



The European Battery Alliance

A European Success Story

24th June 2021

Agenda

1. About European Battery Alliance. Harvest since October 2017
2. Still, work to do and gaps to fill: How to go about them?
3. The merit of building a Japan Battery Alliance?

A successful European story so far with even brighter future

European Battery Alliance – Launched October 2017

An “out of the box” approach

2



**EUROPEAN
BATTERY
ALLIANCE**

EBA250

This “fit for purpose” cooperative ecosystem gathers some 500+ stakeholders [key industrial, innovation and academia stakeholders, investors, the European Commission and interested EU countries]

EIT InnoEnergy has been trusted by the European Commission to drive forward and promote EBA250 activities, acting as an ecosystem manager and project enabler



Impact



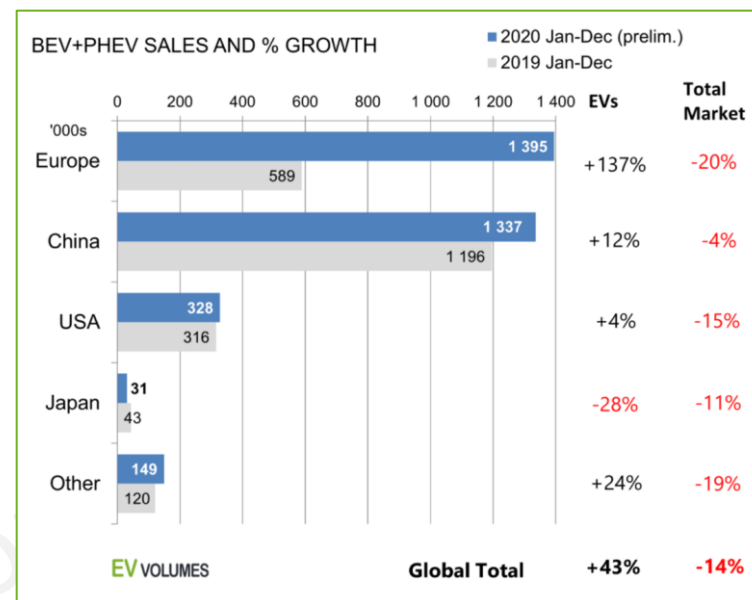
3-4M jobs

EBA results since October 2017 (1/5)

Market and business facts: overtaking China

3

Europe sold more eVs than China in 2020, with a 137% growth

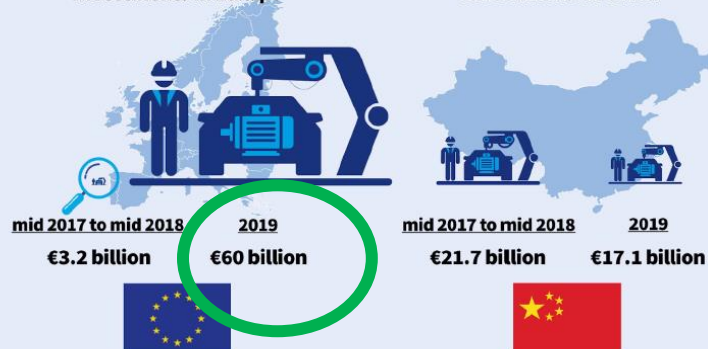


E-mobility investments by EU carmakers and others in Europe are 3.5 times higher than in China

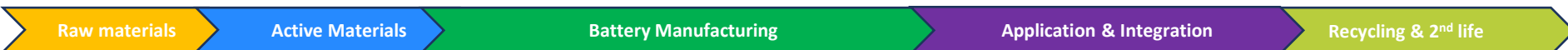
Europe is closing the investment gap with China compared to 2017/18

