

Your contact details including:
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+31622907760
ul. W. Łokietka 5a, Toruń, Poland
Waven organisation's PIC: 890094117

UK has agreed to Associate to Horizon Europe

Update 8 March 2022

Nicolas Wallet – Climate Lead

Association update

EUGrantsFunding@ukri.org

- While the government's **priority remains association to Horizon Europe**, as both the UK and the EU agreed under the Trade and Cooperation Agreement (TCA) last year, ongoing delays by the EU have led to uncertainty for researchers, businesses and innovators based in the UK.
- To provide reassurance, HM Government has already **committed to supporting the first wave** of successful Horizon applicants who are unable to sign grant agreements with the EU due to the continuing delay to association.
- Throughout the ongoing disruption, we are monitoring the situation closely and listening to feedback from our research and development community.
- The **minister has publicly stated that it is his priority to support the UK R&D** sector through this period, and as such we are keeping all measures, including the guarantee, under constant review.
- In addition, we are proactively raising ongoing issues with the EC.
- **As set out in the R&D Roadmap, in case we cannot associate, we will make funding available to allow UK partners to participate in European schemes open to third countries.**

Association and Grant Agreement

Application → **Assessment**

Same rules than for associated countries and member states.

However, if not associated beware of possible ineligibility (numbers of associated or/and member states countries, coordinator).

Contract

UK not associated means UK organisation choice to be Associated Partner.

No EU funds to be received but there is a safety net for wave 1.

Implementation

Safety net for wave 1 use UKRI funding rules.

Now **waiting from UK Government to hear if their will be an extension** for other calls (incl. Pillar II).

https://www.ukri.org/publications/horizon-europe-guarantee-notice-and-guidance/

BATT4EU
Batteries European Partnership

A co-programmed partnership under Horizon Europe

2022 Horizon Europe calls on batteries
Introduction

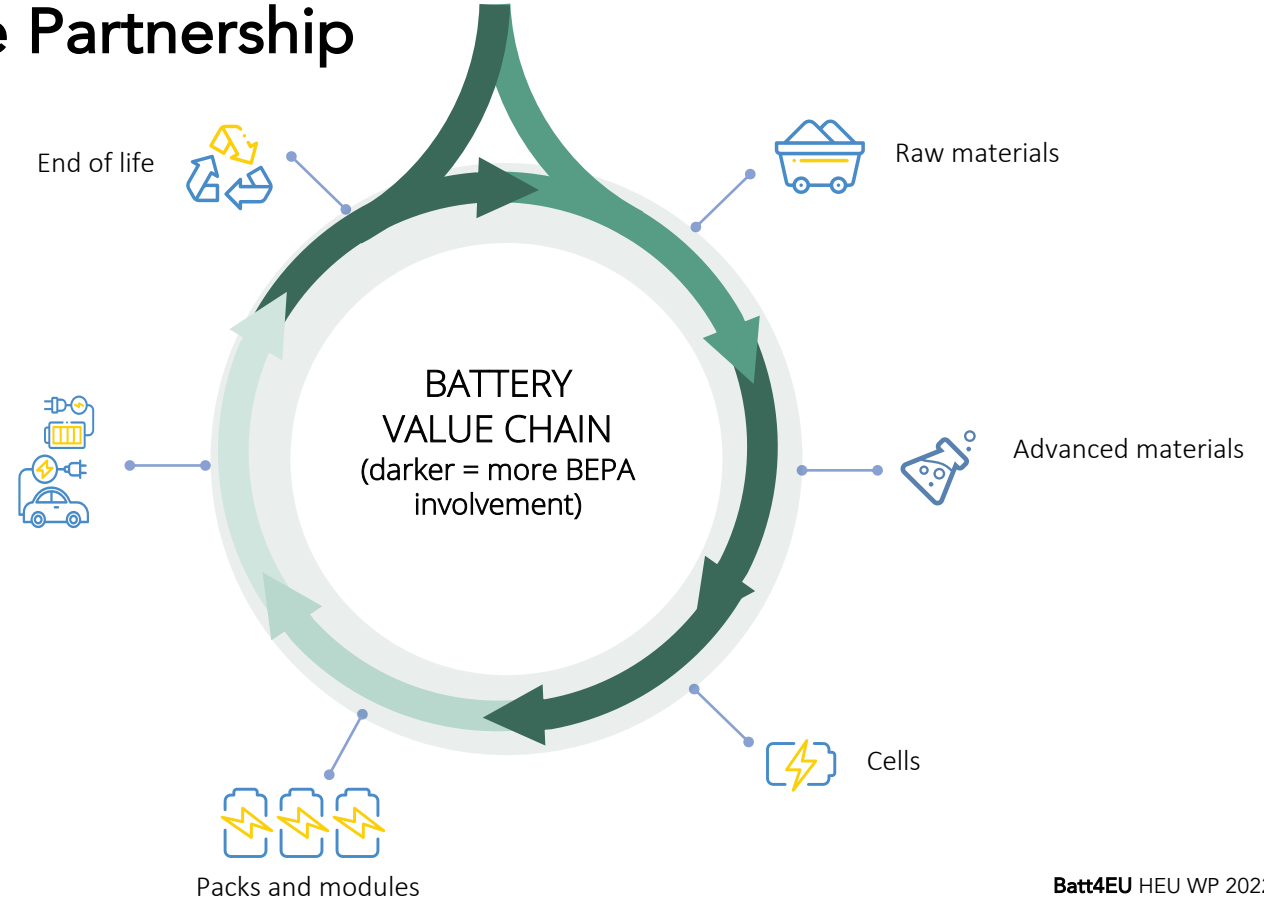
@bepa_eu

Wouter IJzermans
BEPA Executive Director

February 2022

BEPA
Batteries European Partnership Association

Focus of the Partnership



Partnerships dedicated to applications will lead the downstream R&I segments activities

2022 calls on batteries

Short overview

- 10 calls linked to the Batteries Partnership
- 133 million of total funding
- Developed by private members of BEPA, the European Commission and Member States
- Calls are open for all
- Always, always, always check the call text on the funding portal

Sustainable processing and refining of battery grade graphite

HORIZON-CL5-2022-D2-01-01 – Innovation Action - TRL 6-7 – 10M€ budget – 5M € per project

SCOPE

Enabling European graphite production with vertical integration into European battery production

- Development of solutions for combined use of natural and synthetic graphite
- For both natural an synthetic graphite:
  - Improve performance characteristics, reduce the environmental impact
- For synthetic graphite:
  - Develop other available European options like biobased anode carbon and by-products from anode material as raw material
  - Processes for production form natural gas pyrolysis
  - Reduction of process discharge and emissions

Projects are expected to contribute towards European Raw Materials Alliance objectives

Sustainable processing and refining of battery grade graphite

HORIZON-CL5-2022-D2-01-01 – Innovation Action - TRL 6-7 – 10M€ budget – 5M € per project

EXPECTED OUTCOMES

- Decreased dependency on imported battery-grade graphite, decreased risk for the European supply chain
- Graphite competitively produced and refined in Europe in sustainable and socially acceptable way
- Leverage potential for fast charging
- Reduced carbon and environmental emissions from anode material supply chain

Synthetic:

- System prototype demonstration of high-performance battery-grade graphite, improved yield and lower environmental footprint
- Longer-term: develop biocarbon alternatives

Natural: Advanced refining, improved yield and lower environmental impact

Interface and electron monitoring for the engineering of new and emerging battery technologies

HORIZON-CL5-2022-D2-01-02 – Research and Innovation Action - TRL 3-4 – 10M€ budget – 5M € per project

SCOPE

- Support the development of novel experimental and computational techniques targeting the time and length scales of interface reactions in a battery cell including electron and ion localisation, mobility and transfer reactions.
- Development of novel analytical techniques, supported by modelling and simulation, able to follow interface, electron and ion dynamics in battery materials and battery cell, and carefully selecting controlled model systems to implement those novel techniques
- Give advice and new insights on how to increase the life time and safety of new emerging technologies

Projects are expected to contribute to the Battery 2030+ large scale initiative. The proposal should cover this contribution.

Interface and electron monitoring for the engineering of new and emerging battery technologies

HORIZON-CL5-2022-D2-01-02 – Research and Innovation Action - TRL 3-4 – 10M€ budget – 5M € per project

EXPECTED OUTCOMES

To contribute to all of the following

- New methods for studying electrode/electrolyte interfaces for liquid-based electrolytes and batteries and studying sold-state and buried interfaces
- Models for explaining the degradation of battery interfaces
- Deeper understanding of the formation and evolution of battery interfaces, leading to new insights on how to increase the lifetime and safety of new and emerging battery technologies, and therefore contributing to the long-term competitiveness of the European battery industry

Interface and electron monitoring for the engineering of new and emerging battery technologies

HORIZON-CL5-2022-D2-01-03 – Furthering the development of a materials acceleration platform for sustainable batteries (combining AI, big data, autonomous synthesis robotics, high throughput testing) - TRL 3-4 – 20M€ budget – 20M € per project

SCOPE

- Infrastructure tools for secure remote data access, data analysis and predictive modelling: Findable, Accessible, Interoperable, Reusable data infrastructure
- Automated high throughput characterisation and integrated experimental and computational workflows: using standardised battery cells and protocols to perform screening of new materials
- Autonomous synthesis robotics and orchestration software: partially autonomous systems with standard synthesis routes + AI-based orchestration and optimization software
- Inverse design and AI-assisted scale-bridging models for multiple time- and length-scale processes: covering atomistic and mesoscopic processes, incorporating sensing data to estimate state of system + diagnosis and prediction

Projects are expected to contribute to the Battery 2030+ large scale initiative. The proposal should cover this contribution.

Interface and electron monitoring for the engineering of new and emerging battery technologies

HORIZON-CL5-2022-D2-01-03 – Furthering the development of a materials acceleration platform for sustainable batteries (combining AI, big data, autonomous synthesis robotics, high throughput testing) - TRL 3-4 – 20M€ budget – 20M € per project

EXPECTED OUTCOMES

To contribute to all of the following

- Develop new tools and methods for significantly accelerating the development and optimisation of battery materials and interfaces.
- Demonstrate a fully autonomous battery-MAP capable of integrating computational modelling, materials synthesis and characterisation of both Li-ion and beyond Li-ion chemistries.
- Scale-bridging, multi-scale battery interface models capable of integrating data from embedded sensors in the discovery and prediction process.
- Community wide state-of-the-art collaborative environment to access data and utilise automated workflows for integrated simulations and experiments on heterogeneous sites.
- Demonstrate a robotic system that is capable of material synthesis for inorganic, organic or hybrid compounds. Deploy predictive hybrid physics- and data-driven models for the spatio-temporal evolution of battery interfaces and demonstrate inverse design of a battery material/interface.

