Made Smarter Innovation Challenge Vision, Mission & Approach

What is our motivation?

- Creation of a **visible and effective digital innovation eco-system** - to accelerate the development and diffusion of Industrial Digital Technologies (IDTs) **to secure competitive advantage** across UK manufacturing
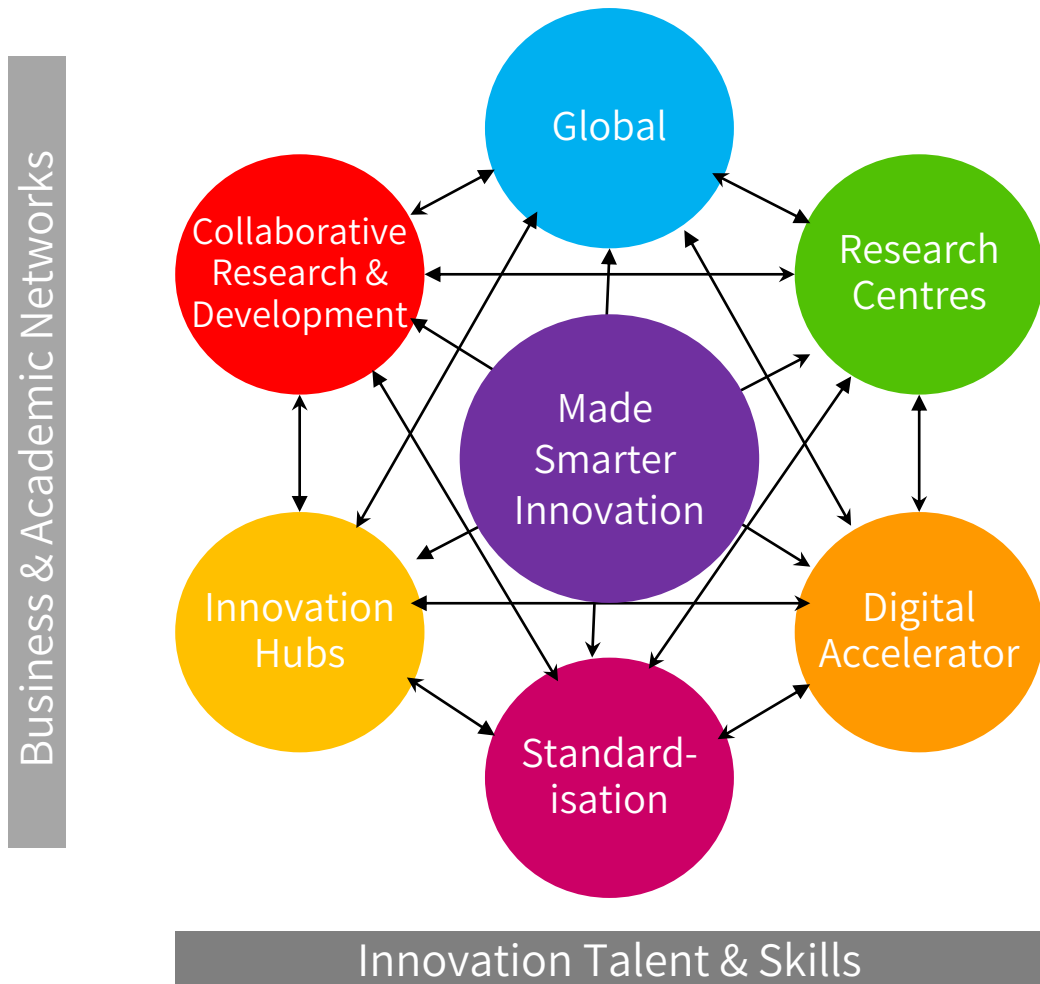
What we will achieve?

- **Harnessing the transformative power of IDTs** through **the application of research and innovation** - to deliver a **modern, connected, resilient and flexible,** significantly more **productive**, and environmentally **sustainable** UK manufacturing sector

How will we do this?

- From challenge launch through to 2025 we will invest in a suite of packages, each typically with a core funding value up to £20m, and further boosted by the investment from industrial participants
- The combined effect of these activities will result in hundreds of digital innovation initiatives spanning early stage research through to industry-ready deployment, to position the UK as a leading force in global manufacturing