Investments in Europe

Investments in China



Europe captured 3,5 times more investment than China in 2019 & 2020*



AUSTRIA - Raw materials: EUROPEAN LITHIUM (lithium) - Application & Integration: MAGNA STEYR (E-mobility), CYBERGRID (ESS)	ITALY - Battery Production: FAAM/LITHOPS - Application & Integration: ENEL (ESS)
BELGIUM - Active Materials: UMICORE, LEYDEN-JAR - Recycling: UMIICORE	NETHERLANDS - Active Materials: LEYDEN-JAR
CROATIA - Application & Integration: RIMAC (e-mobility)	POLAND - Active materials: UMICORE - Battery manufacturing: LG CHEM
CZECH REPUBLIC - Raw materials: CINOVEC (lithium), EURO MANGANESE (manganese) - Battery Production: MES	PORTUGAL - Raw materials: SAVANNAH (lithium)
DENMARK - Application & Integration: DTU (ESS), LITHIUM Balance (BMS)	ROMANIA - Application & Integration: ROMBAT
ESTONIA - Battery Manufacturing: SKELETON (supercaps)	SLOVAKIA - Battery Production: INOBAT, SK Innovation
FINLAND - Raw Materials: KELIBER (lithium) - Active materials: BASF - Recycling: Fortum/BASF/NORNICKEL	SPAIN - Raw Materials: Infinity, LITHIUM IBERIA (lithium)
FRANCE - Battery Production: ACC, VERKOR - Recycling: SNAM/HONDA	SWEDEN - Raw Materials: TALGA, VOXNA (graphite) - Active Materials/Battery manufacturing/Recycling: NORTHVOLT - Applications: EPIROC (Industrial), SEEL (IPCEI)
GERMANY - Raw Materials: VULCAN (lithium) - Active Materials: BASF - Battery manufacturing: ACC, NORTHVOLT/VW, TESLA, CATL, VARTA, BMW, CELLFORCE, AKSAOL, MICROVAST, FARASIS - Recycling: VW, PROMOBIOUS	NORWAY - Active Materials: SKALAND and ELKEM (graphite anodes) - Battery manufacturing: MORROW and FREYR
HUNGARY - Battery Production: SAMSUNG, SKI Innovation	SERBIA - Raw materials: RIO TINTO, NEOMETALS (lithium)
IRELAND - Raw materials: INTERNATIONAL LITHIUM (lithium)	UK - Raw Materials: Cornish Lithium - Battery Manufacturing: ENVISION, BRITISHVOLT



70 Industrial projects all across Europe, creating jobs and growth

EBA results since October 2017 (3/5)