Towards creating an integrated manufacturing value chain in Europe: from machinery development to plant and site integrated design

HORIZON-CL5-2022-D2-01-04 –Innovation Action - TRL 6-7– 15M€ budget – 7-8M € per project

SCOPE

Machine Development: TRL 3->6

- Locally developed and built equipment
- Minimise energy consumption, eliminate air and water pollution
- High productivity levels, intelligent QC systems + Industry 4.0

Plant site integration and optimisation: TRL 6 -> 7

- Reduction/utilisation of low-carbon, low-emission energies
- Horizontal integration of EU supply chain for battery process equipment into giga-scale battery cell production

Linking industrial manufacturing, equipment manufacturers, material and other sectors

- sector coupling, ecological impact

Stimulate and intensify collaboration between pilot line operators (Link to LiPLANET Network)

Towards creating an integrated manufacturing value chain in Europe: from machinery development to plant and site integrated design

HORIZON-CL5-2022-D2-01-04 – Innovation Action - TRL 6-7 – 15M€ budget – 7-8M € per project

EXPECTED OUTCOMES

To contribute to all of the following

- Strengthening Europe's battery cell industrial manufacturing value chain
- Development of new battery cell manufacturing machinery, with priority on minimising energy needed for cells production, enhancement of plant efficiency rates and integration of intelligent control processes
- Enabling deeper collaboration between (i) process equipment companies (ii) industrial-scale cell manufacturing, (iii) material, energy and other supply chain sectors benefitting from sector coupling
- To stimulate and intensify the collaboration between pilot line operators, industrial-scale academia, cell manufacturing companies and European equipment companies

Next generation technologies for High-performance and safe-by-design battery systems for transport and mobile applications

HORIZON-CL5-2022-D2-01-05 –Research and Innovation Action - TRL 5– 15M€ budget – 5M € per project

SCOPE

- Adaptation of battery system design to novel cell chemistries for short-to-medium term (advanced Li-ion or solid-state)
- Enhance cell-to-system volume ratio and/or weight ratio
- New technologies (system materials, mechanical design, electrical architectures, thermal management…) for enhancing performance and safety
- Manufacturability and recyclability to be explicitly addressed, incl carbon footprint
- Develop and assess methodologies to ensure safety throughout full battery lifetime
- Focus on battery system level, incl mechanical, electrical and thermal aspects
- Integration into applications/vehicles out of scope, but prepare for use cases
- Outcomes to be applicable to one or several use cases for transport/mobile applications, maximising impact

Next generation technologies for High-performance and safe-by-design battery systems for transport and mobile applications

HORIZON-CL5-2022-D2-01-05 –Research and Innovation Action - TRL 5– 15M€ budget – 5M € per project

EXPECTED OUTCOMES

To contribute to all of the following

- Next-generation battery system technologies for electrification of a broad range of transport and mobile applications (including road, waterborne, airborne, and rail transport, as well as non-road mobile machinery)
- Demonstrating increased performances (energy density, power density, lifetime) and safety of battery systems, to improve the competitiveness of the European battery industry in the transport market.
- Novel design and process to reduce cost of manufacturing, refurbishment, dismantling and recycling of battery systems

Embedding smart functionalities into battery cells (embedding sensing and self-healing functionalities to monitor and self-repair battery cells)

HORIZON-CL5-2022-D2-01-06 –Research and Innovation Action - TRL 2-4– 15M€ budget – 5M € per project

SCOPE

- Embed sensors and self-healing functionalities into single cells, to detect defects and trigger selfrepair through BMS
- Sensors capable of continuous long-term operation within cell
- Self-healing to be triggered through external stimulus
- Adapted to detection of critical degradation processes, different chemistries
- Demonstrate proof-of-concept of coupling sensors and self-healing agents via BMS
- Benefit of integration to be demonstrated, compatible with mass production
- Estimate quality, reliability and life (QRL) over life span
- Demonstrate advantage over alternatives (replace, recycle, second use…)

The proposal should also cover the contribution and collaboration to the BATTERY 2030+ large scale initiative

Embedding smart functionalities into battery cells (embedding sensing and self-healing functionalities to monitor and self-repair battery cells)

HORIZON-CL5-2022-D2-01-06 –Research and Innovation Action - TRL 2-4– 15M€ budget – 5M € per project

EXPECTED OUTCOMES

To contribute to all of the following

- Increased quality, reliability and life (QRL) of the battery system by integrating both sensing and self-healing functionalities at the battery cell level.
- Disruptive battery cell and battery management system technologies, to support a competitive and sustainable battery manufacturing industry in Europe.

Digitalisation of battery testing, from cell to system level, including lifetime assessment

HORIZON-CL5-2022-D2-01-07 –Research and Innovation Action - TRL 5-6– 15M€ budget – 5M € per project

SCOPE

- Novel methods and tools to accelerate and improve battery testing
- Multi-scale approach, from cells to systems (excluding power converters)
- Propose and validate new concept based on:
  - Intelligent design of experiment
  - Smart combination of physical and virtual testing
  - Hardware in the loop
  - Development and use of advanced models for cells and systems and relevant evolution in use conditions
- Particular attention to battery lifetime, reliability and safety, incl development of methods for testing of safety in usage and transport
- Ambition for cross-sectorial applications
- Focus on current or near-term (advanced Li-ion) but quickly adaptable to solid-state

Digitalisation of battery testing, from cell to system level, including lifetime assessment

HORIZON-CL5-2022-D2-01-07 –Research and Innovation Action - TRL 5-6– 15M€ budget – 5M € per project

EXPECTED OUTCOMES

To contribute to all of the following

- Competitiveness of the European battery industry across the value chain (from cell manufacturers to cell integrators)
- Shorter time-to-market
- Reduced time and/or cost of battery development by at least 20% to 30%
- Improved battery design, for longer lifetime, and better reliability and safety
- Reduced investment and operational costs of battery systems

Coordination of large-scale initiative on future battery technologies

HORIZON-CL5-2022-D2-01-08–Coordination and Support Action - TRL N/A - 3M€ budget

SCOPE

- Coordinate Battery 2030+ and its contributions to broader efforts in battery technologies
- Tackle long-term research challenges to result in game-changing impacts
- Long-term, coordinated and sustained effort at EU level through ambitious research agenda
- Coordinate research activities and stakeholders
- Facilitate communication, dialogue and cooperation on crosscutting topics
- Monitor progress and update roadmap, support governance and establish a knowledge base
- Promote and communicate objectives and achievements
- Identify training and education needs, promote curricula
- Identify and coordinate modelling and data sharing, standardisation, IP
- Networking and collaboration with other activities, esp. ETIP Batteries Europe and driven by relevant actors in the field

Coordination of large-scale initiative on future battery technologies

HORIZON-CL5-2022-D2-01-08–Coordination and Support Action - TRL N/A - 3M€ budget

EXPECTED OUTCOMES

To contribute to all of the following

- Fostering the scientific, technological, economic and societal impact of the initiative and paving the way to industrial exploitation of future battery technologies in key energy and transport application domains
- Well-coordinated European research initiative on future battery technologies gathering excellent scientists and innovators as well as involving other relevant stakeholders and linked with relevant international, national and regional programmes
- Spreading of excellence in future battery technologies across Europe, increased awareness of European activities and availability of European curricula in the field
- Increased synergies and collaboration between the relevant research and innovation stakeholders in Europe as well as with major initiatives that already exist or are under preparation

Physics and data-based battery management for optimised battery utilisation

HORIZON-CL5-2022-D2-01-09 –Research and Innovation Action - TRL 4 – 15M€ budget – 5M € per project

SCOPE

- Develop innovative physics- and data-based approaches, both at software and hardware levels to ensure optimised and safe utilisation during all modes of operation
- Next-generation more powerful BMS, acquiring/communicating/analysing large amount of data, -> Dynamic update of battery usage limitations + widen operating range
- Open access to FAIR data -> degradation models + predictive maintenance and EOL management
- Develop technologies at HW + SW level, validation through lab-scale prototype at TRL 4
  - Physics-based battery models (e.g. ageing phenomena)
  - Adaptable battery models (using operation data)
  - Sensor-based solutions at system level
  - Advanced state estimators
  - Prediction of useful lifetime, failures, special situations
- Transport or stationary applications

The selected projects are invited to participate to BRIDGE activities

Physics and data-based battery management for optimised battery utilisation

HORIZON-CL5-2022-D2-01-09 –Research and Innovation Action - TRL 4 – 15M€ budget – 5M € per project

EXPECTED OUTCOMES

To contribute to all of the following

- New physics and data-based approaches for battery management, with the potential to enhance performances, lifetime, reliability and safety of battery systems for transport and stationary applications
- • New physics and data-based approaches for battery management facilitating predictive maintenance, and/or knowledge-driven end-of-life management of battery systems, and/or the development of more accurate degradation models

Streamlined collection and reversed logistics, fully automated, safe and cost-efficient sorting, dismantling and second use before recycling

HORIZON-CL5-2022-D2-01-10 –Research and Innovation Action - TRL 5-7 – 15M€ budget – 5M € per project

SCOPE

- Development of standardised common diagnostics protocols and cut-off criteria between product (2nd life application) and waste (recycling)
- Elaborate critical stage of diagnosis of batteries as a waste-prevention measure
- Automate the dismantling of E-mobility and stationary batteries
- Development of novel safe dismantling processes and safety procedures and technologies preventing or reducing thermal runaway
- Design and demonstration of standardised and cost-efficient storage and transportation containers
- Development of technologies for fast and efficient discharge of used batteries and of standardised battery labelling system
- Research on batteries sorting and dismantling technologies
- Identify all potential risks and develop safe processes and safety procedures

The selected projects are invited to participate to BRIDGE activities

Streamlined collection and reversed logistics, fully automated, safe and cost-efficient sorting, dismantling and second use before recycling

HORIZON-CL5-2022-D2-01-10 –Research and Innovation Action - TRL 5-7 – 15M€ budget – 5M € per project

EXPECTED OUTCOMES

To contribute to all of the following

- Achieving the objectives of the Circular Economy Action Plan by enabling second life of batteries and increasing rates for recycling and recovery, in line with upcoming regulatory requirements
- Revolutionise and re-fresh recycling industry, by applying best-in-world innovations based on automatisation, efficiency and sustainability.
- Create new circular business models, such as second life, to reduce the need for primary raw materials, and to maximize the use of battery cells reducing the cost per cycle
- Develop a community for actors involved in the management of the recycling value chain for batteries (including second life) for sharing best practices (health and safety, transport, dismantling, refurbishing, recycling)
- Improve safety, through automatisation and reducing accidents.

Why joining the Partnership?

