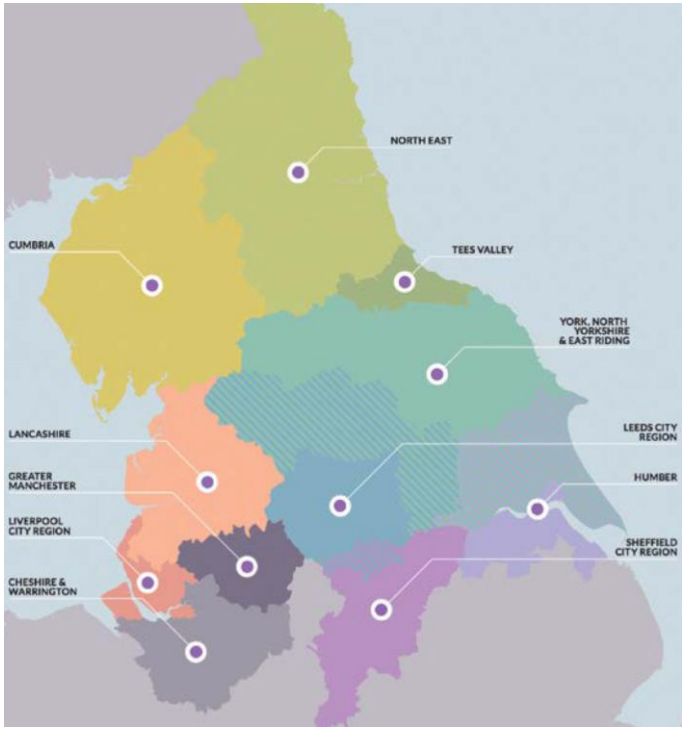
The Bioeconomy in the North of England

A **SCIENCE AND INNOVATION AUDIT** LED BY THE UNIVERSITY OF YORK AND SPONSORED BY THE DEPARTMENT FOR BUSINESS, ENERGY AND INDUSTRIAL STRATEGY (BEIS)

The consortium for this Science & Innovation Audit

Universities | Large & Small Companies | Agricultural Colleges | Translational Centres | LEPs | Skills Specialists



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Department for Business, Energy & Industrial Strategy
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Manchester 1824 The University of Manchester
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The Bioeconomy Consultants NNFCC
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Unilever
Precision Decisions
STC
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drax
CRODA
Greater Manchester Local Enterprise Partnership
LEEDS CITY REGION ENTERPRISE PARTNERSHIP
87l
Quorn Foods
Humber Local Enterprise Partnership
City of York Council
Enterprise Partnership Business Inspired Growth
Tees Valley Combined Authority
North East Local Enterprise Partnership
CATCH
Cogent skills for science industries
University Centre Reaseheath
Bishop Burton College
Askham Bryan College

Key points from the Audit

The region is shown to be a global front runner in R & D for the bioeconomy with:

World-class science

Specialised research & innovation facilities

Major industrial capacity

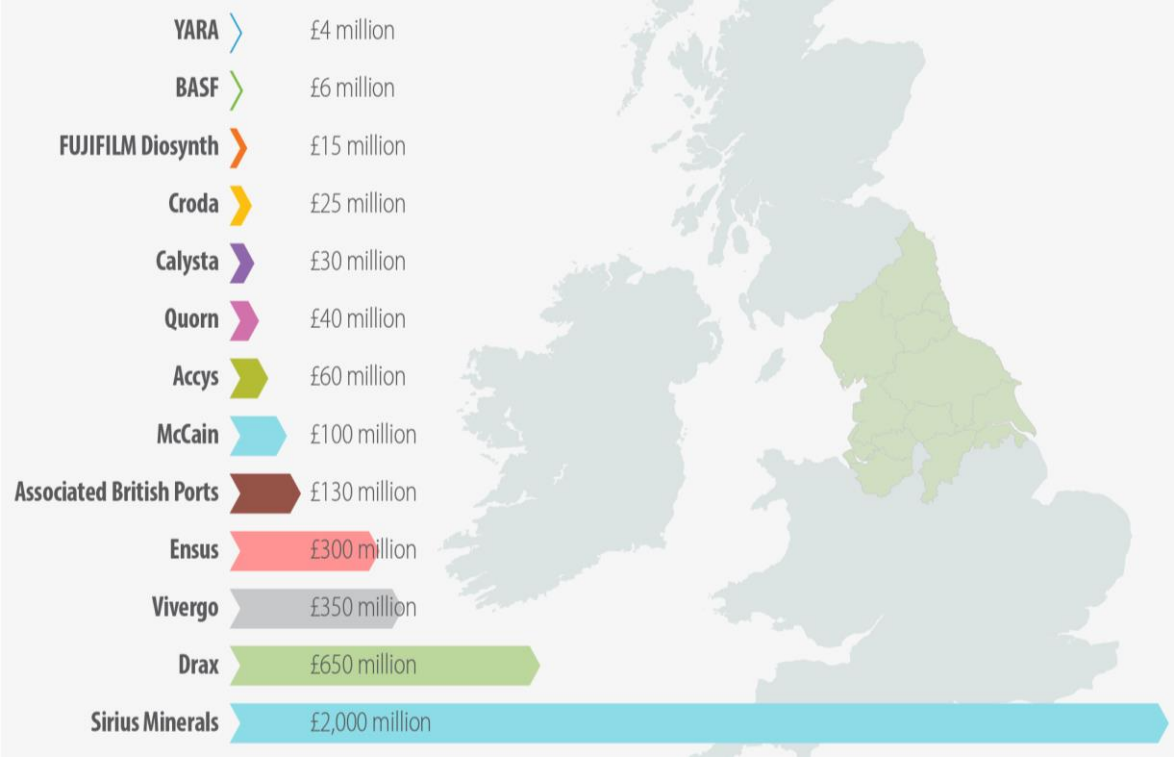
There is a substantial economic opportunity to build on regional strengths in agriculture, food & drink and industrial biotech:

The report proposes an ambition to grow the region's bioeconomy from £12.5 billion to £25 billion GVA by 2030