The means: A “Fit for purpose” ecosystem built from scratch

5



InnoEnergy
Knowledge Innovation Community

EU IT InnoEnergy is supported by the EIT, a body of the European Union

600+ stakeholders, capturing a common goal



250B€



Impact



3-4M jobs

Raw materials

Active Materials

Battery Manufacturing

Machinery

Cells

Packs

Systems

Application

E-mobility

Ind. applications

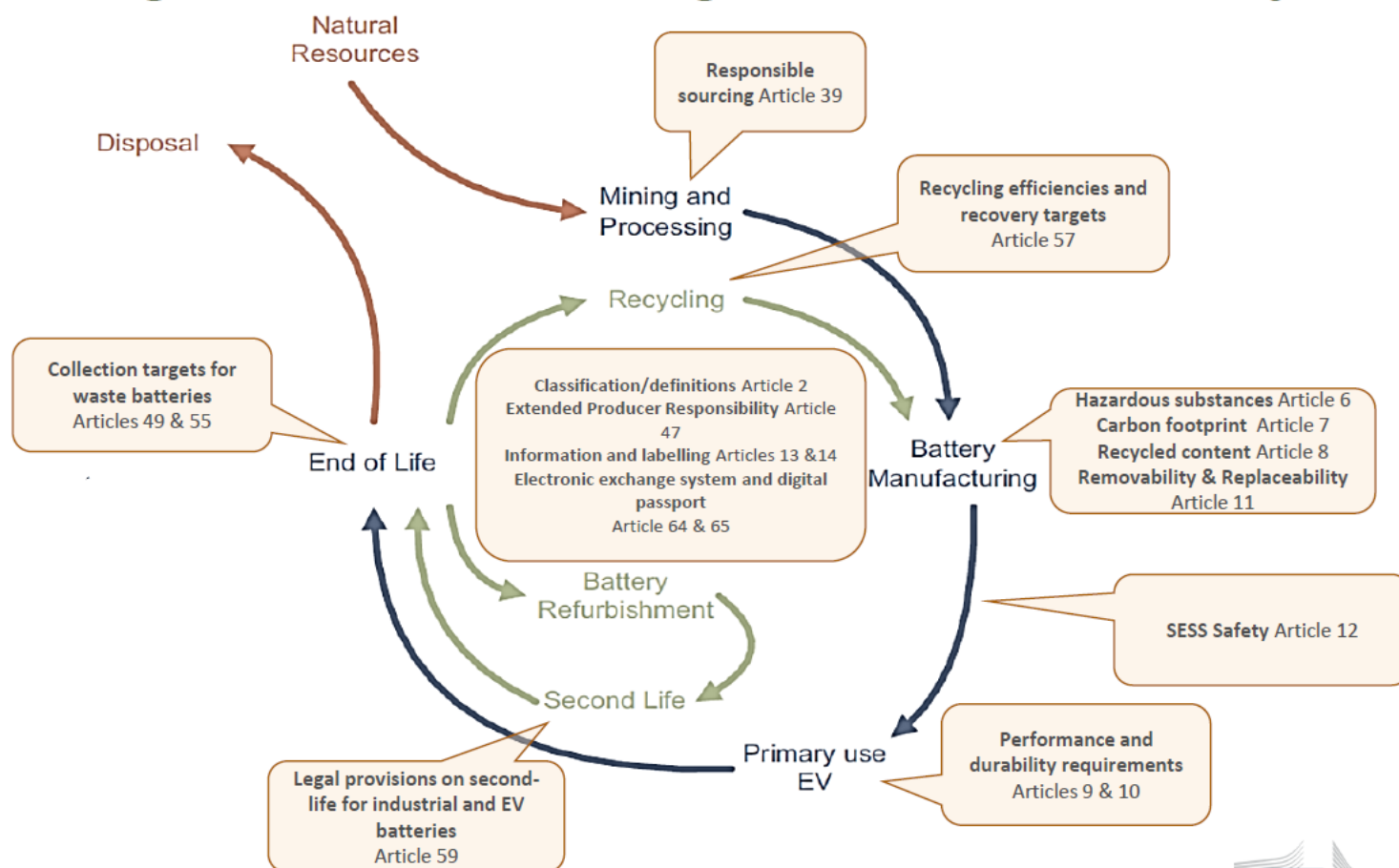
ESS

Recycling & 2nd life

EIT Raw Materials Finnish Minerals Group Fin. Network for Sust. Mining European Lithium Magnis/Allocate Prince Erachem Aura Energy Outotec Cobalt Institute Copperalliance Keliber Albemarle EUROMINES Trafigura Rio Tinto GTK Crisolteq Aurubis	Leading Edge Materials European Metals Holdings European Copper Institute Gov. of Western Australia Fennoscandian Resources Infinity Lithium Eramet DERA Boliden Cobalt FLSmidth KGHM	Nanomakers 3M Elkem Umicore Imerys Graphite & Carbon Solvay LOTOS BASF Arkema SGS Group Heraeus Nanomakers Wacker Chemie OXIS Energy Phillips 66 Evonik Tribotec Höganäs RGS Development	Nawa Technologies Grupa Azoty EMIRI Ganomat Leyden-Jar	Saft KLIB Northvolt LION Smart LION E-Mobility CustomCells EAS Batteries Terra E Lithops Leclanché Liacon Electrovaya Litarion Varta Hoppecke Envites Energy BELENOS Forsee Power MES Innolith	Akasol Tata Steel Plating EM Micro-electronics HE3DA EV Battery Akkurate Delfort Videoton EoCell Inc CAEC Cleantron Skeleton Clean Power Technology Passion Motorbike Renata Batteries Dassault Systems Blue Solutions Freyr	Freudenberg Manz MW group Thyssen Krupp PEC FAAM FIB srl MG Energy Honeywell ABB Coperion