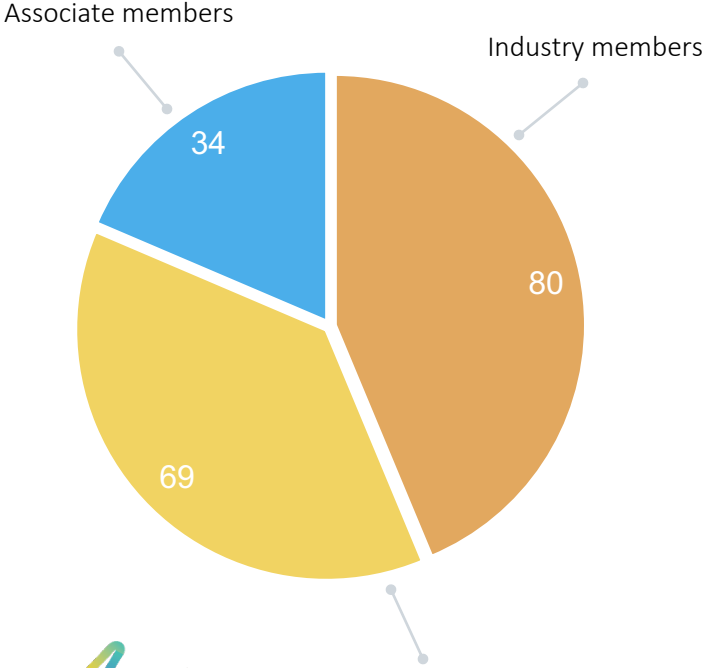
Being involved in BEPA provides the following benefits:

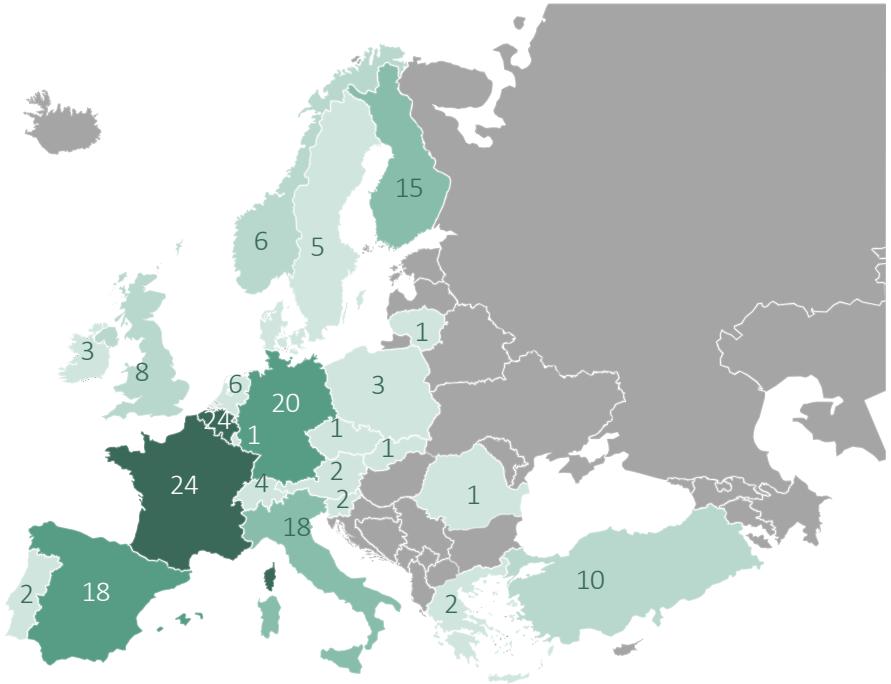
- **provide recommendations for calls for proposals** supported within the specific parts of the Horizon Europe Work Programmes related to batteries
- **get first hand information on the strategic R&I roadmap** and prioritise of research topics
- get **access to impactful research findings** generated in Europe (in Horizon Europe projects)
- be part of **a strong industrial network** with a focus on innovation
- overview and **understanding of the entire value chain** and the impacts of innovations in all sectors
- understand the impact of **innovations in cross cutting topics** (e.g. digitalization and sustainability)
- understand the different **levels of technology readiness** (what's in the pipeline!)
- **strong connections to other European Partnerships** which influence the battery industry;
- understand the requirements and conditions that will be / is created by **European regulations**.

Why joining the Partnership?

Join a wide network of stakeholders

183 members as of 7-12-2021





Next up: Matchmaking/brokerage

31 March 2022 13:30 – 17:00

- **INTRODUCTION OF THE 2022 CALLS**
- **PROPOSAL PITCHES**
- **OPENING OF DIGITAL MATCHMAKING TOOL**

- **REGISTRATION DETAILS TO FOLLOW: Follow us on Twitter (@bepa_eu) or LinkedIn**
  https://www.linkedin.com/company/bepa-batteries-european-partnership-association

BATT4EU Batteries European Partnership

Thank you

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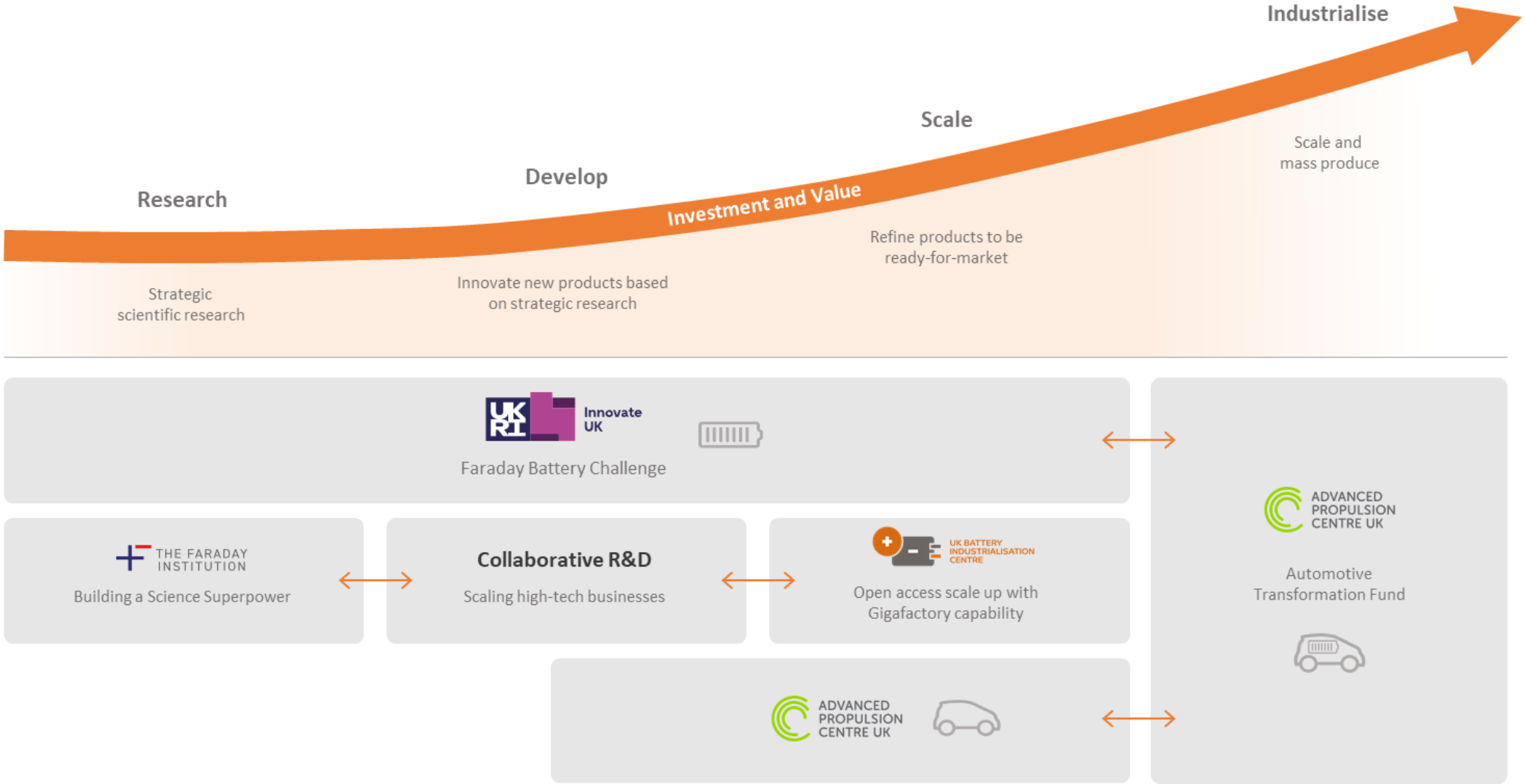
BATT4EU
Batteries European Partnership

UK Battery Industrialisation Centre
KTN – Horizon Webinar

8th March 2022

Ian Whiting. Commercial Director

The UK Ecosystem

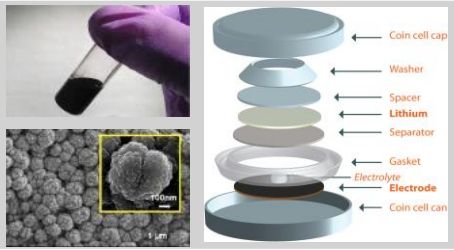


UK BATTERY INDUSTRIALISATION CENTRE

Bridging the Gap from R&D to Mass Production

UKBIC scope

Volume, TRL, MRL

	Gramme Scale	Kilogramme Scale	Tonne Scale	Giga Scale
				
Characteristic	▪ University scale research labs using small quantities of hand-made materials. ▪ Fundamental materials research ▪ Initial half-cell experiments at coin cell scale.	▪ Corporate R&D pilot line or university / Catapult centre. ▪ Used to demonstrate early scalability of materials to full size cell ▪ Develop and demonstrate electrode mixtures, deposition processes and cell formats.	▪ Full-scale GWh/yr manufacturing facilities used at low output rate. ▪ Used to develop and validate materials, cell design, manufacturing processes and parameters at industry rates prior to full plant investment.	▪ Full-scale, high volume manufacturing plant. Typically 6-50GWh/year. ▪ Used to deliver very large volumes of cells with no variation or flexibility to chemistry, format or quality. ▪ Cost/kWh and process consistency are critical.

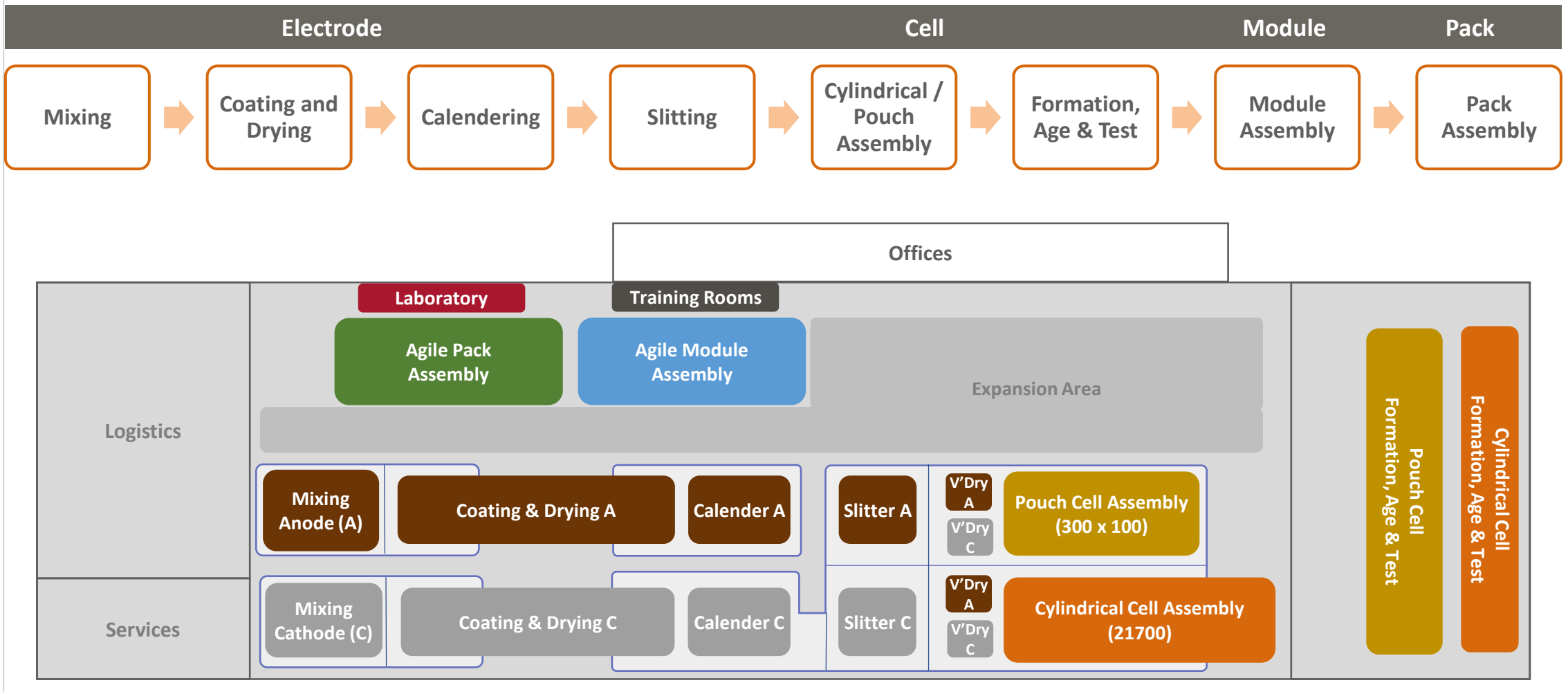
Technology Readiness	TRL 1	TRL 2	TRL 3	TRL 4	TRL 5	TRL 6	TRL 7	TRL 8	TRL 9
	Principles & Research	Explore Applications	Analytical Experiments	Validation & Requirements	Design & Performance	Model & Prototype	Performance & Testing	Test & Demonstrate	Real World & Launch
	Research & Development						Industrial Engineering		Commercialisation