Made Smarter Innovation Programme

Business & Academic Networks

Global

Collaborative Research & Development

Research Centres

Made Smarter Innovation

Innovation Hubs

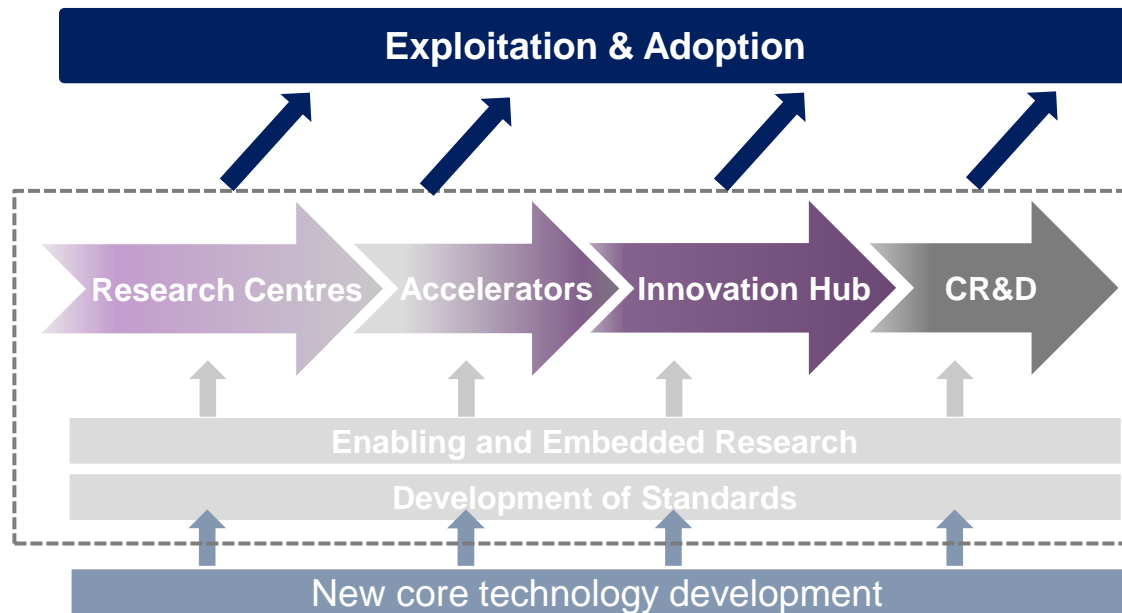Digital Accelerator

Standard-isation

Innovation Talent & Skills

"By 2030, the UK will be a global industrial leader in creating, adopting and exporting advanced digital technologies, shaping how the world does business"

"Harnessing the transformative power of Industrial Digital Technologies to deliver a connected, dynamic and resilient UK manufacturing sector, which is significantly more productive, and sustainable."

Integrated Innovation Ecosystem

The design intent is to create an *effective and integrated innovation ecosystem* to develop new solutions & transform manufacturing

Exploitation & Adoption

Research Centres → Accelerators → Innovation Hub → CR&D

Enabling and Embedded Research

Development of Standards

New core technology development

Key Overall Principles

- Line of sight from research to exploitation – *integration* and *flow*
- Aligned to themes with strong industry sponsorship
- Ensure there is value and approach to suit all – users and developers large & small, academia
- Strong collaboration and networking across all aspects
- Sustainable and substantial in each aspect – prioritise and be ambitious
- Leverage current assets

Made Smarter Innovation Hubs

Overview

Innovation Hub Fundamentals

Innovation Hubs:

- through **open** innovation, intentionally **combine resources** across **multiple partners**, developing joint solutions and offering the market new knowledge, technologies, skills, products and services

- **encourage people** to interact, create, undertake, work and innovate together in a network, exchanging vast amounts of knowledge, in addition to sharing views and strategies

- are increasingly strategic and specialised, **creating collaborative environments** - joining different agents, professionals and companies with a similar objective / challenge

- provide innovation in a much more **agile** and **broader wa**y, encouraging continuous and strategic interaction of different minds engaged, prepared and willing to innovate in projects – providing access to a large ecosystem

- are aimed at generating business between startups and large companies and, help in the **development of technology-based companies** with **high growth potential**

Made Smarter Innovation Hub Vision

- Create an effective and **integrated innovation ecosystem** to develop new solutions & transform manufacturing

- **Drive innovation** for all potential users – large and small technology providers, large and small manufacturers

- Connect with, and generate most value from, **existing digital manufacturing facilities** and capabilities in the UK

- Develop a **national network** ie cluster of test beds, living labs & other development environments

- **Accessible by industry** to develop, demonstrate and test digital solutions for key manufacturing problems

- 4 year programme for driving the development and deployment of **innovative digital systems** in UK Manufacturing

Made Smarter Innovation Hub Key Drivers

- Driving bold **Technology Leadership** through Flagships & Open / Flexible Calls drawing in OEMs and SMEs engagement and co-investment

- Developing a leading nationwide **Development Environment** that supports inclusion and develops nationally significant Development Centres – and builds a global value proposition

- Accelerating **Digital Innovation** including both top down Challenge led (ie time dependant Ventilator Challenge type initiatives) and bottom up Pilot led initiatives

- Building technologically significant **Place based Test Beds** & Technology Development Platforms – levelling up and building place based Manufacturing Innovation Ecosystems

- Creating a compelling **Value Proposition** and including cross cutting themes of Skills, Standards & Interoperability, EDI, Adoption of Innovation, etc

