



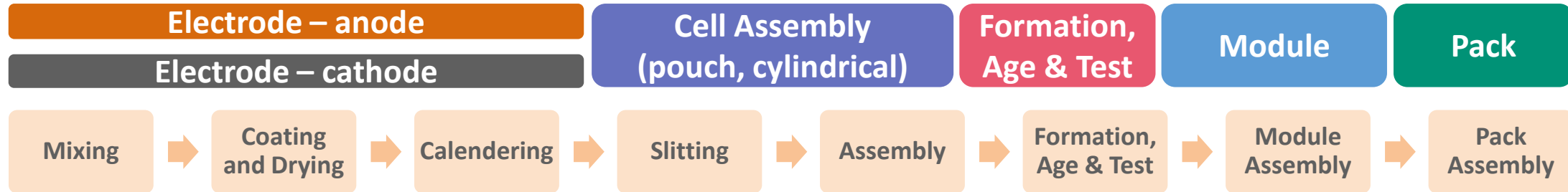
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Driving Growth In Battery Manufacturing

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3rd September 2025

UK Battery Industrialisation Centre (UKBIC)



- UK manufacturing research facility based in the Midlands
- Open to organisations looking to scale technology
- Access Giga-scale equipment to de-risk commercial investment
- Trial and validation at industrial scale, speed and quality
- Customers retain full ownership of their IP developed at UKBIC
- Delivering skills, training and knowledge transfer



How we've helped customers



- Who is Ilika?
 - Developer of solid-state battery technology
- They wanted us to
 - Help them with their scale-up plans -
 - Project BUS100 (feasibility study)
 - Project SiSTEM (demonstration of Goliath solid-state battery cells)
- What they got by working with UKBIC
 - Superior performance of Ilika's Goliath batteries manufactured via an industrially scaled process
 - Access to Giga-scale equipment to de-risk commercial investment
 - Access to UKBIC's experience and expertise
 - Demonstration that the process and product developed on Ilika's pilot line can be transferred into an industrially relevant platform that can manufacture cells in commercial quantities

Excellence through collaboration

Tomography capabilities – CT Scanner: Strategic partnership between UKBIC and Waygate Technologies

Waygate (Model: VTX M 300/180)

Enables UKBIC to:

- Observe internal structure for damage
- Evaluate alignment, waviness, etc.
- Weld condition
- Missing components
- Misplaced tabs/too long/too short
- Shorted electrodes
- Damaged electrodes

Microfocus: 10 – 300 kV, ~ 10 μ m voxel size

Nanofocus: 10 – 180 kV, ~ 3 μ m voxel size





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Next Phase Of Development

£74.5m investment: UKBIC's enhanced capabilities



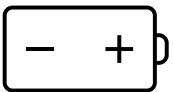
Flexible Pilot Line (FPL) will bridge the gap between existing kilogram scale demonstrator lines and our Industrial Scale-up Line (ISL)



Battery Development Laboratory (BDL) facilitates product characterisation of cells processed on our ISL and FPL