NXP Semiconductors Vaisala CEGASA Tungstam Gestamp Swatch Group BMZ Schäffer AG	Sonnen ElringKlinger PSA Groupe Renault SA Daimler AG NISSAN Automotive Einride Jaguar Landrover TESLA Ford VolvoCars Volvo Continental AG Bosch Siemens Stihl Honda R&D Europe Danfoss	CNH Industrial Volkswagen VESTAS RIMAC FCA - EMEA FIAT Centro Ricerche FIAT AmbiBox Innogy Red Electrica cyberGRID Albufera Energy Stor Streetscooter PKN ORLEN AMPS Power Fortum Nordex TOYOTA Tsusho EU	BMW Epiroc Portliner Ampere Energy Cargotec Cummins Rafako ENEL TERNA EDF ENEDIS Total Vattenfall EDP Inovacao OIG CAF Alpiq FPT Powertrain Tech	Veolia Suez Revatech EBRA RECHARGE Stena metall Stena Recycling International AkkuSer Interseroh Bee Planet ARN envirobat Umicore
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Research and associations active in large parts of the value chain	Fraunhofer	CEA	SINTEF	AIT	VITO	ENEA	AVL ITALIA	CNR	ANIE	Politecnico Milano	CATCH	ECOS
	Inst. Chem. Slovenia	Innovate UK	Faraday Inst	Uppsala Univ	VUB	CEPS	UTBM		INST. ITALIANO	CIDETEC	SFEM Storg Federchimic	Not innovated here
	Munster Uni	CIC	TU Braunschweig	Aalto Univ	ERRIN	EASE	EUROBAT		EUCAR	EGVIA	Istituto Tec Energia	
	smartEN	DNV GL	TUV SUD	AVL	RISE	ifu	CEFC		VDE	CEN/GENELEC		
	MCI	Valuad	AVERE	ADS	BVES	A3PS	Zabala		AMMA	TNO	ACEA	VG-Colab
	DENA	GART	Business Finland	VASEK	GigaVaasa	Amiens	Invest in Lithuania		RVO	RSE	CLEPA	CEEP
Financial Institutions involved in EBA	EIB	BPI	DEMETER	LB	BNP Paribas	ING	Total VC					
	EBRD	Société Générale	Equinor	Lazard	Credit Agricole	HSBC	Macquarie					
	PFR	KFW	LBBW	San Paolo Intesa	Goldman	DZ Bank						