Innovation Hub Research & Pilots

Overview

MADE SMARTER

Innovation Hub Model Research … led by Institute for Manufacturing

Manufacturing Made Smarter Innovation Hubs

A report for Innovate UK under the BEIS Futures Framework

APRIL 2021

UNIVERSITY OF CAMBRIDGE
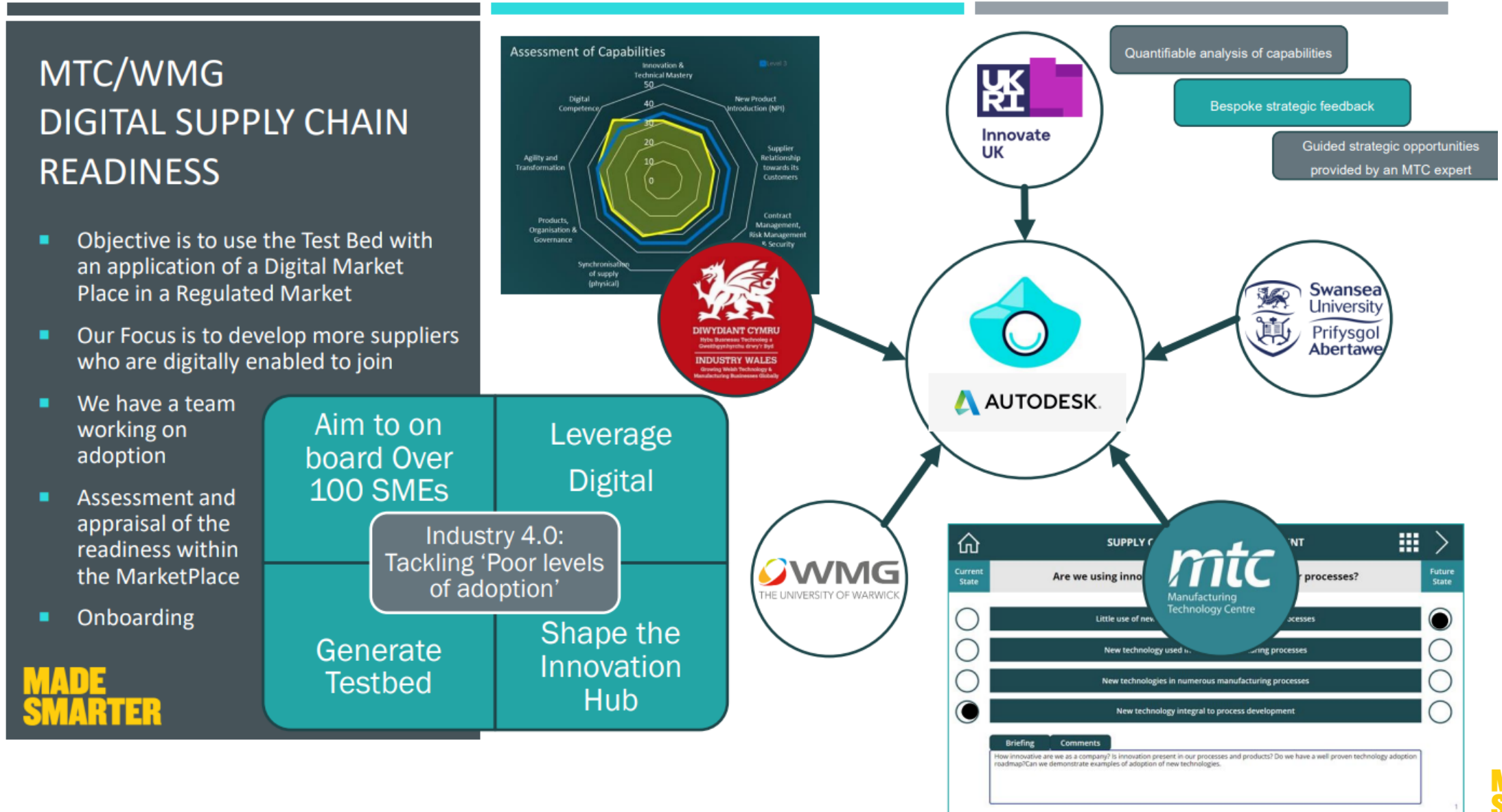Department of Engineering

IfM Engage

Reviewing Innovation Hubs in USA, South Korea, Denmark, Czech Republic, Australia, Germany, Lithuania, Ireland, Singapore, Sweden, Switzerland, Italy, Spain, UK, the Netherlands

Review concluded Innovations Hubs:

- An increasingly prevalent **innovation policy tool** for the roll out of industrial digitalisation

- Often **partnerships** working with many industry partners, especially SMEs, start-ups, large companies & RTOs - engaging with many & different types of actors

- Managed by **small teams**

- Governance structures drawing experts from academia, industry, & government

- Leveraging funding from the widest range of sources

- Services directed at **validating existing & new ideas**, such as technology testing and demonstration, concept validation and prototyping - incl factory, lab, or company visits.

- Use of **Living Labs** enabling iterative testing processes under realistic use conditions involving (end) users as co-creators.

- Services for connecting and qualifying the different actors of the innovation process

Digital Supply Chain Marketplaces ... led by University of Swansea & Partners

MTC/WMG DIGITAL SUPPLY CHAIN READINESS

- Objective is to use the Test Bed with an application of a Digital Market Place in a Regulated Market

- Our Focus is to develop more suppliers who are digitally enabled to join

- We have a team working on adoption

- Assessment and appraisal of the readiness within the MarketPlace

- Onboarding

Aim to on board Over 100 SMEs

Leverage Digital

Industry 4.0: Tackling 'Poor levels of adoption'

Generate Testbed

Shape the Innovation Hub

Assessment of Capabilities

Quantifiable analysis of capabilities

Bespoke strategic feedback

Guided strategic opportunities provided by an MTC expert

Smart Factory Pilots led by HVMC Network

MADE SMARTER | **SMART FACTORY INNOVATION HUB**

Pilot Testbeds & Sites

catAPULT High Value Manufacturing

- Radial Forge - AFRC
- APC tools for food & FMCG manufacture - CPI
- Digital innovation for Pharmaceutical Industry - CPI
- Digital Secure Systems - AMRC
- Legacy Systems - AMRC
- Connected Factory - AMRC
- DRAMA/ NCAM - MTC
- Electronics 4.0 - MTC
- Factory in a Box 1 - MTC
- Factory in a Box 2 - MTC
- DigiProp - MTC
- Virtual RRFE (DMA) - MTC
- SCALP - MTC
- Adaptable Digital Automation & Logistics - WMG
- Digitally Supported Manual Operations - WMG
- Composite Forming & In-process verification - NCC