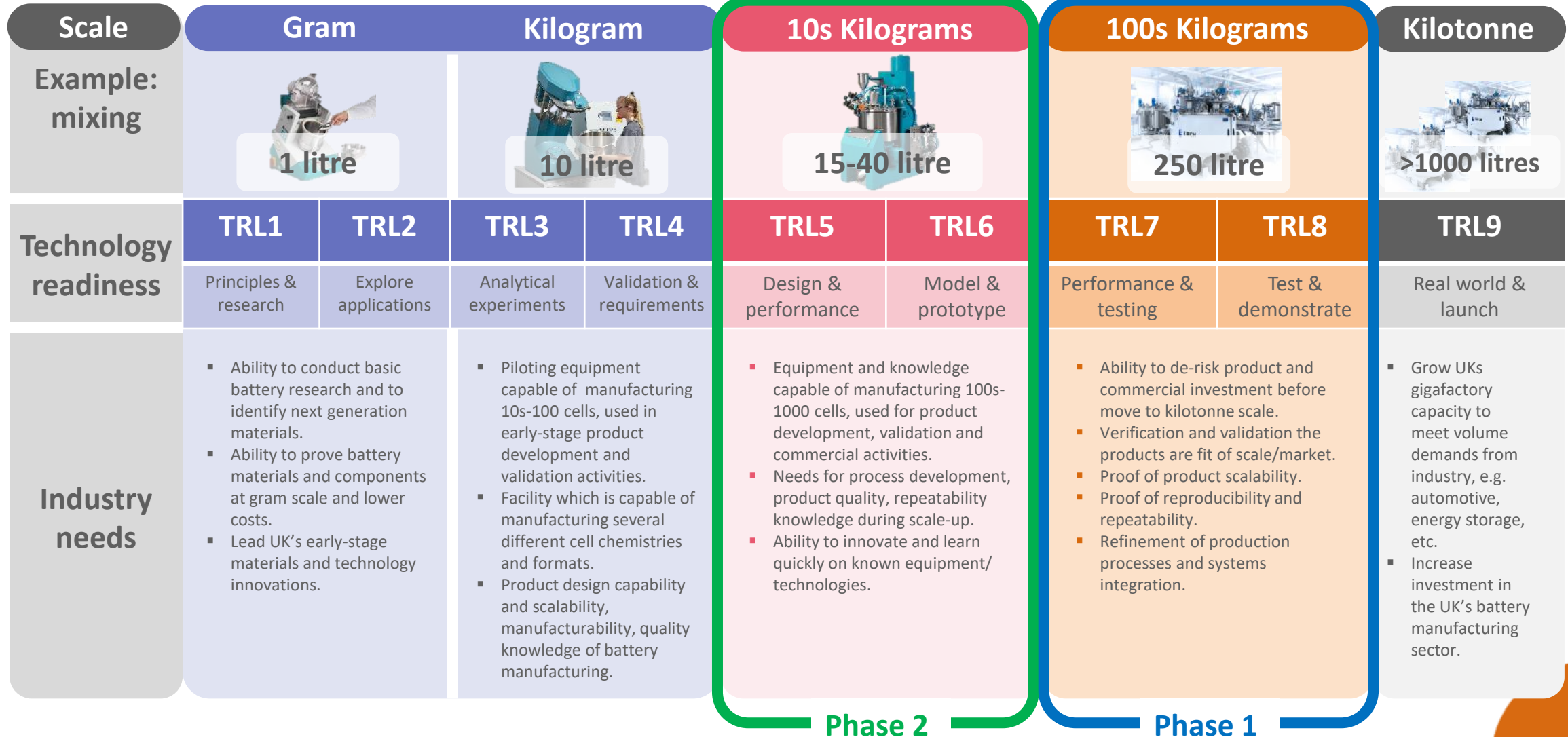


Clean and Dry Zone: Flexible 800m² space provides controlled conditions for equipment testing, temporary equipment installation



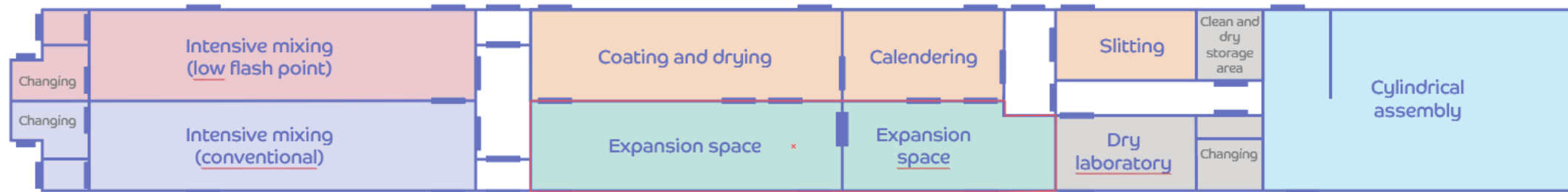
Cell cycling capability: Additional standalone cell cycling equipment for extended cell cycling – 192 channels for cylindrical cells and 96 channels for pouch cells

Bridging the gap – industry needs



What does the FPL provide?

- Offers all developers early access
- Secure material air lock access points which protect customer IP
- Flexible approach for developing electrodes
- Low cost, efficient and quick turnarounds
- Lower quantity material entry requirements
- Access to new, high-tech manufacturing line
- Opportunity to watch the early commissioning stage of the line
- Scale-up from lab to production environment