Manufacturing Readiness	MRL 1	MRL 2	MRL 3	MRL 4	MRL 5	MRL 6	MRL 7	MRL 8	MRL 9	MRL 10
	Implication & Materials	Identify Processes	Proof of Concept	Identify Technology & Test	Prototype Materials, Tools & Skills	Processes & Detailed Costs	Pilot Line & Materials	Process Maturity Demonstration	Manufacturing Processes Proven	Production Ready
	Material Solution Analysis				Technology Development		Engineering & Manufacturing Development		Production & Deployment	Operation & Support

UKBIC Scope

UK BATTERY INDUSTRIALISATION CENTRE

Process Equipment Overview



UKBIC Key Operating Principles

User Pays for Access to UKBIC Capability	Users Own Intellectual Property (IP)	User Security and Confidentiality is Central
		
Establishment of UKBIC facilities and resources funded by UK Government Users pays for their usage of facilities covering access to: • Equipment • People • Knowledge & Expertise	User brings their background IP ↓ Users develop foreground IP through UKBIC capabilities ↓ User takes away all of their IP UKBIC retains no rights or licence to IP generated	Physical and digital firewalling of all activities and IP to allow multiple users Dedicated, security controlled areas for user campaigns

What We Do

UKBIC Use Cases:

‘Make to print’ to enable investment
UK growth and benefit

Prototyping at scale
From materials to packs

Knowledge Transfer, Skills Development and Training
Hands-on, real world experience

Collaborative R&D
Future technology scale-up

Consultancy and Advisory Support

UKBIC Customers:

Propulsion
Automotive, aerospace, rail, OHV, marine

Energy Storage
Grid, commercial, domestic

Industrial and Other Application
Warehousing, robotics, etc

Battery Cell Manufacturers
Tier 1 Producers

Battery Supply Chain
Materials, equipment, components

UK BATTERY INDUSTRIALISATION CENTRE

Thank You

UKBIC

info@ukbic.co.uk

@UK_BIC

www.ukbic.co.uk

Virtual Tour: www.ukbic.co.uk/virtual-tour/

pspa | We drive e-mobility!

We drive e-Mobility!

Polish speciality: Lithium-ion Batteries

Warsaw 2022

pspa.com.pl

pspa

We drive e-mobility!

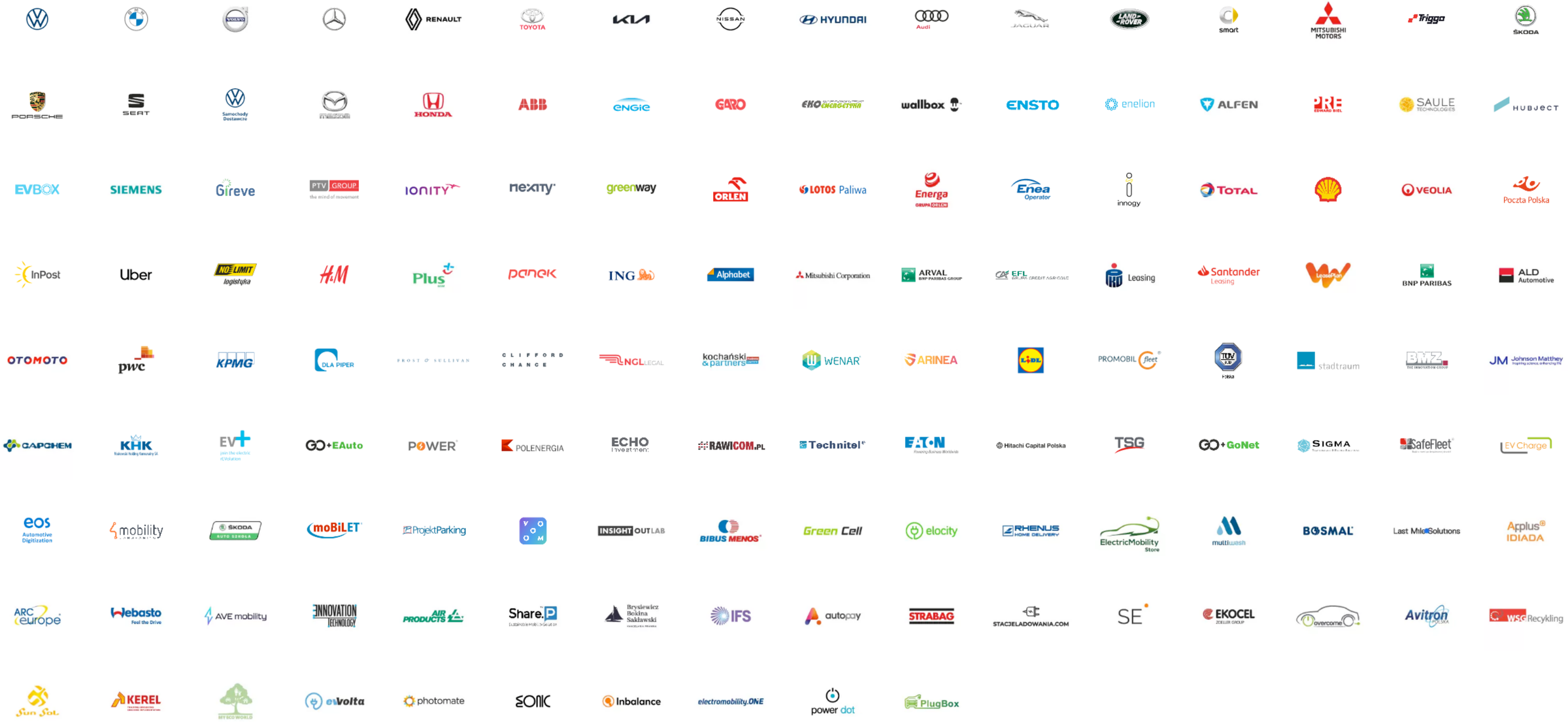
Polish Alternative Fuels Association

HEADQUARTERS

New Mobility Center

Fabryczna 5A Street, 00-446 Warsaw, Poland

PSPA | Members



PSPA | Our structure

PSPA Competence Center

Trainings for e-mobility professionals and beginners as well as consultancy and additional services supporting development in the field of e-mobility

PSPA Legislative Center

Reliable legislative monitoring with regard to planned and ongoing legal changes in the area of alternative fuels

PSPA Research and Analysis Center

An analytical and research unit whose purpose is to study the e-mobility market, collect data about it and analyse it

New Mobility Center

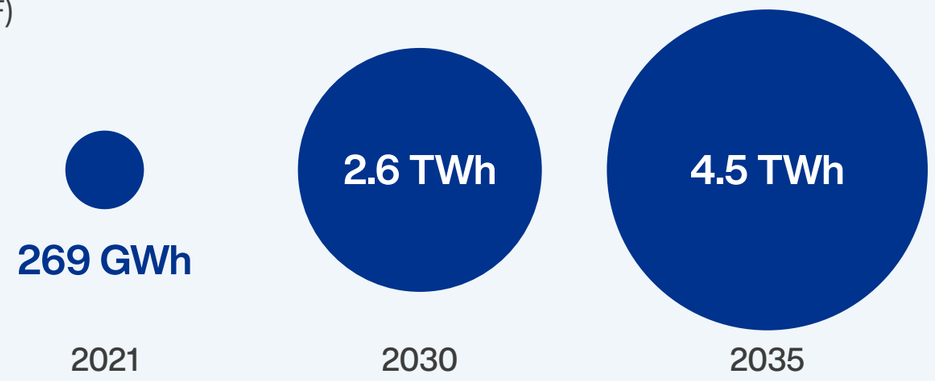
A modern training and conference center in the heart of Warsaw. Forum for industry dialogue, knowledge exchange and research and development

PSPA Pillars

Lithium-ion battery sector

Lithium-ion battery sector

Forecast of increase in demand for batteries
(BNEF)

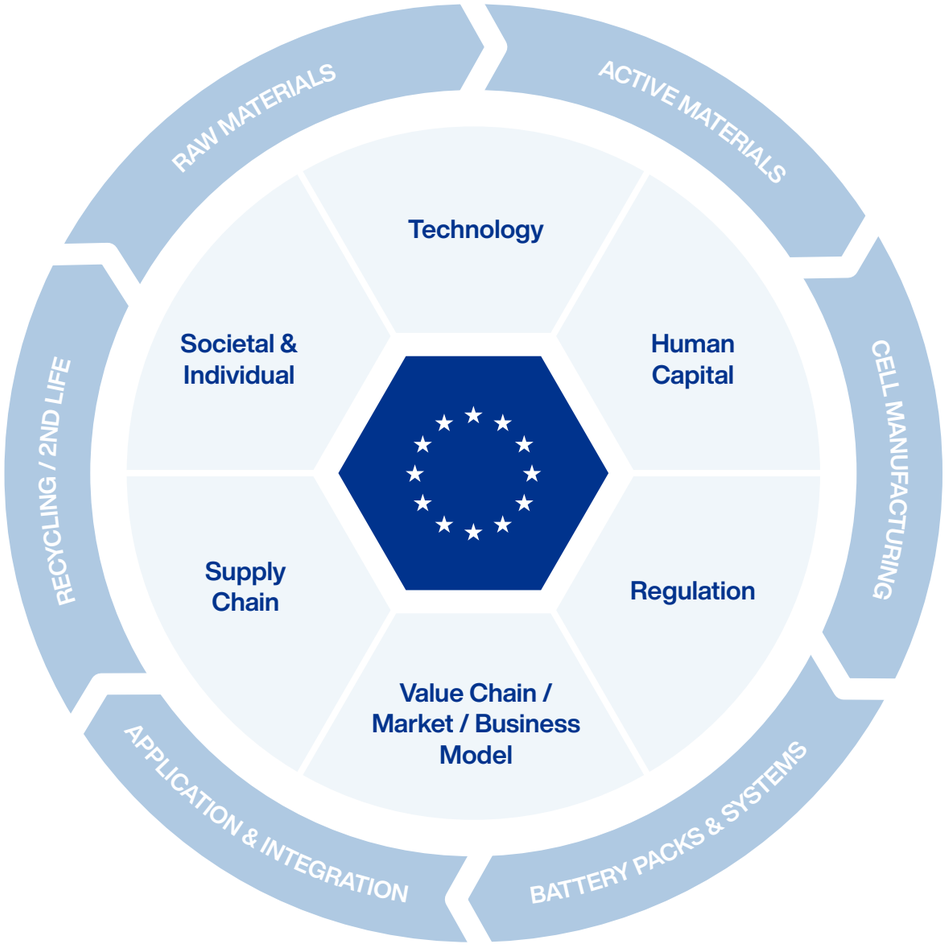


Europe focuses on shortening the supply chain and building a local sustainable battery market