AFRC
Advanced Forming Research Centre

CPI
Centre for Process Innovation

NAMRC
Nuclear Advanced Manufacturing Research Centre

AMRC
Advanced Manufacturing Research Centre

MTC
Manufacturing Technology Centre

WMG
Warwick Manufacturing Group

NCC
The National Composites Centre

MADE SMARTER INNOVATION

Digital Supply Chain Hub
Overview

MADE SMARTER INNOVATION | DIGITAL SUPPLY CHAIN HUB

Digital Supply Chain Hub

The **resilience** and **sustainability** of **supply chains** is vital to all of us and accelerating digital innovation is a **critical enabler** for the future of supply chains

This hub is here to bring together **innovators** and **investors** in a way that can increase the **pace** of **innovation**, giving opportunities both for those who leverage the technology and those that develop it

This a **national cross sector approach** lead by Digital Catapult and we are excited to launch it formally and encourage companies across the UK to engage with it

MADE
SMARTER
INNOVATION

Part of, and inspired by, the Made Smarter movement

Our **vision** is to transform UK manufacturing through digitally empowered supply chains that are more **efficient, resilient and sustainable**.

Supply chains made smarter, together

We will develop and empower a globally competitive, digital supply chain innovation ecosystem.

Working together to unlock the opportunities facing UK manufacturing.

Over 1000 people developing **digital skills**

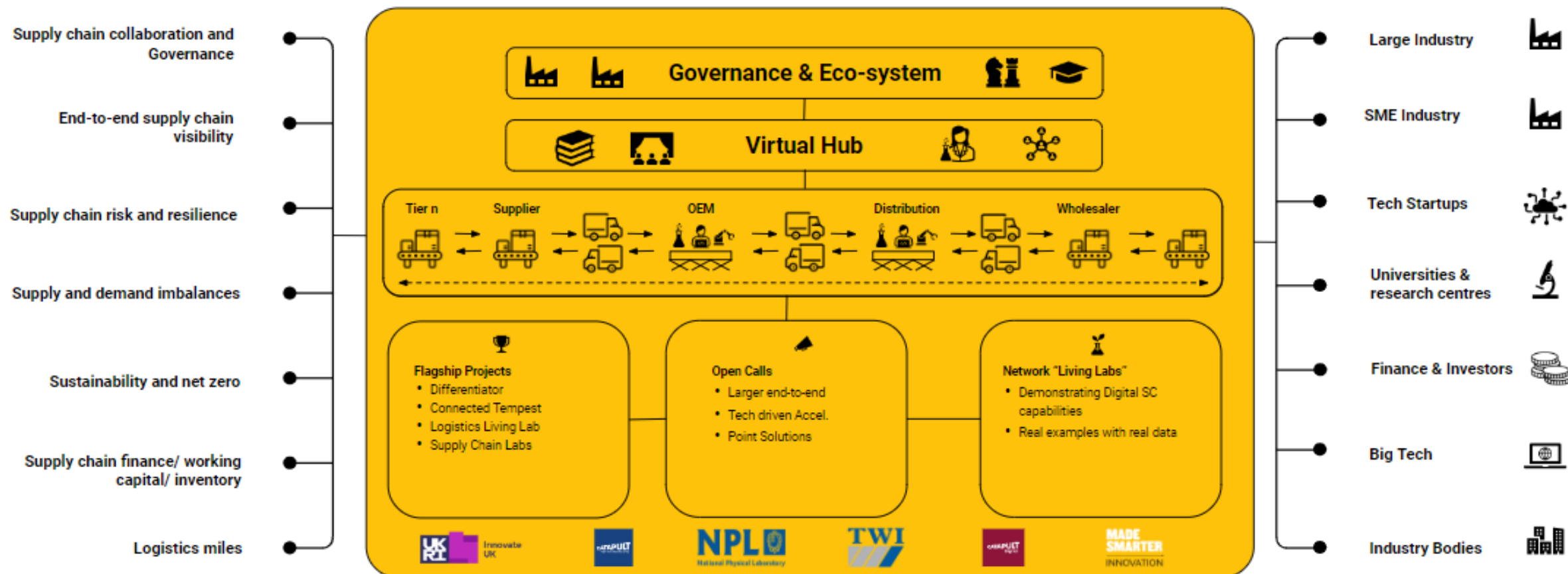100 **digital technology solutions** developed Over 200 companies involved

Increased visibility leading to 20% **greater resilience** within supply chains.