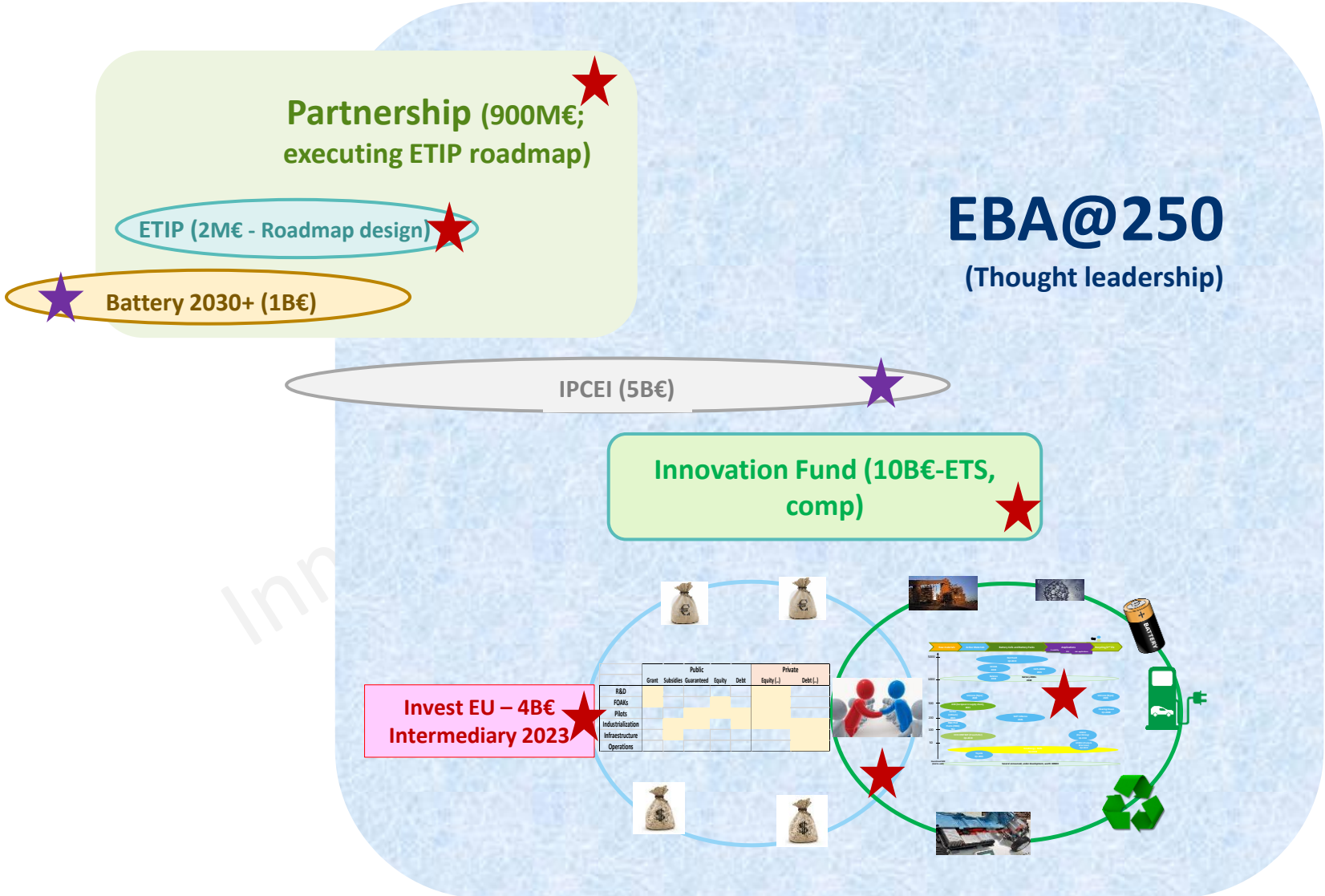
EBA: Institutions from most European countries, acting together, with an ambitious goal, lead from “Brussels”



**Traceability, sustainability, circularity and ambitious
Europe setting the reference ww for the battery supply chain**

EBA results since October 2017 (5/5)