- → As part of the support for the sector, the European Commission established the **Batt4EU** agreement for which it was intended **EUR 925 million** from the EU's Horizon Europe program
- → The agreement aims to support innovative investments along the entire research and development chain and market supply

The global EV battery market is expected to grow by 25.3% (according to the CAGR index) from USD 27.3 billion in 2021 to **USD 67.2 billion** by 2025

Source: Report by MarketsandMarkets™

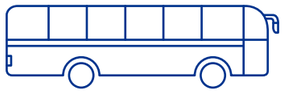


Lithium-ion battery sector

Battery market

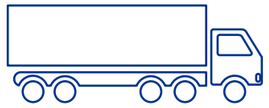
Individual transport

(passenger cars, small vans, motorcycles, bicycles, scooters)

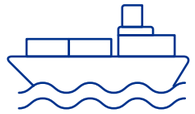


Public transport

(electric & hybrid buses, troleybuses, trains, trams)



Heavy-duty transport, mining machinery, industrial robotics



Maritime transport

Stationary Energy Storage Systems

Solutions for home

Poland in the European supply chain of the e-mobility sector

Lithum-ion battery supply chain ranking – cell & components*

Global

2020	2025
1 CHINA	1 CHINA
2 JAPAN SOUTH KOREA	2 SOUTH KOREA
3 USA	3 JAPAN
4 **POLAND**	4 USA
5 HUNGARY	5 **POLAND**

European

2020	2025
1 **POLAND**	1 **POLAND**
2 HUNGARY	2 GERMANY
3 UK GERMANY	3 SWEDEN
4 CZECH REPUBLIC	4 HUNGARY FINLAND UK
5 SWEDEN FRANCE FINLAND	5 CZECH REPUBLIC

* Source: BNEF

Poland in the European supply chain of the e-mobility sector

The largest lithium-ion cell factory in Europe

LG Energy Solution

Location	**Biskupice Podgórne**
Year of commencement	**2017**
Target employment	**10,000**
Target potential	**100 GWh per year** **1,000,000 EV per year → 60% of European demand**
Selected contractors	**Audi, BMW, Fiat, Ford, Porsche, Volkswagen**
Public financial support	**95,000,000 EUR**
Total investment value	**3.1 bln EUR**

Polish battery sector

The value of exports of the Polish battery sector

2020 ca. **EUR 2 billion**

2021 ca. **EUR 4 billion**

1.7% of the total value of Polish exports

MATERIALS AND COMPONENTS PRODUCTION

SK Innovation | Dąbrowa Górnicza
› Separators for EV lithium-ion batteries

Umicore | Nysa
› Cathodes for lithium-ion batteries

LS EV Poland | Dzierżoniów
› Electronic components for EV batteries

PCC Rokita & Shida | Brzeg Dolny
› Organic carbon for EV batteries

Guotai Huarong | Godzikowice
› Electrolyte for lithium-ion batteries

Capchem | Godzikowice
› Electrolyte for lithium-ion batteries

VOSS | Rokocin
› Metal constructions

CELL AND BATTERY PRODUCTION

LG Energy Solution | Wrocław, Biskupice Podgórne
› Battery systems

Northvolt | Gdańsk
› Battery modules

BMZ | Gliwice
› Batteries for buses, scooters and electric bicycles

Impact Clean Power Technology | Warszawa (Pruszków)
› Battery systems for electric vehicles

Wamtechnik | Piaseczno
› Battery systems for electric vehicles

Daimler | Jawor
› High voltage batteries for EV from the EQ line

ELECTRIC VEHICLES PRODUCTION

Izera | Jaworzno
› Izera electric cars

ELECTRIC BUSES PRODUCTION

Solaris Bus & Coach | Bolechowo-Osiedle (k. Poznania)
Autosan | Sanok
MAN Truck & Bus | Starachowice
Volvo | Wrocław
Scania Production | Słupsk

TECHNOLOGY CENTERS

APTIV | Kraków
BWI Group | Kraków

RECYCLING

Elemental Holding | Grodzisk Mazowiecki
SungEel Hi-Tech | Złotoryja
Wastes Service Group | Kiełczów

pspa | We drive e-mobility!

Thank you
for your attention!

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www.zerorace.pl

Slides happily shared
NCPs in other countries

How to build consortia for Horizon Europe and find the right partners?

Presented by

UK National Contact Point for Climate, Innovate UK
Nic Wallet – Nic.Wallet@iuk.ukri.org

UK Research and Innovation

HORIZON EUROPE

THE NEXT EU RESEARCH & INNOVATION PROGRAMME (2021 – 2027)

The whole is greater than the sum of the parts (misquoted)

More likely: *The System is something beside, and not the same, as its elements.*

Aristotle, "Metaphysics"

How to start building a consortium?

- What expertise is needed for the project? (Read the call topic very carefully)
- Which sectors and disciplines are needed? (Academia, researchers, industry, stakeholders, end users, public bodies, NGOs …?)
- Are there people you have worked with before or know with suitable expertise?
- What expertise is still needed? Where might you find good partners with this expertise?
- How will people/organisations be involved? Partners? Advisory groups? To feed in/disseminate to?
- Think about ‘European Added value’
- Good to have some partners/orgs. with EU/collaborative experience, especially as coordinator

- Cluster 5 2021 2022 Work Programme
- EU Commission Cluster 5 infor day (02/2022)
- BEPA 2021 SRIA

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Consortium building mechanisms

Participant portal – Every topic once published will have a ‘Partner Search’ function where you can upload your profile and review others that have done so

Brokerage events – European Commission, Enterprise Europe Network, UK’s KTN, NCPs from around Europe, Technology Platforms etc will virtual hold events with e.g., Meeting Mojo, B2B and some have other tools like partner databases (for example EEN/EDGE, Innovative Medicines Initiative)

Partner Search – under the How to Participate tab on the EU funding and tenders portal where you can search for past projects and organisations

CORDIS – a more useful way of finding past projects and participants and allows you to contact them

Searching the formal consortium building mechanisms is a bit like looking for a needle in a haystack – they all look like needles so finding the ones for you can be difficult

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What constitutes a winning consortium?

One that can **deliver** the expected outcomes within the stated scope and budget (and give the evaluators confidence that they can)

Common to see universities, big business, small business, research and technologies organisations, consultancies, local authorities, national authorities all within the one consortium. There is no ‘typical’ or ‘model’ consortium structure/membership

Useful to include exploitation partners – someone who is going to take the outputs of the project and actually implement them (e.g. an automotive/aerospace/marine/rail/etc., industry) to show immediate impact

Useful to include the end user community, possibly as an advisory board or associate partners (not direct beneficiaries but costs e.g. travel can be included in ‘other costs’), again to demonstrate route to implementation

Destination 2 description

- The transition to climate-neutral economies and societies by 2050 is the defining challenge of this century. The challenge is **not just technical**: it calls for wide-ranging **societal transformations** and the adaptation of lifestyles and behaviours.
- Engaging citizens and stakeholders is therefore critical for the success of the European Green Deal, as is making greater recourse to the Social **Sciences and Humanities (SSH),** alongside the Scientific, Technical, Engineering and Mathematical (STEM) disciplines.
- The main expected impacts to be generated by topics targeting citizen and stakeholder engagement under this Destination are:
  - A better understanding of the **societal implications** of the climate transition, including its distributional repercussions;
  - More effective **policy interventions**, co-created with target constituencies and building on **high-quality policy advice**;
  - Greater societal support for transition policies and programs, based on **greater and more consequential involvement of those most affected**.

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Key Strategic Orientations (KSO)

- *C: Making Europe the first digitally enabled circular, climate-neutral and sustainable economy through the transformation of its mobility, energy, construction and production systems;*
- *A: Promoting an open strategic autonomy by leading the development of key digital, enabling and emerging technologies, sectors and value chains to accelerate and steer the digital and green transitions through human-centred technologies and innovations;*
- *D: Creating a more resilient, inclusive and democratic European society, prepared and responsive to threats and disasters, addressing inequalities and providing high-quality health care, and empowering all citizens to act in the green and digital transitions.*

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The whole is greater than the sum of the parts
(misquoted)

More likely: *The System is something beside, and not the same, as its elements.*

Aristotle, “Metaphysics”

Implementation score think:

1. What the Consortium brings? Inter-disciplinary knowledge/skills, access to key infrastructure/assets
2. How each complement each other and what are the roles of each? Is it logical, explained, adequate resource?
3. What link to exploitation? Industrial/Commercial, access to market etc.

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Hints and Tips – Building a consortium

Questions to think about:

- Who has the best expertise/reputation?
- Who should you approach to be part of a consortium?

Not everyone has to have the same size role

Don’t include partners because you think it will look good or to pad the proposal out - each partner should have a clear and defined purpose.

Have a good balance of countries – more than ~30% if the budget going to one country might be of concern to the evaluators

Evaluation Reports - Examples

- “The multidisciplinary team is very relevant to carry out the project”
- “The consortium as a whole offers a very good complementarity, interdisciplinarity as well as cross-sectoral involvement. All of the necessary expertise is provided within the consortium, with core partners having top level expertise in their field”

- “…the use of stakeholder knowledge is not clearly explained”
- “Dissemination is presented very generally and does not provide enough details that would link specific dissemination methods to specific project results and partners”
- “Socioeconomic impacts are not sufficiently described”
- “The process for dealing with the IP and commercialisation is not sufficiently detailed”
- “The consortium as a whole does not convincingly bring together the necessary expertise.”
- “Allocation of tasks to individual participants is not clear due to very limited explanations of the work within work packages.”