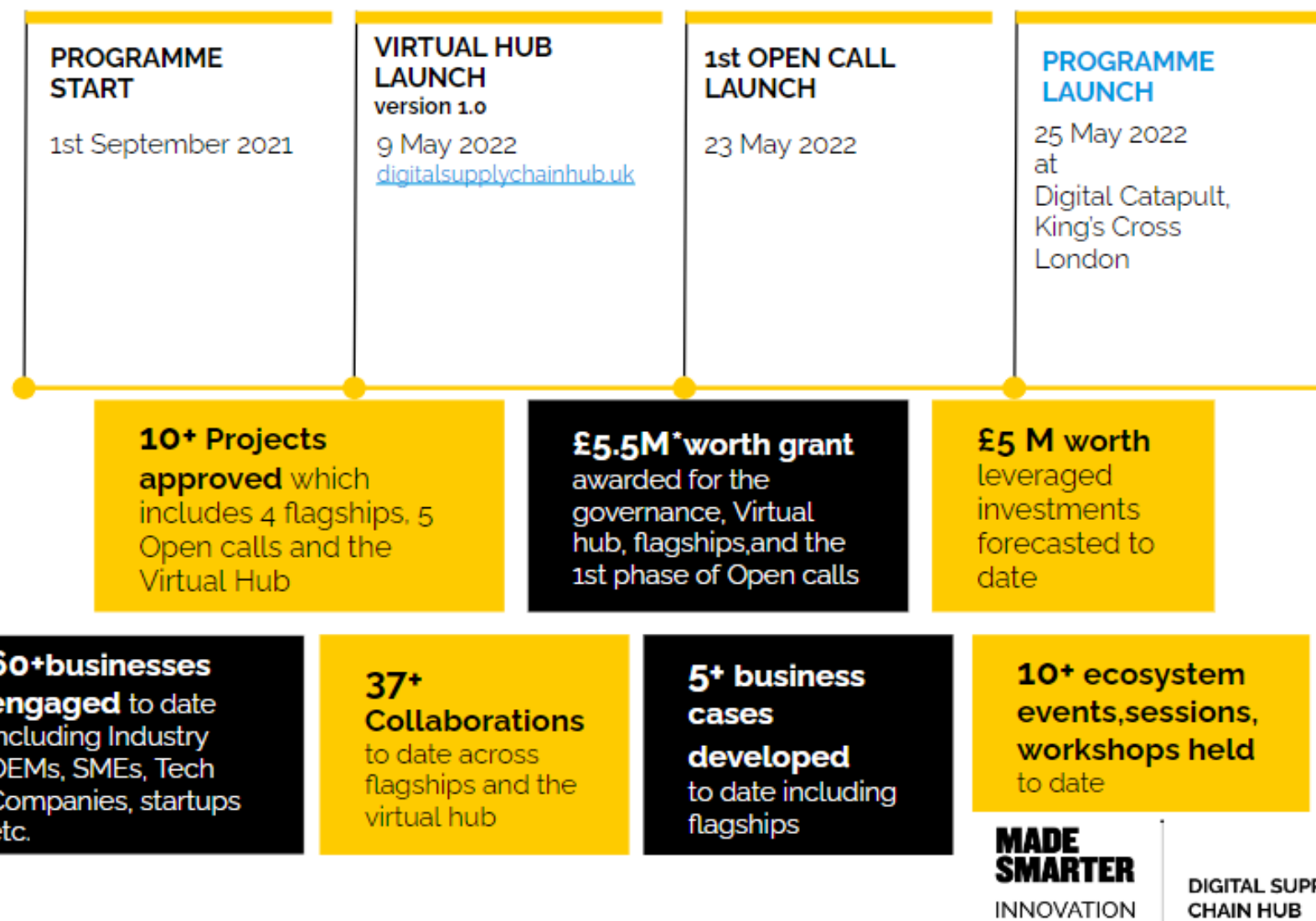10% **reduction in waste**, 5% in **CO2**

Made Smarter Innovation: Digital Supply Chain Hub

£25M will be invested in creating a portfolio of digital capabilities to deliver smarter supply chains.

Where are we now?

Progress so far

CATAPULT Digital

PROGRAMME START	**VIRTUAL HUB LAUNCH** version 1.0	**1st OPEN CALL LAUNCH**	**PROGRAMME LAUNCH**
1st September 2021	9 May 2022 digitalsupplychainhub.uk	23 May 2022	25 May 2022 at Digital Catapult, King's Cross London

10+ Projects approved which includes 4 flagships, 5 Open calls and the Virtual Hub

£5.5M*worth grant awarded for the governance, Virtual hub, flagships,and the 1st phase of Open calls

£5 M worth leveraged investments forecasted to date

60+businesses engaged to date including Industry OEMs, SMEs, Tech Companies, startups etc.

37+ Collaborations to date across flagships and the virtual hub

5+ business cases developed to date including flagships

10+ ecosystem events,sessions, workshops held to date

MADE SMARTER INNOVATION

DIGITAL SUPPLY CHAIN HUB

Our focus for the **1st Open Call**

Supply Chain Resilience
what is it and how should it be measured, how can new technology support this?

Governance and Trust
SC Governance and Trust a key blocker of data sharing:What has been done in this area and how can technology enable better governance and trust?

E-2-E SC Visibility and Mapping
Phase 1 automated mapping of SC to Tier N at BoM level

Sustainable Supply Chain
Mainstreaming the measurement of scope 3 emissions across end-to-end supply chains

Supply-demand imbalances
Intelligent Supply and Demand Sensing for Integrated Planning e.g. providing insights to the likelihood of supply shortages or spike in demand over time using real-time data

MADE SMARTER INNOVATION

DIGITAL SUPPLY CHAIN HUB

News

Join in

🕐 03 July 2022
Applications open

About the programme

Get involved

Digital supply chains

Who's involved

Our vision

Made Smarter Innovation | Digital Supply Chain Hub

Supply chains made smarter, together.

03 July 2022 Applications open

Type here to search

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07/06/2022

Transforming UK manufacturing through digitally empowered supply chains that are more efficient, resilient and sustainable.

Digitalsupplychainhub.uk

Next steps

MADE
SMARTER

INNOVATION

DIGITAL SUPPLY
CHAIN HUB

Opportunities to join the movement?

