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Hot Topics

1. Pressing National Challenge Areas
2. Opportunity to influence
3. Potential for impact from the UKMF community

Hot Topics

1. Zero Emission Flight / 'Fly Zero'
2. Digital Twin
3. Digital Tech - acceleration of development and deployment
4. Accounting and tracking carbon emissions through a manufacturing supply chain
5. Net Zero Design & Make

UKMF Workshops 2021: Topic 1 = Zero Emission Flight

What? Zero Emission Flight workshop

Why? In the EU in 2017, direct emissions from aviation accounted for 3.8% of total CO2 emissions. To achieve climate neutrality, the European Green Deal sets out the need to reduce transport emissions by 90% by 2050 (compared to 1990-levels). The aviation sector will have to contribute to the reduction. The aim of this workshop is to explore what academia can do to support UK industry in this area? What have you got in the early pipeline that could support zero emission flight?

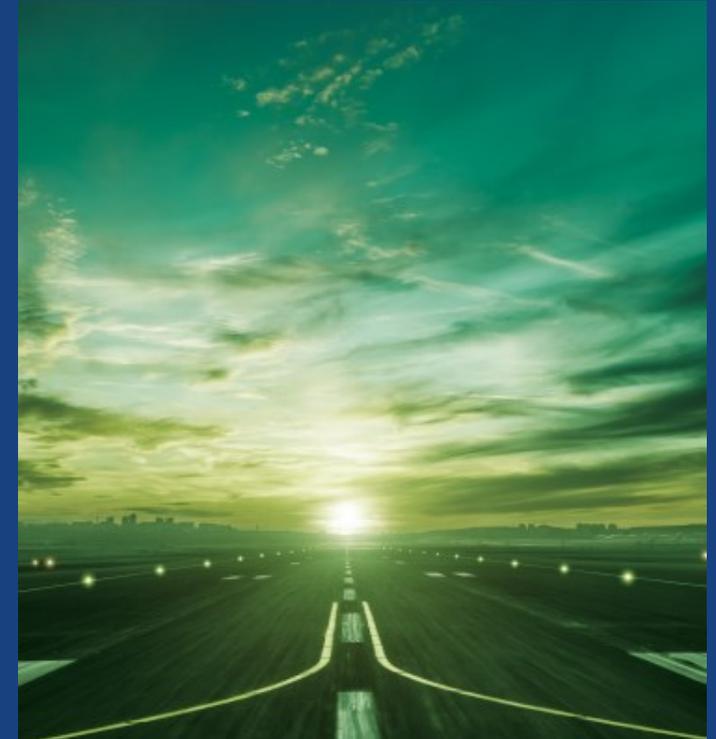
Relevant to: Airbus ZEROe Programme and ATI FlyZero Programme



UKMF Workshops 2021: Topic 1 = Zero Emission Flight

Output: The aim of this workshop is to look at each of the key product solution areas and identify what key new opportunities are coming from the academic network which will help to solve the challenges in each of these areas. The areas for investigation will be:

- **Fuel Cell Systems/Propulsion**
- **Electrical Motor Design**
- **Hydrogen/Cryogenic Storage**
- **Fuel Distribution Systems**
- **Aircraft Design**
- **Validation and testing**