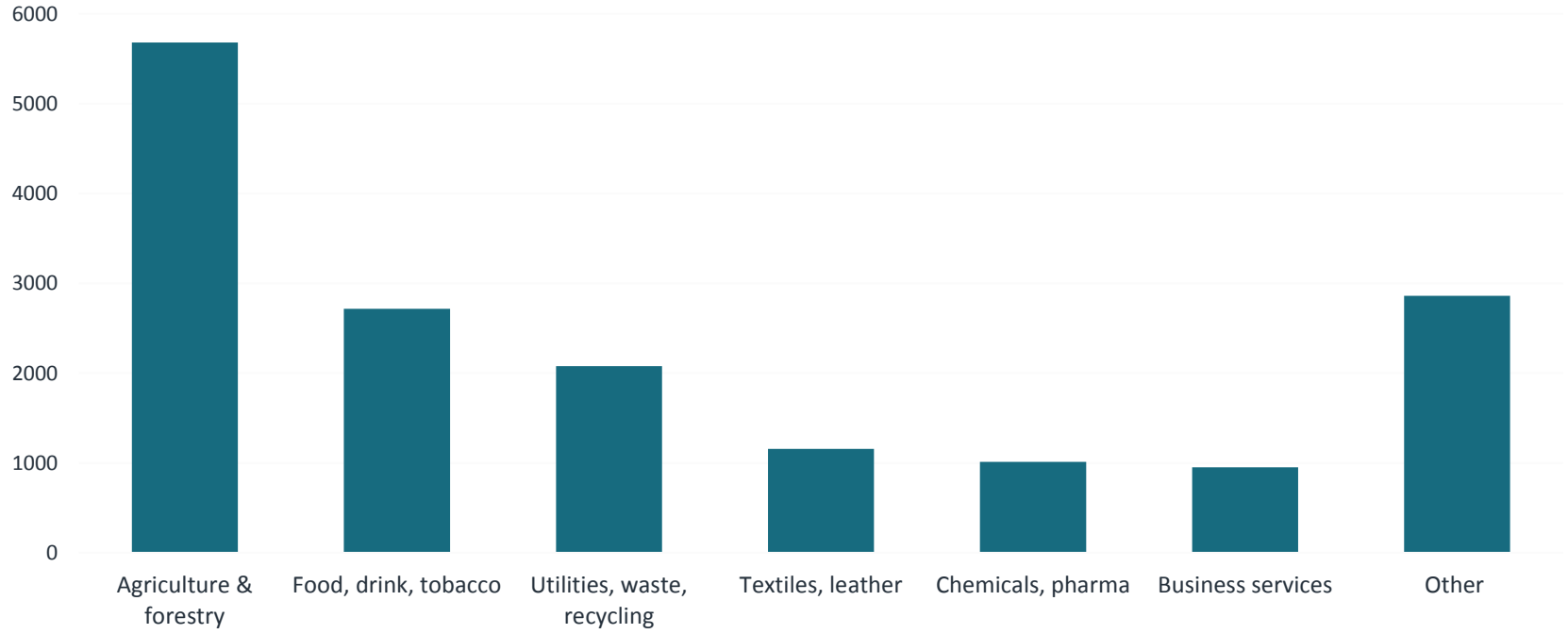
Key strengths

Research base	the N8 Research Partnership has proven ability to catalyse collaboration in the bioeconomy across the region's research base
Industrial capacity	over 16,000 bioeconomy relevant companies and three major chemical clusters, located around estuary ports
Translational facilities	a major differentiator and unique strength for the region, including translational research facilities at the Centre for Process Innovation, Fera and the Biorenewables Development Centre
Talent	concentrations of skilled people working in the process and manufacturing industries are a strong basis for building a competitive advantage

Examples of recent investment in the North of England bioeconomy – approaching £4 billion