The Digital Supply Chain Hub provides a wide range of opportunities to get involved and join the movement to transform UK supply chains

CATAPULT Digital

	Hub Governance	Virtual Hub			Flagship Projects	Open Call	
	Advisory and Steering	Virtual Hub Networking and Content	Showcasing research and Insights	Investing in Technology solutions	Future of Supply Chain Labs	Receive grant funding	Sponsoring key hub challenges
Manufactures and SMEs	✓	✓		✓	✓	✓	✓
Tech Startups	✓	✓	✓		✓	✓	
Academia	✓	✓	✓		✓	✓	
Technology Partners	✓	✓	✓	✓	✓		✓
Finance and Investors	✓			✓			✓

A hub for effective collaboration and innovation.

Get in Contact or Register your interest at

digitalsupplychainhub.uk

MADE SMARTER INNOVATION

DIGITAL SUPPLY CHAIN HUB

CATAPULT Digital

Smart Factory Data Innovation Hub
Overview

SMDH launch ...

GOV.UK

Home > Manufacturing

Press release

£50 million data innovation hub for manufacturers to accelerate digital tech

UK manufacturers are to have their productivity and competitiveness boosted thanks to a new data innovation hub and testbed led by Ulster University.

From: **Department for Business, Energy & Industrial Strategy**, **UK Research and Innovation**, and **Lee Rowley MP**
Published 18 May 2022

£50 MILLION DATA INNOVATION HUB
AT ULSTER UNIVERSITY

to support UK manufacturers to accelerate
development of digital technologies

- £50 million data innovation hub at Ulster University to support UK manufacturers to accelerate development of digital technologies
- dedicated grant funding will be provided to manufacturers to implement expert recommendations from data scientists
- adoption of digital technologies such as Industrial Internet of Things and artificial intelligence is key to driving manufacturing productivity, sustainability and competitiveness

UK manufacturers are to have their productivity and competitiveness

SMDH Team – A Network of Networks

Ulster University (Hub), *with spokes at*

- **Hartree** (STFC, Warrington, England)

- **Energy Systems Catapult** (Birmingham England)

- **D2N2** (Nottingham, England)

- **Shoestring, IfM** (University of Cambridge, England)

- **Manufacturing NI** (Portadown, N. Ireland)

- **MEGA,** N. Ireland

- **Industry Wales** (Bridgend, Wales)

- **Scottish Engineering** (Glasgow, Scotland)

- **The DataLab** (University of Edinburgh, Scotland)

A pan-UK, 4 Nations Network

MADE SMARTER INNOVATION | SMART MANUFACTURING DATA HUB

What is the Smart Manufacturing Data Hub?

- An initiative delivering bold technology leadership & radical innovation via 6 Key Elements

Hub Management (£6M) + Support Programme (£1M)

Manufacturing Data Exchange Platform (MDEP) (£5M)

Virtual Manufacturing Testbeds (VMTs) (£3M)

Digital Innovation Fund (£5M)

Integrated Manufacturing, Energy & Emissions Data Analytics

Governance & Integration with existing infrastructure

Balanced strategy of Business Engagement – Large and Small, Supply Chain & Regional led

MADE SMARTER INNOVATION | SMART MANUFACTURING DATA HUB

How? By building a Leading Development Environment

A "*mutual society of data"* approach to drive industrial digitalisation

A source of practical, **affordable data analytics expertise**

A facility to gain and exploit **manufacturing sectoral intelligence**

A facility to drive **Virtual Test Bed (VTB)** development enabling access for all

A transformational, innovative approach based on a Mutual Society for Manufacturing Data