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Eligibility criteria

There are several types of eligibility, and it does get confusing:

- Eligibility to be part of a consortium/project
- Eligibility to receive funding as part of a consortium/project
- Eligibility to be one of the minimum number of participants necessary in a consortium/project

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Eligibility criteria explained

Stated in the General Annexes

- **Any legal entity**, regardless of its place of establishment, including legal entities from non-associated third countries or **international organisations** (including international European research organisations) is eligible to participate (whether it is eligible for funding or not) *although exceptions may apply in specific topics so check the text*
- To be **eligible for European Commission funding**, applicants must be established in one of the eligible countries, i.e.:
  - Member States of the European Union, including their outermost regions;
  - Overseas Countries and Territories (OCTs) linked to the Member States
  - Eligible non-EU countries:
    - Countries associated to Horizon Europe
    - Low- and middle-income countries if country listed in the Horizon Europe Programme Guide
  - Legal entities which are established in countries not listed above will be eligible for funding if provided for in the specific call conditions, or if their participation is considered essential for implementing the action by the granting authority
- **Consortium Composition (RIAs and IAs)**:
  - At least one independent legal entity established in a Member State; and
  - At least two other independent legal entities, each established in different Member States or Associated Countries

Associate Countries

- The UK has agreed to Associate to Horizon Europe – Association gives UK organisations access to funding under the programme on equivalent terms as organisations in EU countries
- Specific agreements vary but, in general, associate countries contribute additional funds to the Horizon Europe Budget in direct proportion of their GDP to that of the EU.
  - For example, UK's GDP is 16% of that of the EU, therefore UK will be contributing an additional 16% to the Horizon Europe budget
- Countries that associated to Horizon 2020, and are expected to associate to Horizon Europe:
  - Albania
  - Armenia
  - Bosnia and Herzegovina
  - Faroe Islands
  - Georgia
  - Iceland
  - Israel
  - Republic of North Macedonia
  - Republic of Moldova
  - Montenegro
  - Norway
  - Serbia
  - Switzerland
  - Tunisia
  - Turkey
  - Ukraine
- Countries considering association include Canada, Japan, Australia and others

International Participation

'International participation' = by countries which are not EU Member States or Associated Countries

Some topics may state international participation is essential

Some topics state international collaboration is advised, e.g.

> "International cooperation with partners from countries in the EU's neighbourhood is strongly encouraged"
> "International cooperation with partners from third countries of interest is encouraged in order to better achieve the expected outcomes"

Most countries around the world have Horizon Europe National Contact Points – find their details here

The Commission also funds the participation of legal entities from **Low and Middle Income Countries (LMICs)** if the country is listed in the Horizon Europe Programme Guide (This Programme Guide is not yet available, but should be soon)

For **higher income countries outside of Europe** (which are not associated countries):

- there are often national contact points who will be able to advise if any local funding is available to enable them to participate. Sometimes the local funding is available to allow their researchers to participate in all calls, sometimes just for specific call topics, and sometimes funding is not available locally.
- for the previous programme, Horizon 2020 the European Commission has published some "country page" specific guidance (e.g. Brazil, India and China) with info and contacts. These documents are not yet available for Horizon Europe.

The gender dimension

Eligibility: Gender Equality Plan (applicable from 2022 onwards)
Participants that are public bodies, research organisations or higher education institutions established in a Member State or Associated Country must have a gender equality plan in place, fulfilling mandatory process-related requirements

Award Criteria: Integration of the gender dimension
Addressing the gender dimension in research and innovation content entails taking into account sex and gender in the whole research & innovation process

Ranking Criteria (for tied scores): Gender balance
Third criteria - Gender balance among personnel named in the proposal who will be primarily responsible for carrying out the research and/or innovation activities, and who are included in the researchers table in the proposal

UK Research and Innovation

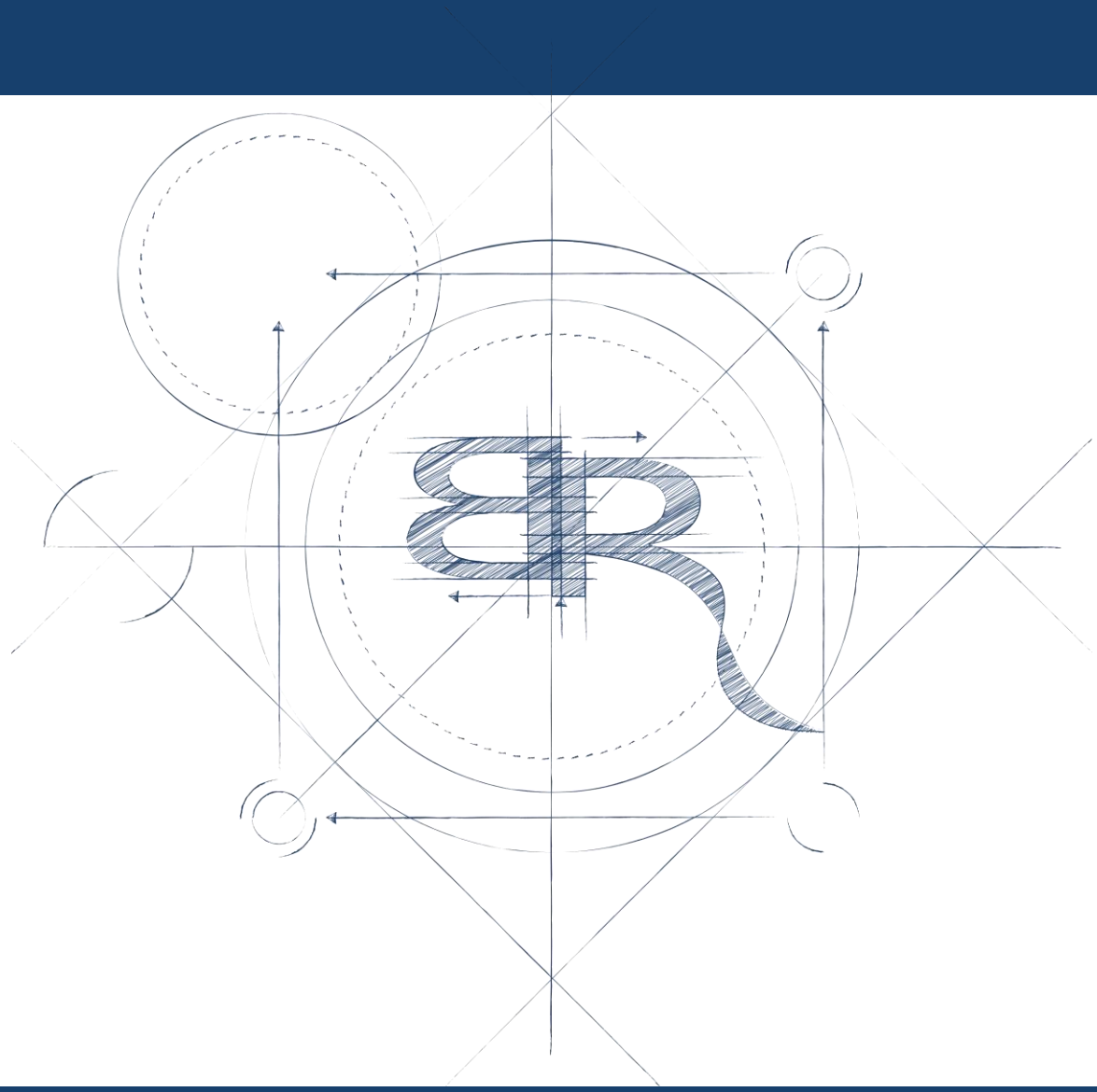
The National Centre
for Research and Development

Horizon Europe
National Contact Points

Horizon Europe Batteries Consortium Building Event |
08.03.2022 r.

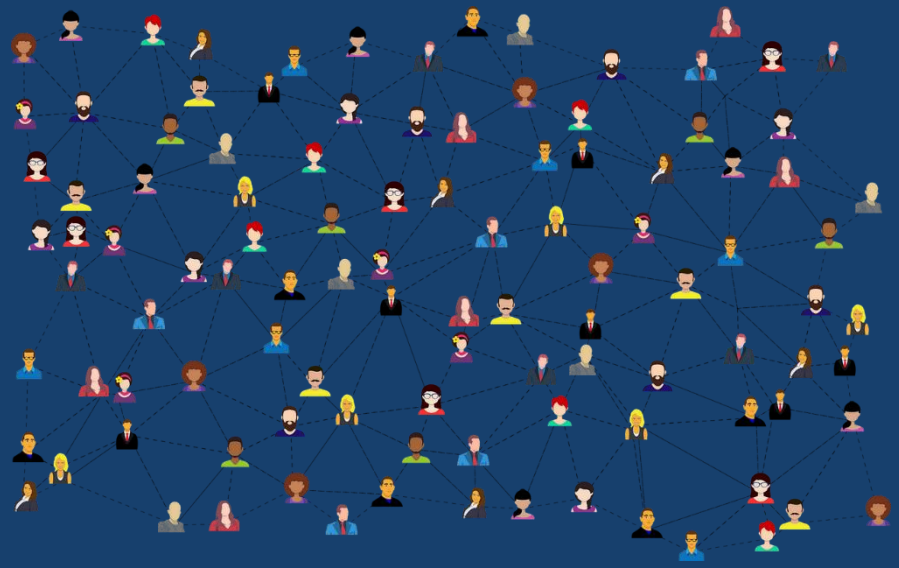
Who are we?

- **executive agency** of the Ministry of Education and Science
- brings together **the world of science and business through co-finnacing of R&D projects**
- Financial support for innovative ideas of entrepreneurs and scientists
- carries out **tasks facilitating Poland's social and economic growth** and seeks solutions to specific civilisational issues
- **Intermediate Institution** in the Operational Programmes: Smart Growth and Knowledge Education Development



Who are Horizon Europe National Points ?

Individual(s) officially nominated by the national authority to perform one or more of the NCP functions in line with the common structure.



What is Horizon Europe National Points` mission ?

As highly professional support services, NCPs operating nationally form an essential component of Horizon Europe implementation.

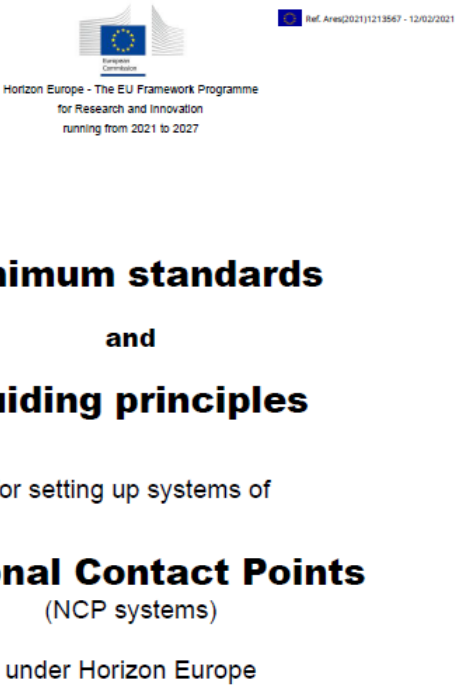
Key role:

- **delivering the programme's objectives and impacts,**
- **ensuring that it becomes known and readily accessible to all potential applicants.**

What do NCPs do?