Numbers of bioeconomy companies in the North of England

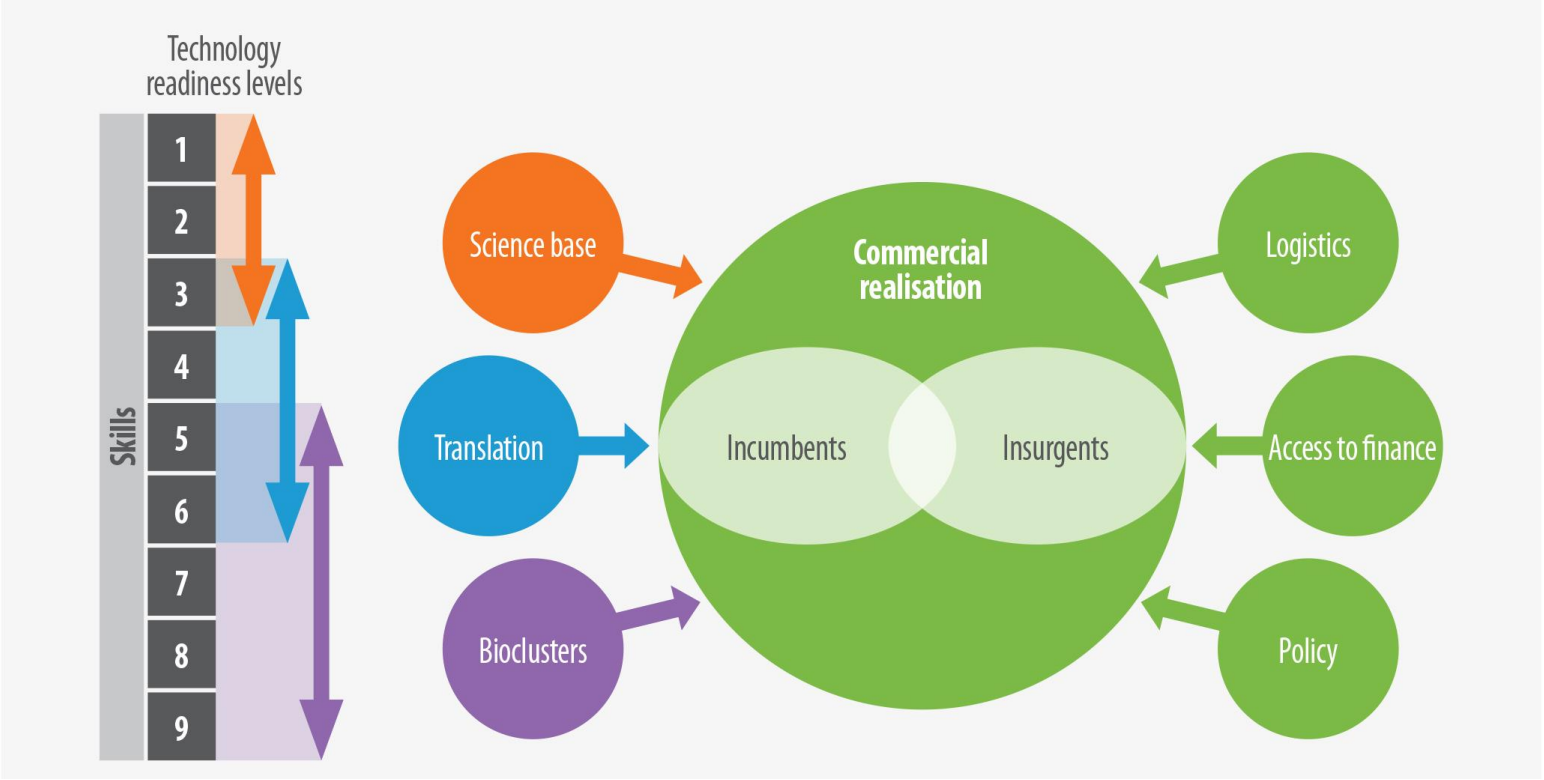


The Vision for 2030

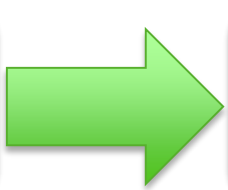
Integrated and innovation-driven bioeconomy across the North of England helping to drive growth, jobs and a rebalancing of the UK economy

The region's farmers use the latest technologies	advanced land management precision agriculture diverse crops for food and non-food markets
Regional biorefineries process crops & wastes	processing of crops, by-products and urban wastes food, feed, chemicals and materials are produced carbon and nutrients are returned to the soil
Chemical clusters have transitioned to bio-based	local and imported biomass feedstocks are used bulk bio-based chemicals are produced

Innovation framework for the commercial realisation of the bioeconomy



From York to wider perspectives



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Biorenewables Development Centre
Plants • Processes • Products

BioVALE building the bioeconomy

BBSRC bioscience for the future
Networks in Industrial Biotechnology and Bioenergy