SMART MANUFACTURING DATA HUB ... creating an SME Mutual Data Society

MADE SMARTER INNOVATION | SMART MANUFACTURING DATA HUB

MANUFACTURING INNOVATION ECOSYSTEM

SMART FACTORY CHALLENGES

- Lack of exploitation of digital technologies by many SMEs
- Business struggle to baseline their current development, & lacking a digital strategy
- Lack digital technologies leadership amongst senior management;
- Lack of confidence to invest in updating infrastructure
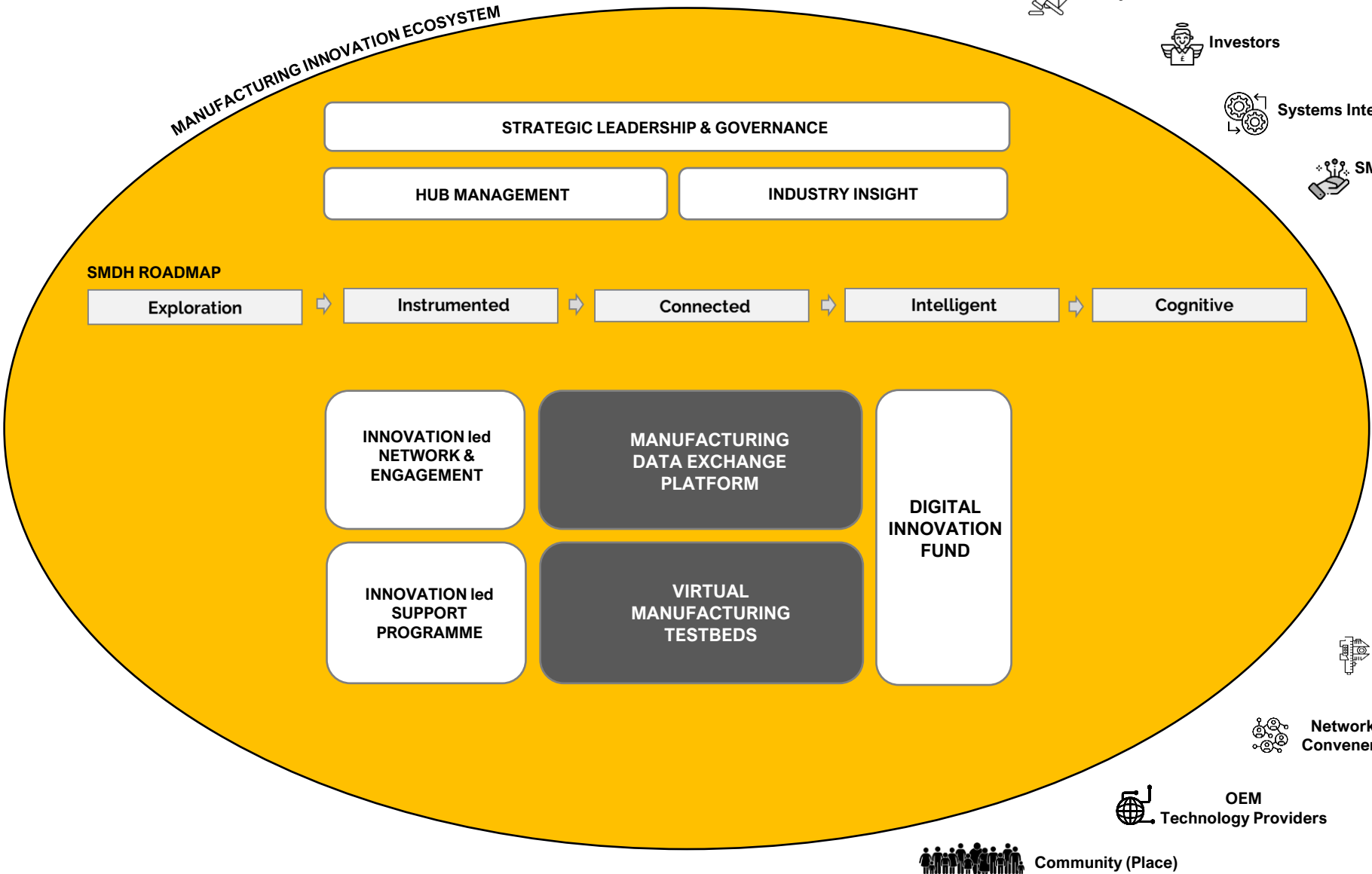- Cannot afford to recruit in-house data engineering/data scientists
- Struggle to get impartial advice outside of the commercial domain or navigate support services from Universities, UKRI etc;
- Cannot access/exploit data from internal systems;
- Unable to benefit from access to existing support facilities, due to location.
- Facilitating Access to Industrial Digitalisation Technologies.
- Ability to access expertise in digital technologies at affordable cost.

STRATEGIC LEADERSHIP & GOVERNANCE

HUB MANAGEMENT	INDUSTRY INSIGHT

SMDH ROADMAP

Exploration	⇒	Instrumented	⇒	Connected	⇒	Intelligent	⇒	Cognitive

INNOVATION led NETWORK & ENGAGEMENT	MANUFACTURING DATA EXCHANGE PLATFORM	DIGITAL INNOVATION FUND
INNOVATION led SUPPORT PROGRAMME	VIRTUAL MANUFACTURING TESTBEDS	

STAKEHOLDERS

- Policy Makers
- Investors
- Systems Integrators
- SME Technology Developers
- OEM Manufacturers
- Universities
- Catapults / RTOs
- SME Manufacturers
- Measuring & Standards Bodies
- Network Conveners
- OEM Technology Providers
- Community (Place)

Ulster University · DIWYDIANT CYMRU INDUSTRY WALES · MANUFACTURINGNI · D2N2 Derby Derbyshire Nottingham Nottinghamshire · IfM · CATAPULT Energy Systems · Scottish Engineering · CATAPULT High Value Manufacturing · THE UNIVERSITY of EDINBURGH · Hartree Centre Science & Technology Facilities Council

Accelerating Digital Innovation

SMDIH will:

- Reach companies **bypassed** from existing initiatives
- Reduce the **constraints of geography**, eliminates issues of peripherality
- Increase **productivity** among SMEs, seen as crucial for UK growth
- Enhance data sharing with large companies
- Enhance **accessibility** to existing infrastructure - feeding in, gain best of existing investments and infrastructure
- Support - with a credible plan - the **Levelling Up** agenda - capacity, capability, not just grants

SMDIH is **inherently collaborative –** *akin to Ventilator Challenge approach*

Communication and Focus

Diversity

Skills

Integration with Tier 1 companies and supply chains

Mutual shared insight

Data Ownership Principles Manufacturing Data Exchange Platform (MDEP)

Company Data

- All data uploaded to MDEP belongs to uploading partner
- Any intelligence extracted belongs to company originally providing data
- All data on MDEP siloed from other company data
- NDA/IP agreements will be in place as appropriate

Aggregated Data

- Anonymised data from a company may be appended to other data for more global/sectoral insight - but only with company permission
- Insight from aggregated data belongs to SMDIH but made freely available to partner companies.

Algorithmic and VMT developments

- Belong to consortium, exploited as per consortium agreement

MADE SMARTER INNOVATION | SMART MANUFACTURING DATA HUB

Cross Cutting Themes

GLOBAL

INNOVATION TALENT & SKILLS

STANDARDISATION & INTEROPERABILITY

MADE SMARTER INNOVATION

SUMMARY ...

Our goal is to be **world-leading** in digital manufacturing by...