Deploying public instruments, unlocking private capital

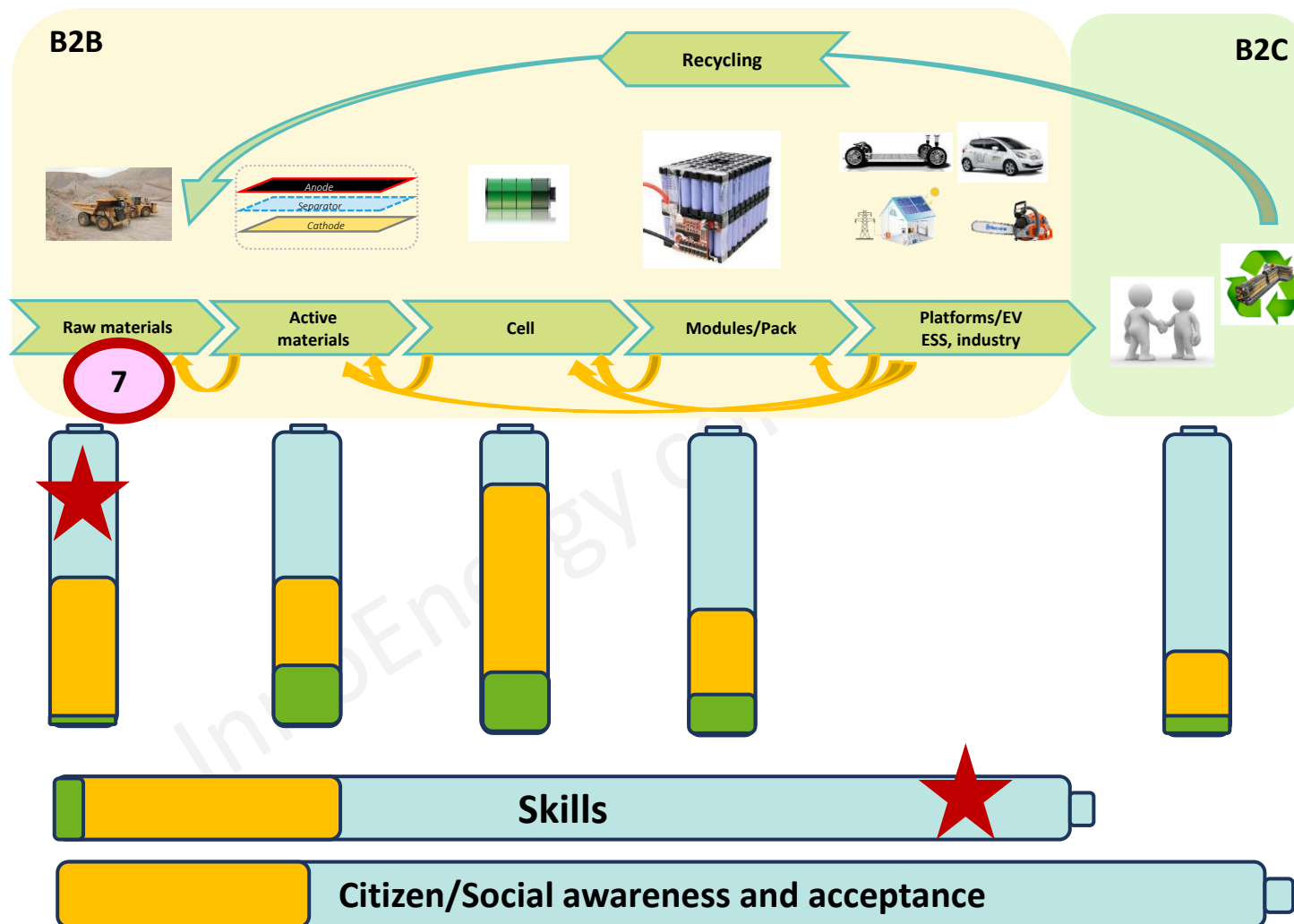


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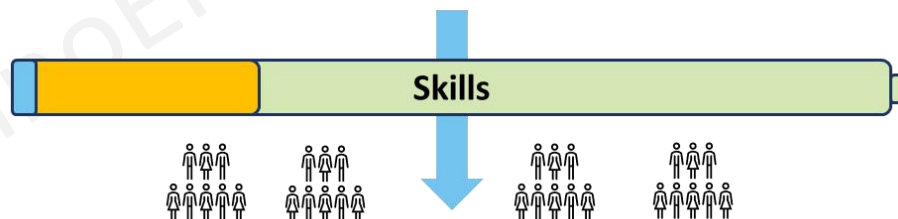
Gap between **existing + committed** and **needed capacity** (for 2025)