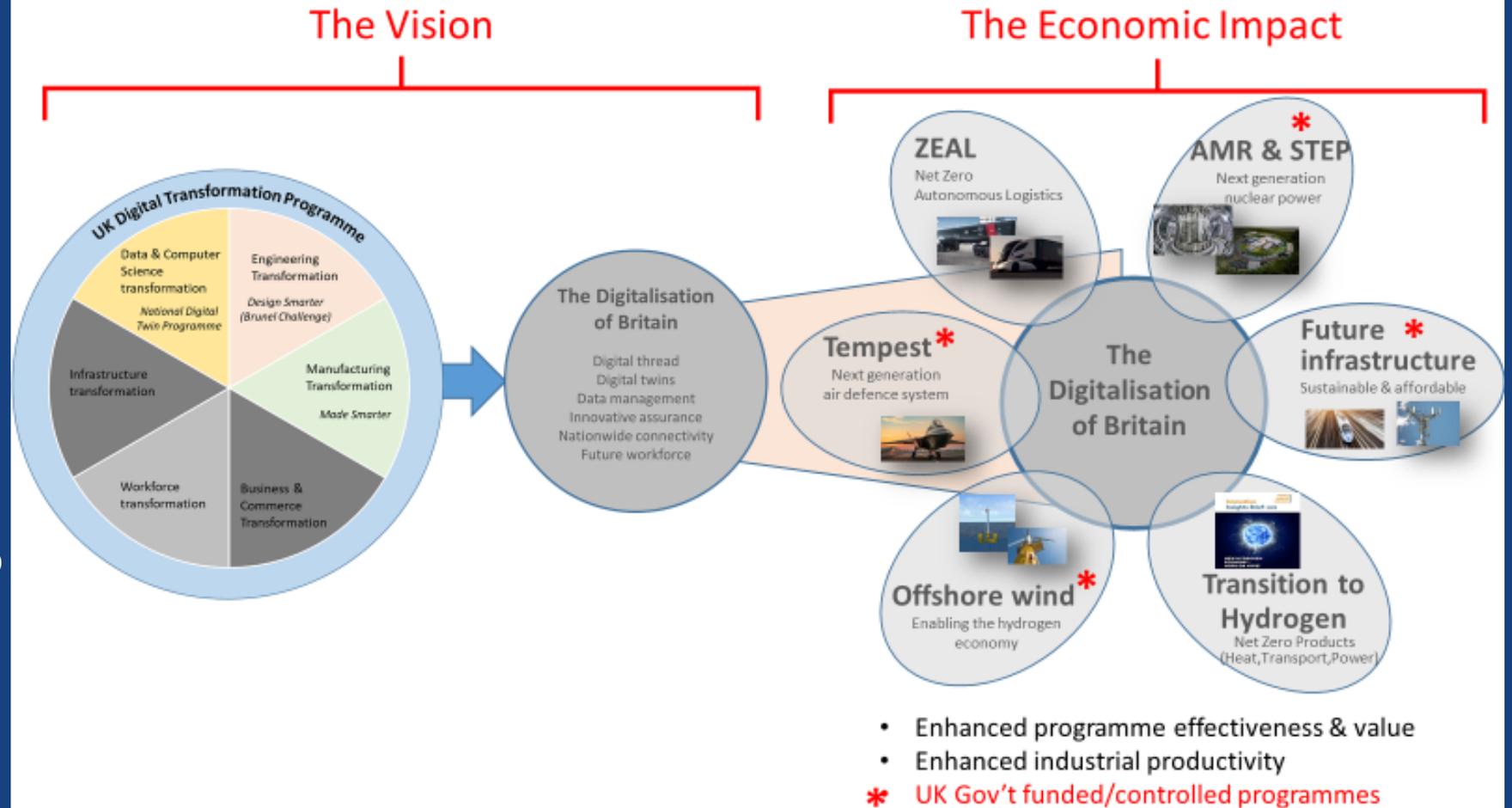
UKMF Workshops 2021: Topic 2 = Digital Twins

Why?

Vision for the nation

Strong pull within government
& UKRI

What can this community do to
support industry?



UKMF Workshops 2021: Topic 2 = Digital Twins



Relevant to: National Digital Twins initiative

Output:

UKRI white paper;

- Explore opportunity to create a common UK methodology

- Common definition- a simulation is not a digital twin

- How would you work through the development of a digital twin?

- Defined use cases, scale, component architecture, interoperability challenges, output?

- Functional and non-functional requirements are needed e.g. cybersecurity

Network development to create thought leadership. A UKRI white paper?

UKMF Workshops 2021: Topic 3 = Digital technology creation and diffusion (Digital Innovation Hubs)

Why?

MANUFACTURERS

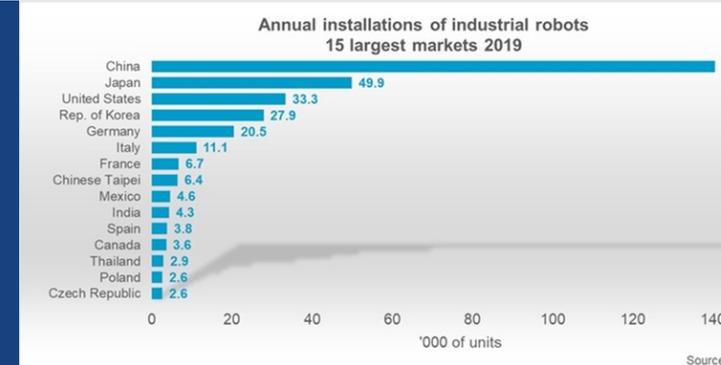
- 80% of businesses expect to have IDTs by 2025
- 5% increase in robotics installation (10% that of Germany)
- 2020 has changed perceptions but UK still behind

There is a need to demonstrate business case of IDTs solving real problems

TECHNOLOGY PROVIDERS

- UK has 1 % share of global manufacturing tech market
- UK has biggest tech sector in Europe, 3rd in world
- Increased dependency on manufacturing tech to drive performance
- Strong and resilient manufacturing base and world class R&I

Product disruption creates need for new manufacturing technology solutions



UKMF Workshops- 2021: Topic 3 = Digital technology creation and diffusion (Digital Innovation Hubs)

CATAPULT
High Value Manufacturing

Relevant to: Manufacturing Made Smarter

Acceleration of uptake of IDTs from UK Manufacturers

Demonstrate solutions to real problems

Provide environment to rapidly test and develop solutions

Catalyse a new UK manufacturing technology supply base

Provide environment to rapidly test and iterate new manufacturing tech

Demonstrate and connect new man tech solutions to customers and partners

Output:

Recommendation report to Made Smarter Innovation Hub pilot;

services to manufacturers and tech providers

connectivity between research centres and innovation hubs



MADE SMARTER | INNOVATION HUBS

£30million grant funding available for the ISCF
Manufacturing Made Smarter Smart Factory and Digital
Supply Chain Innovation Hubs

Competition opens : 23 Nov
Briefing Webinar : 25 Nov
Concepts & Collaboration Building Webinar : 1 Dec

Find out more : <https://bit.ly/3l4qWgx>

ktn INDUSTRIAL STRATEGY UK Innovate UK

UKMF Workshops 2021: Topic 4 = Accounting and tracking carbon emissions through the manufacturing supply chain



What? Carbon emissions through the manufacturing supply chain

Why? Collect ideas on how to measure and track CO2 emissions across the supply chains & product life cycle in an auditable manner

Relevant to: Cross-Catapult Enabling Conditions Programme

Output:

Propositions to address carbon accounting and tracking across real time supply chains

Recommendations on collection method into the project team

UKMF Workshops 2021: Topic 5 = Net Zero Design & Make

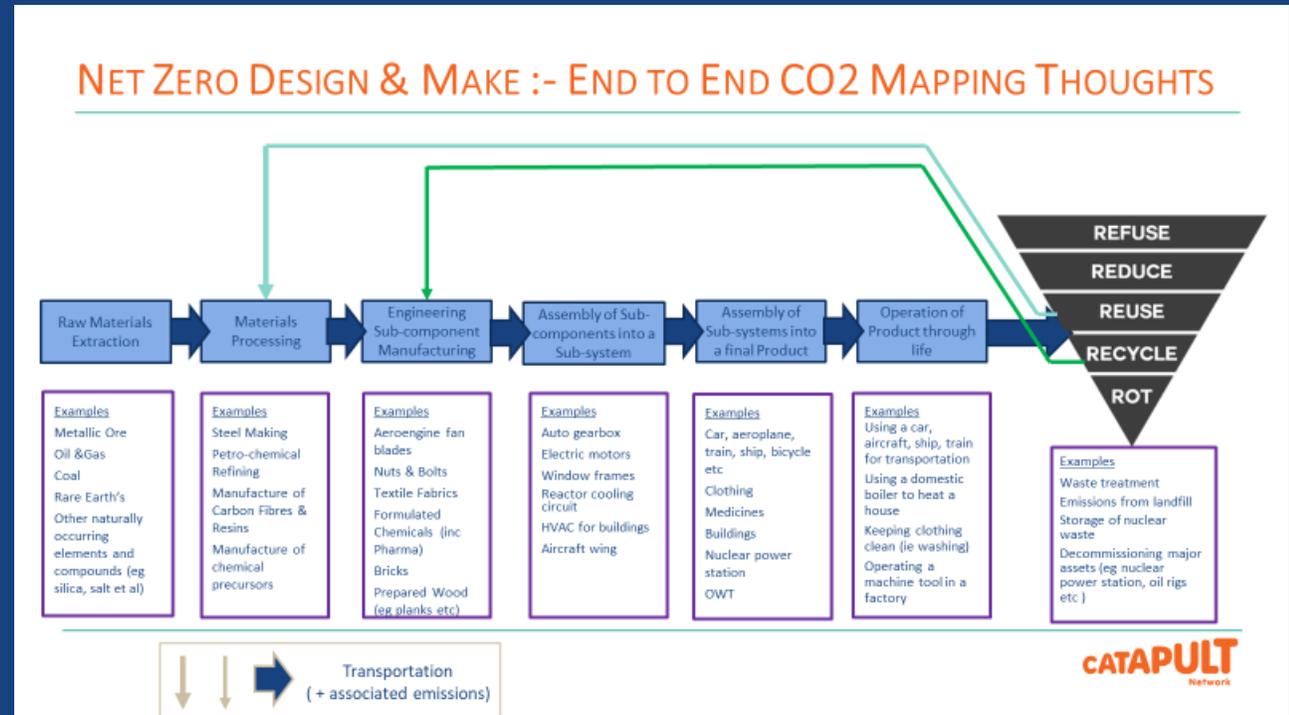
Why?

Industry accounts for between 15%-30%* of UK carbon emissions

If we address this then we can create a competitive position for UK supply chains

If we don't account for supply chain or consumption emissions we may offshore our manufacturing footprint

There are R&I opportunities to develop interventions for different steps in this cycle



UKMF Workshops 2021: Topic 5 = Net Zero Design & Make



Relevant to: Cross-Catapult Enabling Conditions Programme

The UK manufacturing R&I community are ideally placed to convene the industrial community to address the problem.

Output:

Identification of R&I opportunities across the manufacturing life cycle

Potential projects

Feed in to IUK – Cross Catapult Net Zero roadmap

Next Steps

1. Confirm interest in workshops
2. Fill in questionnaire- Landscape recommendations
3. Goodbye 2020, see you in January!



More resources at:
hvm.catapult.org.uk