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Lessons Learned



Mixing challenge: slurry viscosity matching

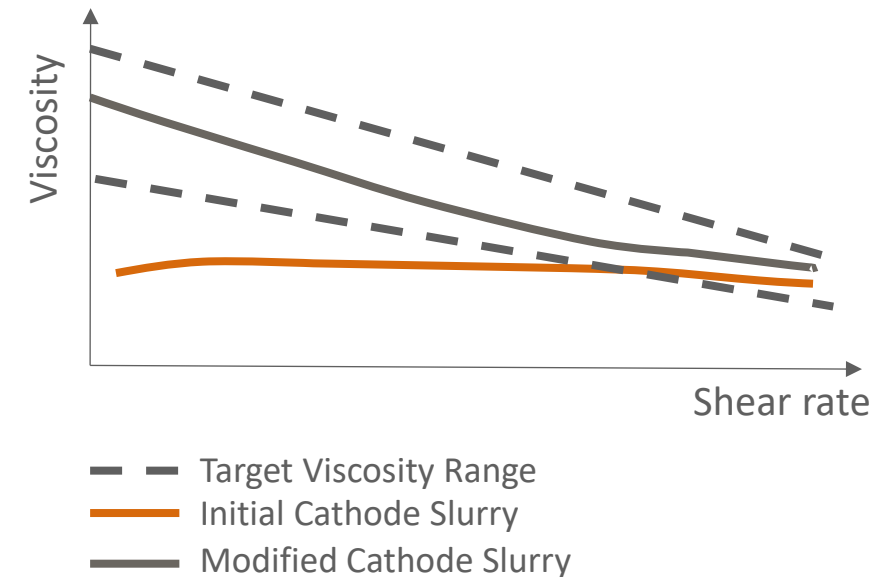
What we did

- Trials at three scales of mixing and developed a thorough understanding of influential factors on slurry rheology at each stage of scale-up
- Through experimentation, key slurry rheological properties were identified and modified

Lesson learned

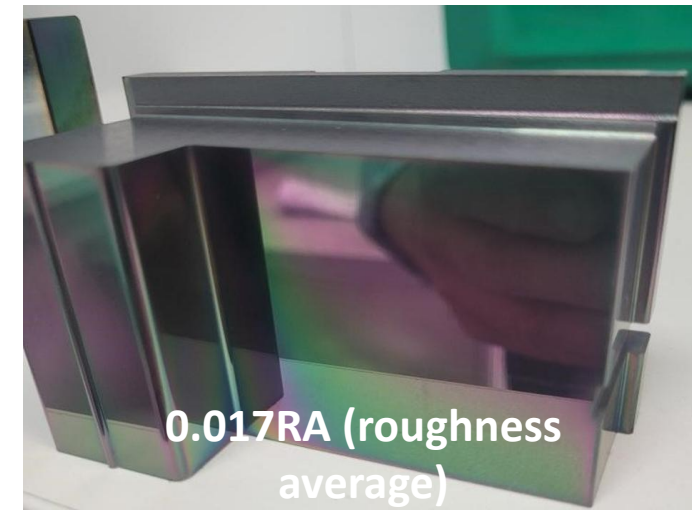
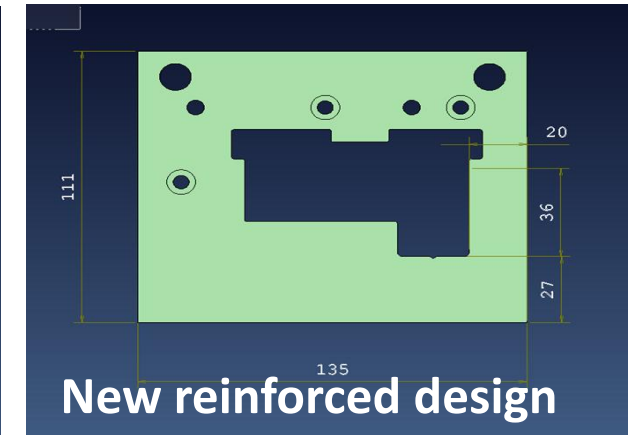
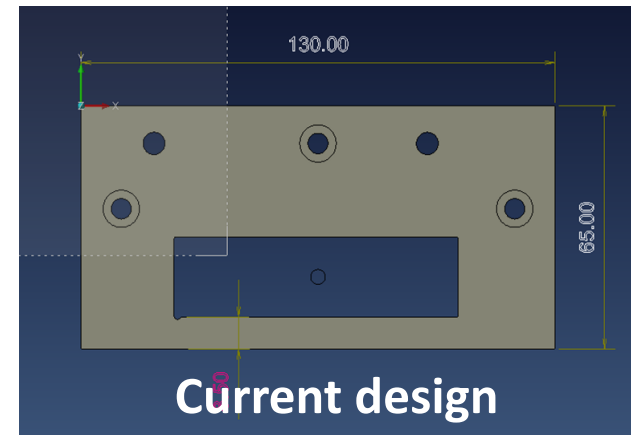
- Slurry behaviour changes from small-scale to large-scale mix – irregularly!
- UKBIC understands the factors that influence slurry rheology and can adapt the process to suit different scales of mixing and chemistries