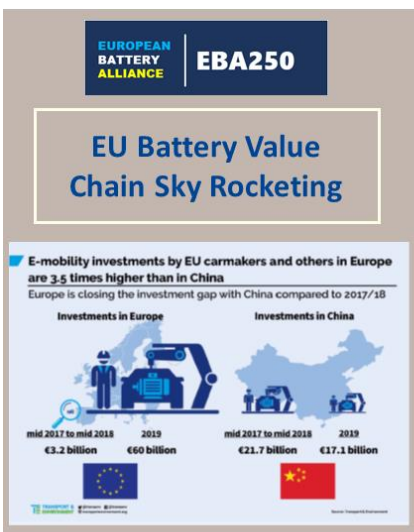
Resilience building up, yet more speed needed

Training 800.000 workers by 2025

EBA Battery Academy
Launched March 2021



800.000 trained by 2025, 160.000 per year
Average cost/worker=1.000€

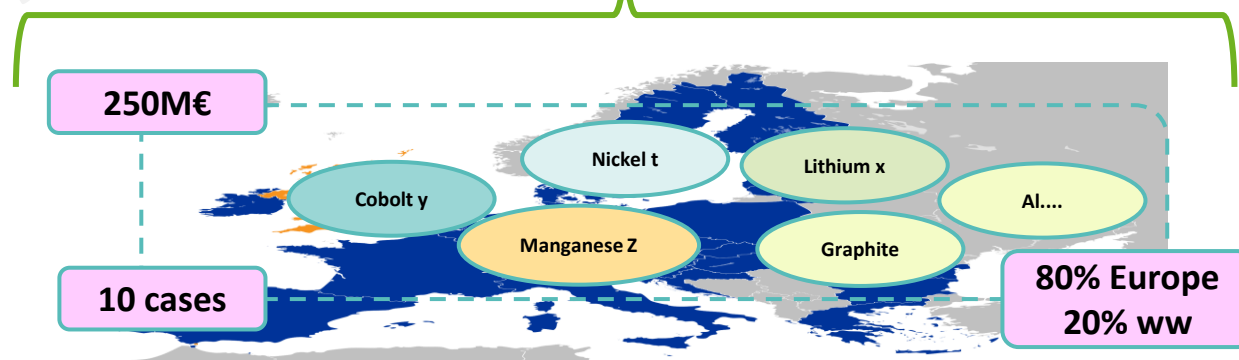
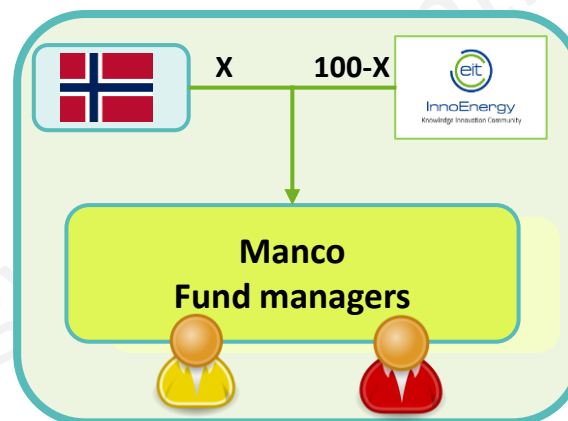


Still work to do and gaps to fill (3/3)

Securing resilience in Raw materials: EBA Green Fund by InnoEnergy 11




EBA Green Fund
Planned live Summer 21
Accelerating scoping, PFS,
DFS



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Accelerate Japanese end to end battery value chain?

Create a **new** additional **Japan GDP worth 300B\$ by 2026** (A new Kanagawa)

Create **new 4-5Millions new jobs** linked to the battery value chain

Secure **resilient supply chains, also in raw materials**

Developing a “**fit for purpose**” regulatory framework

joining forces in the worldwide scenario

and all this in

shorter time (compared to going solo)

by using the **lessons learnt, methodology and outputs from EBA**

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