They provide information and on-the ground advice to potential applicants and beneficiaries, through the project life cycle, in their own language:

- **Informing and awareness raising;**
- **Assisting, advising and training**
- **Signposting and cooperation**

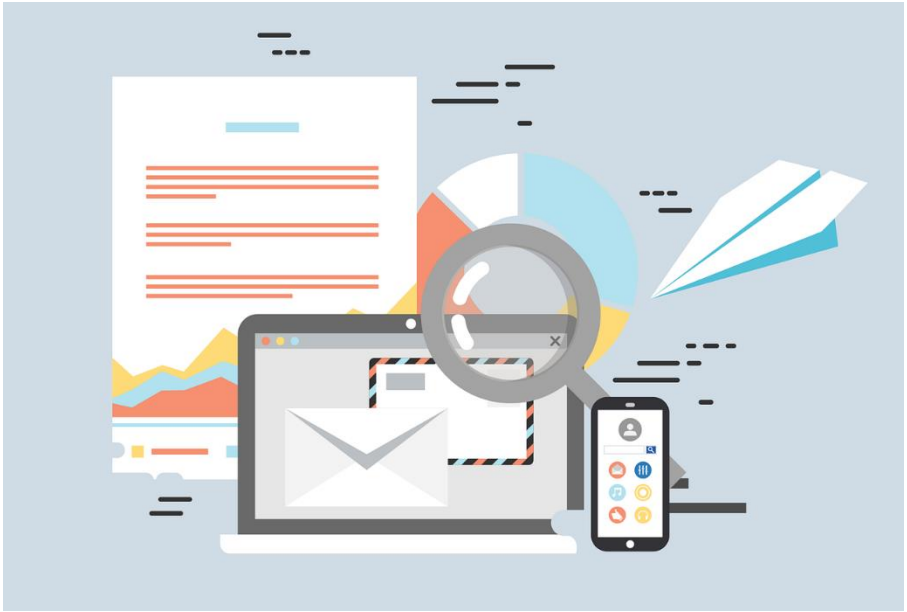


Informing and awareness rising

- **Circulate general and specific documentation on the Horizon Europe,** including on conditions for participation, on possibilities and conditions for submission of proposals, and on project budgeting and reporting.

- **Organise information and promotional activities** – in liaison with the Commission services when appropriate **- e.g. info-days, seminars, conferences, newsletters, web sites, brokerage events, fairs, etc.**

- **Raise awareness Horizon Europe funding opportunities** offered through the pillars of the programme and the specific parts such as **Clusters, Missions, Partnerships, and EIT KICs, European Innovation Council in Horizon Europe, etc.**



Assisting, advising and training

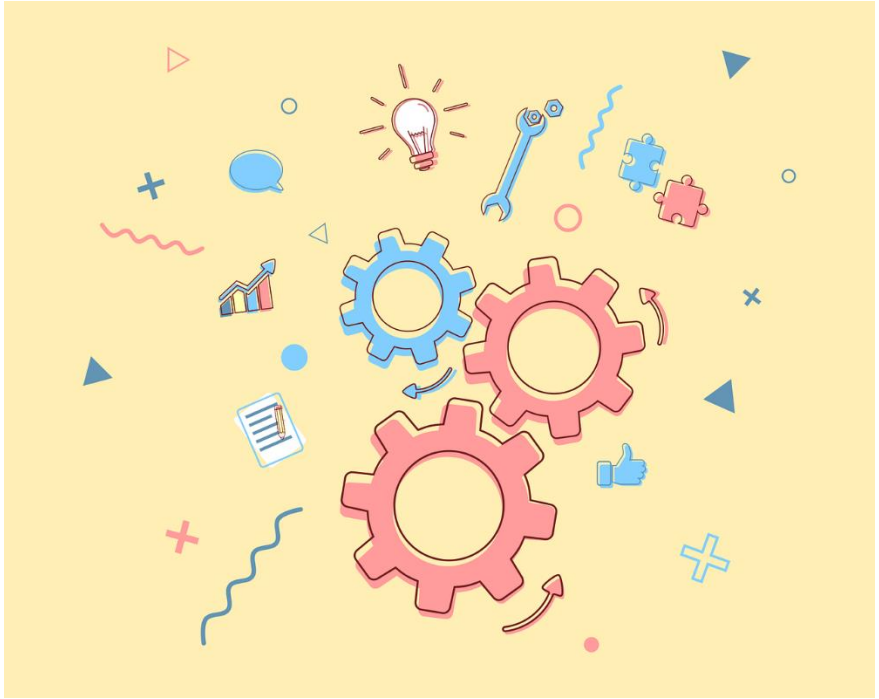
- **Assist researchers and organisations,** in particular new actors and SMEs, with a view to increasing and improving their participation in Horizon Europe,
- **Assist in partner search activities,**
- **Advise on administrative procedures, rules and issues.,**
- **Advise participants**, in particular smaller organisations and SMEs, on the setting up of **appropriate management and legal structures** in projects with large budgets or numerous participants,
- **Explain the scope and the modalities** of types of action foreseen in Horizon Europe,
- **Organise courses and training sessions** (both physical and virtual) on Horizon Europe.

Signposting and cooperation

- **Signpost to other business support network services those potential participants who require assistance,** for example on general EU matters or matters relating to internal market, technology transfer, intellectual property rights (IPR), standardization bodies, or regional development.

- **Signpost to national/regional funding services and programmes and to Missions, European Partnerships** and programme level collaboration among research funders**.**

- **Strengthen cooperation between NCPs** within the network by promoting joint activities.



YOUR NATIONAL CONTACT POINT'S SUPPORT

- InfoDays, training seminars and workshops
- Individual project advice
- Consultations and pre-screening of proposals
- Legal and financial issues support
- Partner search (including brokerage events)
- Support of foreign scientists visiting in Poland

Krajowy Punkt Kontaktowy
PROGRAMÓW BADAWCZYCH UE

Our services are free of charge!

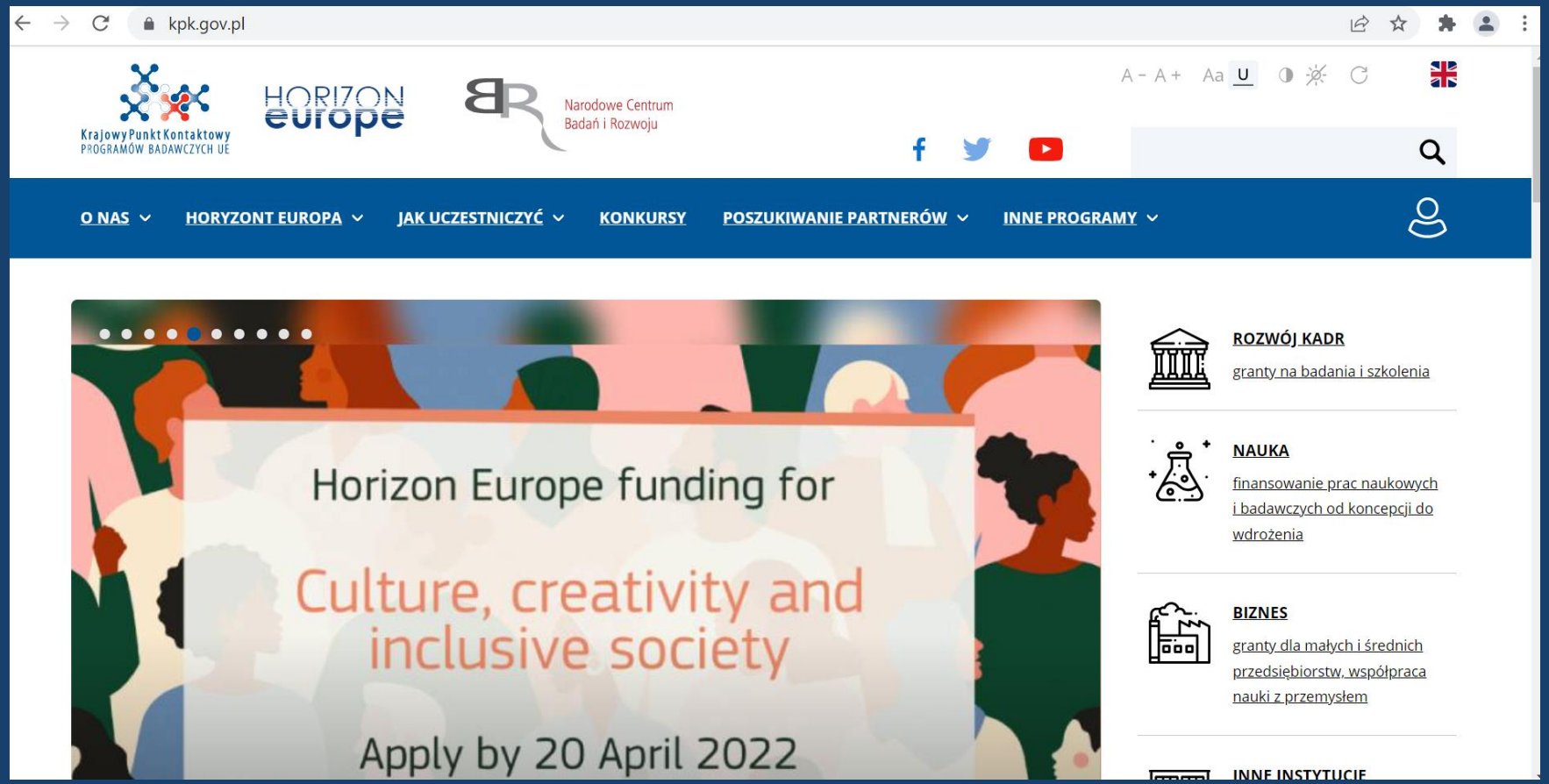
Krajowy Punkt Kontaktowy

↓

Sieć 6 Horyzontalnych Punktów Kontaktowych

- **Polska północna:** województwo pomorskie, kujawsko-pomorskie, warmińsko-mazurskie,
- **Polska zachodnia**: województwo wielkopolskie, lubuskie, zachodnio-pomorskie,
- **Polska południowo-zachodnia:** województwo opolskie, śląskie, dolnośląskie,
- **Polska południowo-wschodnia:** województwo małopolskie, podkarpackie, świętokrzyskie,
- **Polska wschodnia**: województwo lubelskie, podlaskie,
- **Polska centralna:** województwo łódzkie, mazowieckie (bez m.st. Warszawy)

Our website



http://www.kpk.gov.pl

Narodowe Centrum
Badań i Rozwoju

How can I help you?

Magdalena Glogowska |
magdalena.glogowska@ncbr.gov.pl

How to build a strong EU proposal?