Slurry Viscosity Matching



PHASE 4 Notching Die Design

- UK reverse engineered design
 - Improved design
 - Fixed punch with kicking leg (OEM floating punch lack of control)
 - Increased surface area of die (strength)
 - Reduced pillar amount for control
 - Quick change of internals
 - Improved surface finish (.017Ra)
 - Reduced maintenance downtime
 - Reduced cost of replacement parts (punch and die)
 - Increased strength in cutting die (surface area increased)
 - Overall tool life increased
 - UKBIC team working with three UK suppliers to modify and improve the cutting performance





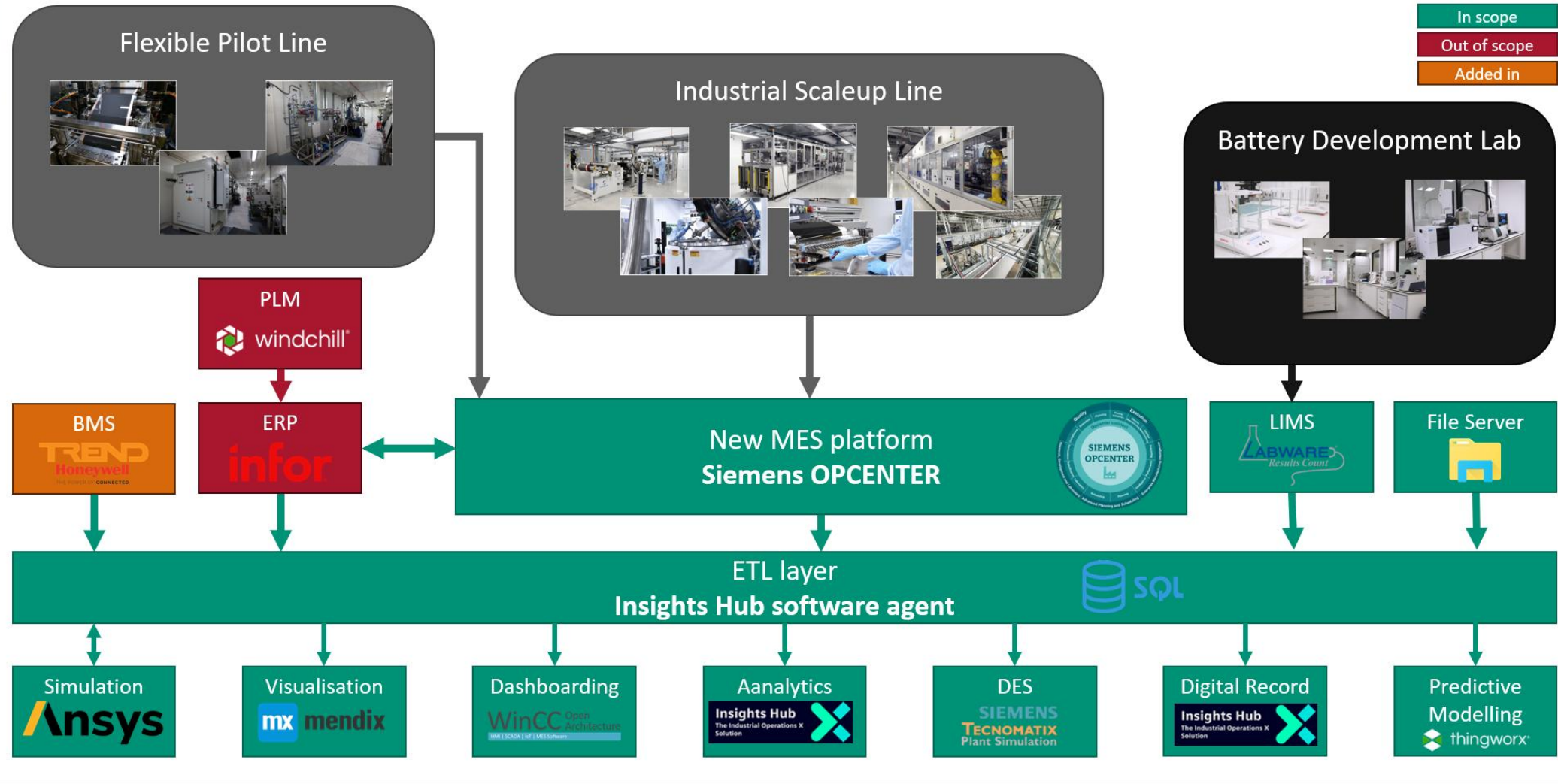
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UKBIC's New Digital Landscape



Strategic Digital Plan for UKBIC

In scope
Out of scope
Added in





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Thank you!



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