Boosting productivity
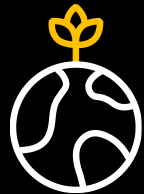
Accelerating the race to net zero

Creating highly-skilled jobs

MADE SMARTER INNOVATION
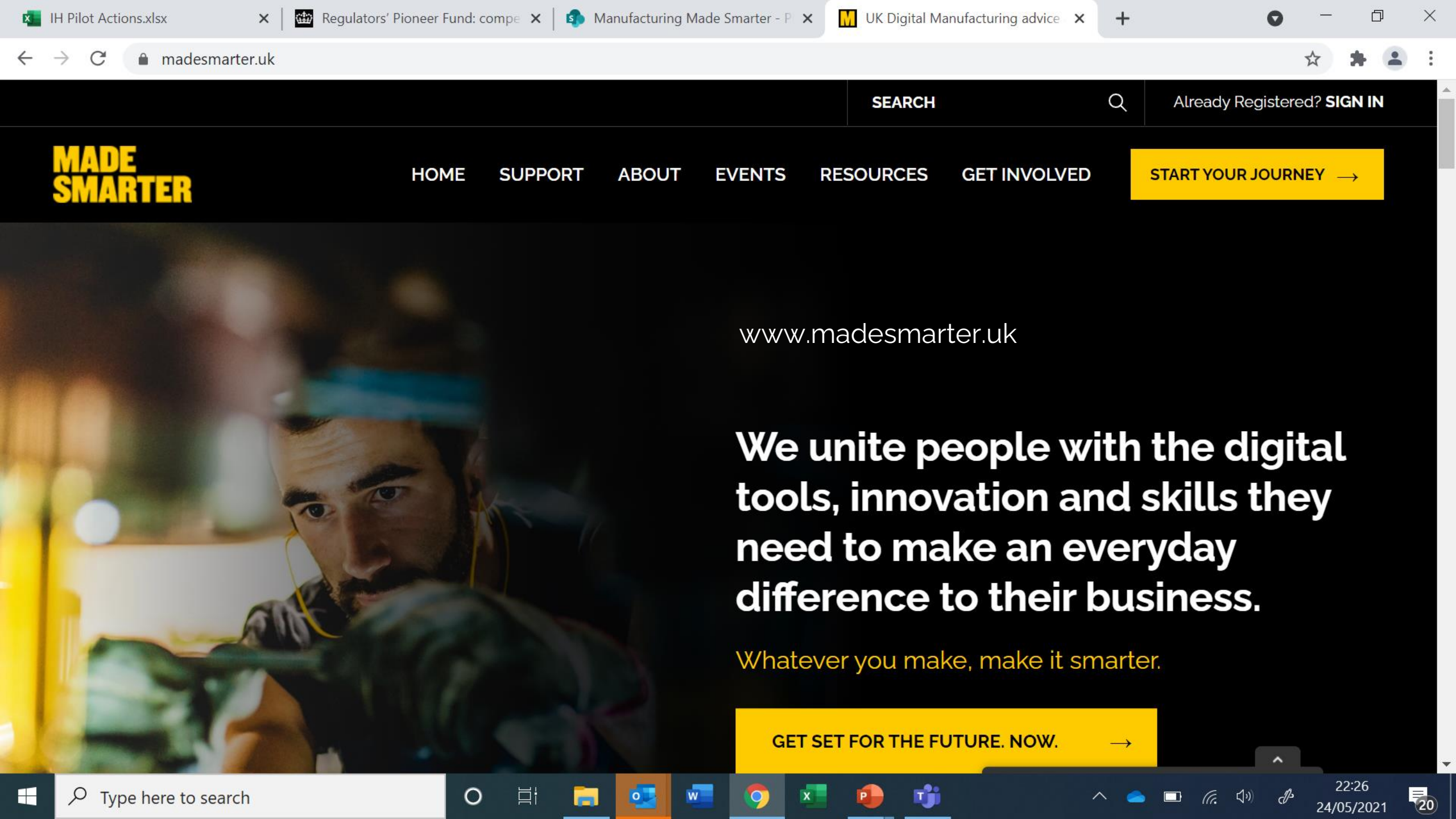
Funding innovation

We're investing **£147 million** to **develop** digital manufacturing **ideas** more **quickly**

Join in …

SMART FACTORIES DIGITALLY CONNECTED TO SUSTAINABLE SUPPLY CHAINS:

Growing UK's Manufacturing Innovation Ecosystem

CONNECTING

Engage with the Innovation Hub Teams

Collaborate through the Virtual Hub / Connectivity & Enablement Platform

INNOVATING

Pilot – develop ideas & concepts through using the Test Beds and Platforms

Challenge – collaborate to address industry challenges, developing Flagship Solutions

FUNDING

Secure grant funding – to develop ideas & concepts applying to Innovation Hub Open Calls

Co-invest – to develop significant collaboratively Flagship projects

GROWING

Local – connect with & grow digital transformation & innovation programmes at the 'grass roots'

Global – through Hubs connect & collaborate with global smart factory & digital supply chain market opportunities / technology solutions

Be part of our digital innovation ecosystem

Visit our webpages to see the support and investment you need to disrupt the competition

Search 'ISCF Clean Growth'
www.ukri.org/our-work/our-main-funds/industrial-strategy-challenge-fund/clean-growth/manufacturing-made-smarter-challenge/

For live opportunities visit 'Made Smarter – Innovation'
www.madesmarter.uk/support/harnessing-the-uk-s-innovative-capability/

MADE SMARTER INNOVATION

Thank you

simon.coward@iuk.ukri.org

www.madesmarter.uk

@MadeSmarterUK

madesmarteruk

Made Smarter Innovation

Faster, Better or Cheaper

Digital doesn't have to choose