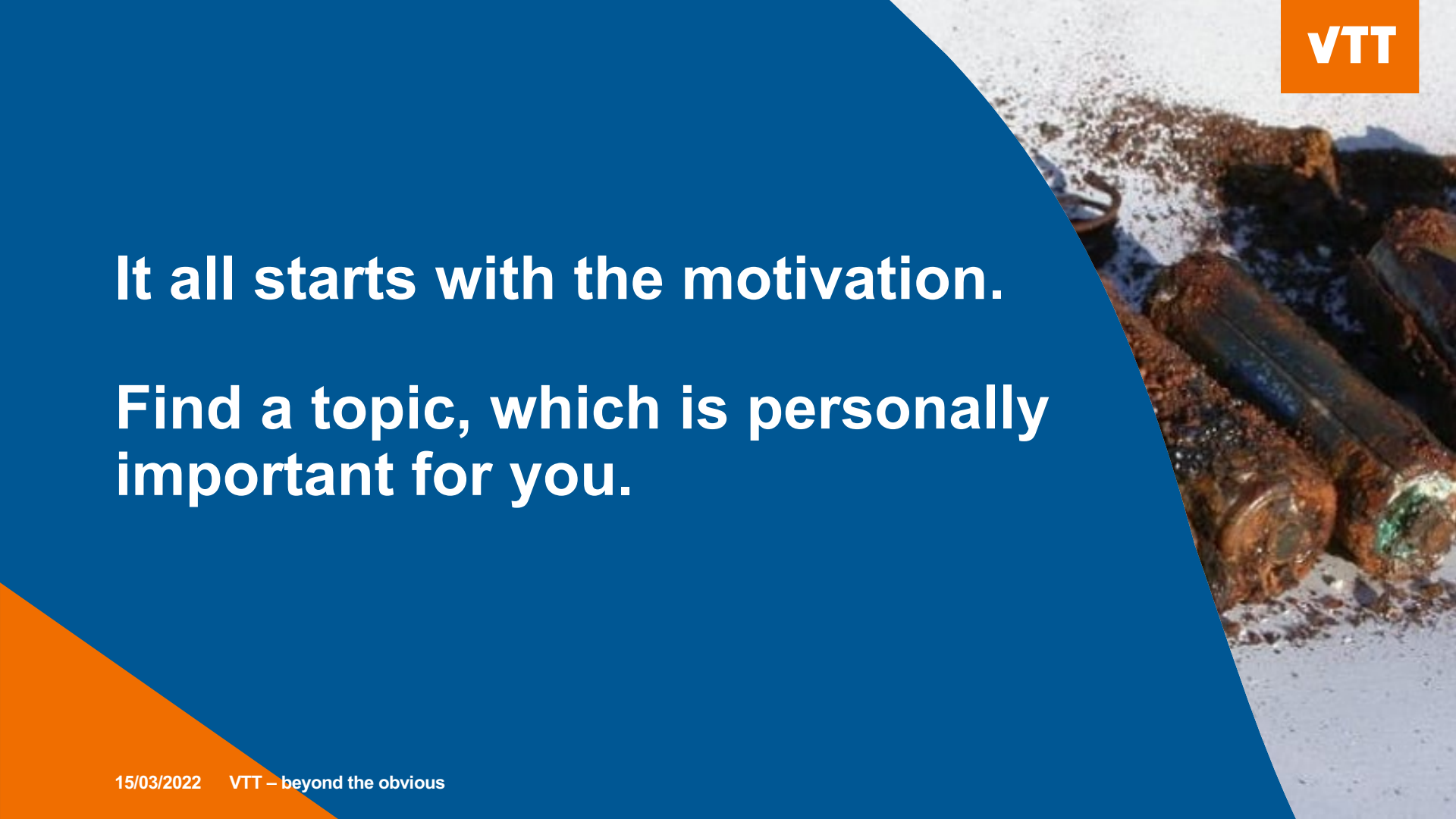
Even if you are a newcomer in the specific research field

Marja Vilkman, VTT

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 957202.

VTT

H2020 HIDDEN project as a case example



It all starts with the motivation.

Find a topic, which is personally important for you.

Start building the idea first – not yet the consortium

Webinars, conferences, literature, discussions…

Start early! Reserve several (> 6) months for the process.

What are the biggest challenges in the field?

How they have been solved so far? What is missing?

Where do I want to focus on?

- Which battery chemistry, or part of the battery value chain, is interesting to me?

What can I (and my organization) already do?

Consortium building

- What is my initial idea for the call? It does not need to be perfect.
- Discuss with people outside and inside your organization: Is this doable, needed, novel, in line with the call text?
- What is the value chain?
- Who/what expertise I need to help me?
- Find people who know more about the topic than you. And start to ask questions.

- Networking events are very useful!

HIDDEN

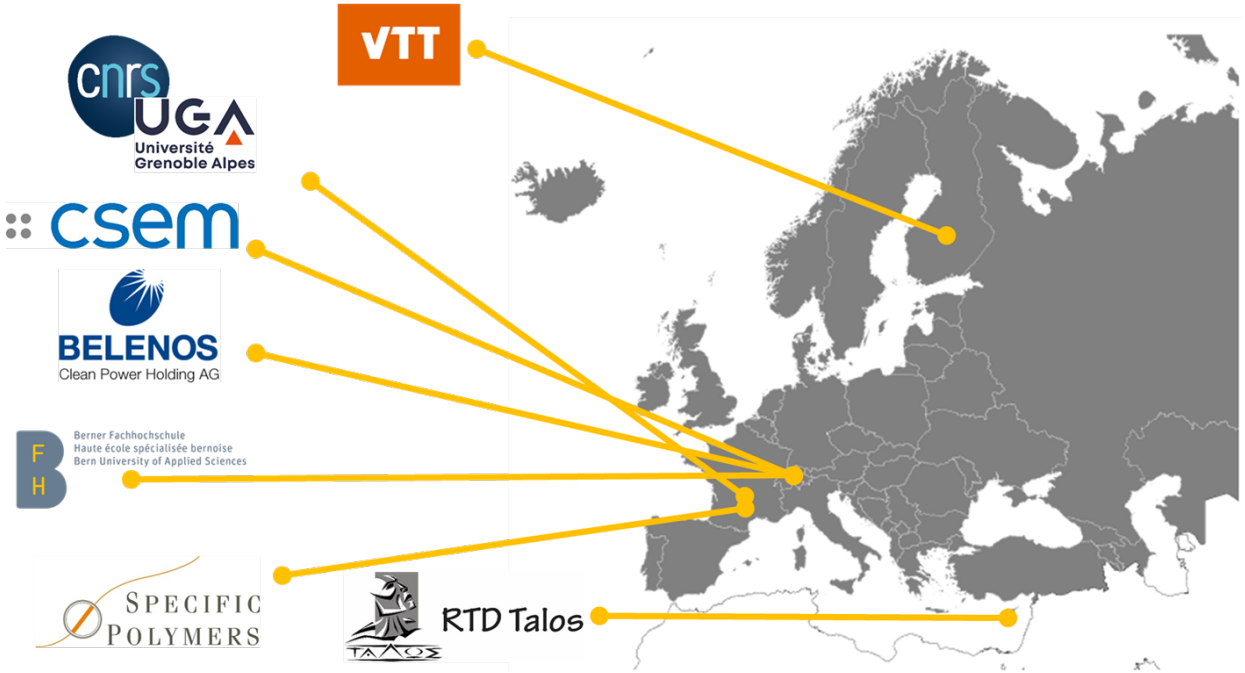
LC-BAT-14

The HIDDEN story

BATTERY 2030+

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 957202.

The HIDDEN consortium



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 957202.

The HIDDEN objectives
Hindering dendrite growth in Li metal batteries

- Preventing dendrite growth in Lithium Metal Batteries with the help of three self-healing methods: TILC (*i.e.* thermotropic ionic liquid crystals), piezoelectric separators, and protecting additives.
- Demonstrating on-demand repeatable self-healing functionalities, which are controlled by the BMS and supported by analysis and modelling tools.
- Creating an industrial process for the self-healing batteries

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 957202.

How HIDDEN started?

Discussions between CNRS & VTT

- Initial idea!

HTA brokerage event

- Found CSEM to join the consortium

LinkedIn

- Found Specific Polymers to up-scale the synthesis

Battery 2030+ seminar in Brussels

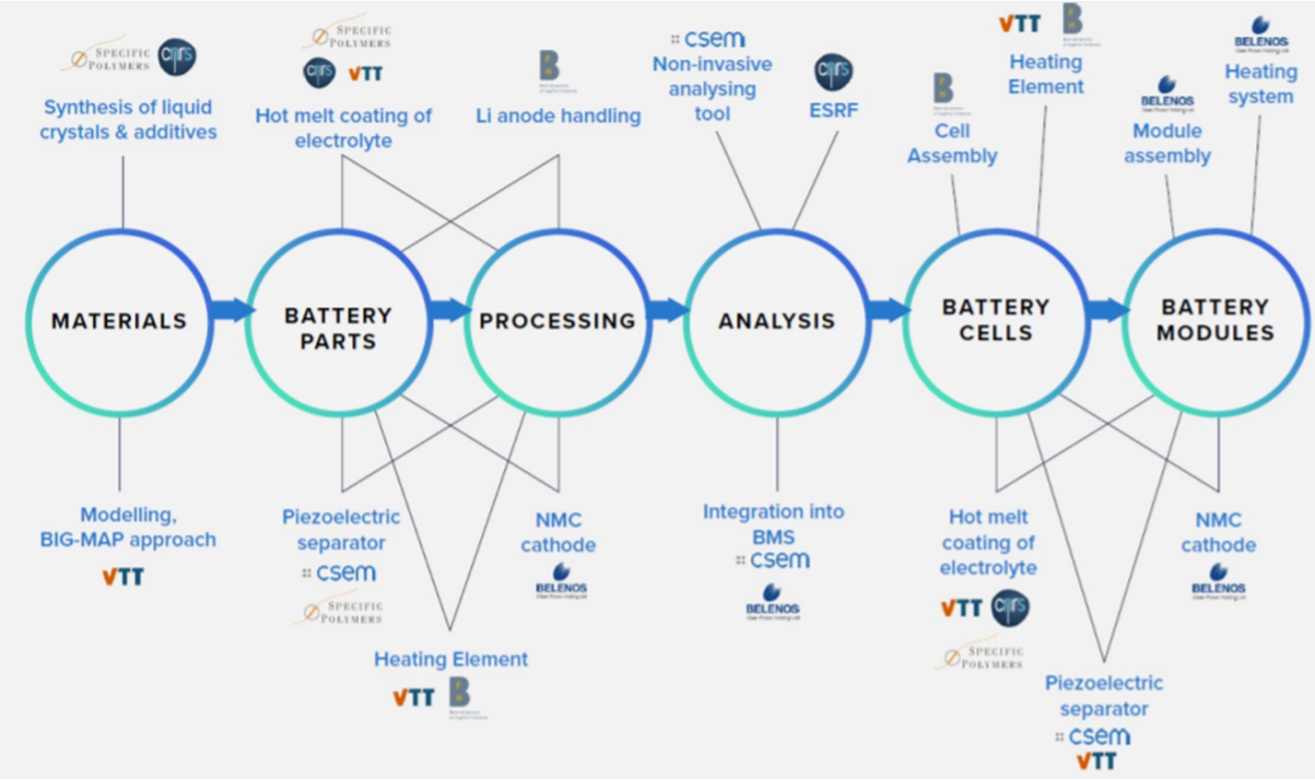
- Understanding the call text

+ other partners (BFH, Belenos, Talos) found by contacting them directly – when we knew exactly what we needed to complete the value chain.

Note: I also got a “no” from some partners I contacted → You need time!

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 957202.

The HIDDEN value chain



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 957202.

VTT

If you are excited about the topic, it is much easier to create a winning proposal

“Joy is the essence of success” (Source: Yogi tea bag ☺)

HIDDEN

Thank you for your attention

https://www.linkedin.com/showcase/hidden-project/

@HIDDENProjectEU
@MarjaVilkman

https://hidden-project.eu/