Biorefining
LBNet · FoodWasteNet · AD NETWORK · P2P

Bioprocessing
BioProNET

Novel Chassis
C1net · PHYCONET

HVC/Natural Products
High Value Chemicals from Plants · NPRONET

Biocatalysis
biocatnet

Cross Cutting
IBCarb · Metals in Biology · CBMNet

BioPilotsUK
The Alliance of Open Access Biorefining Centres

3Bi
EUROPE'S BIOECONOMY INTERCLUSTER

THYME Project

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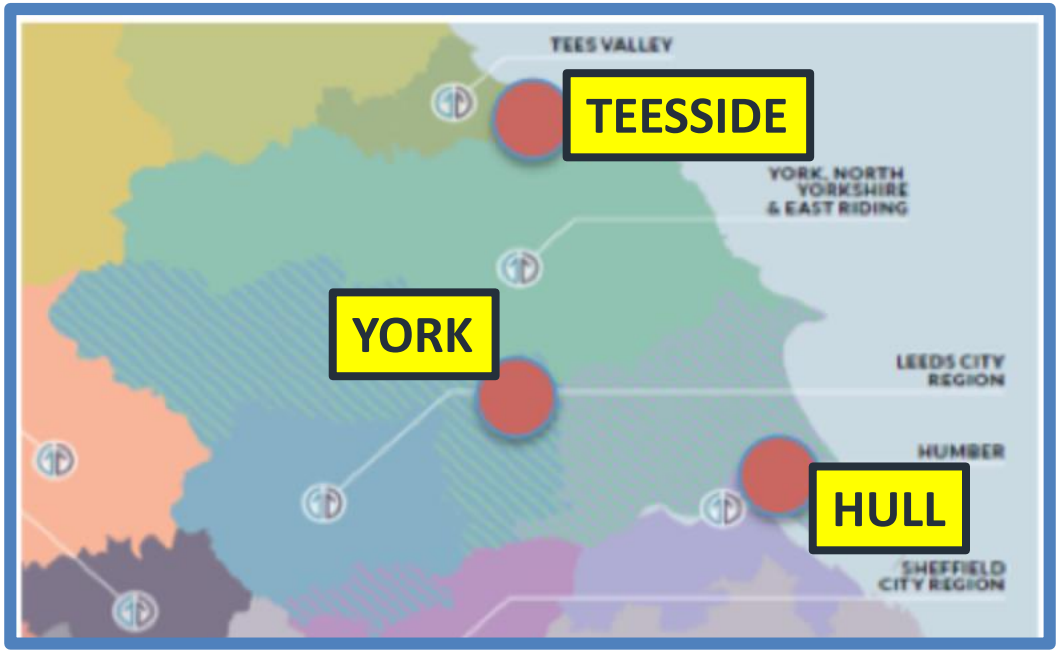
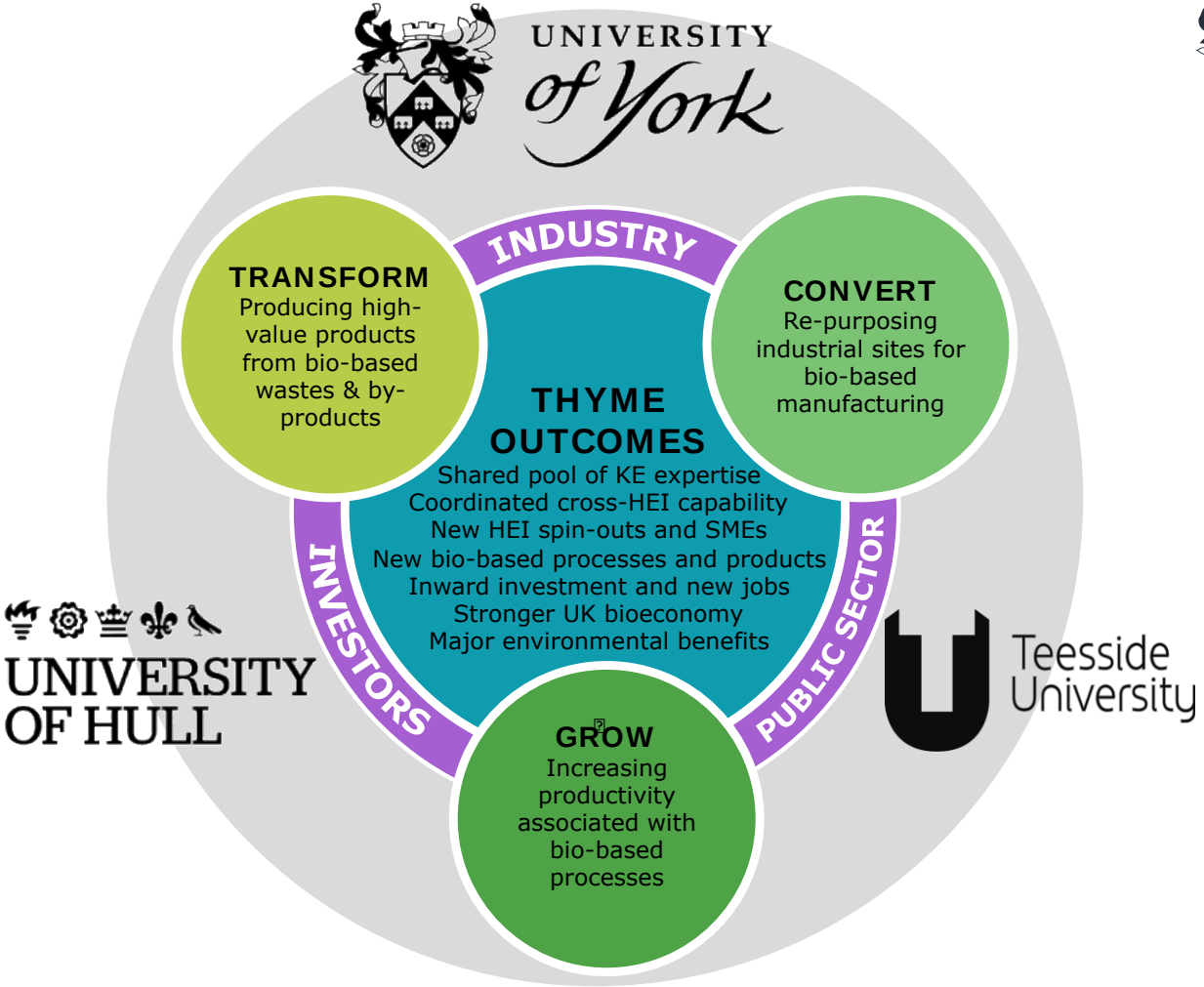
Teesside, **H**ull and **Y**ork **M**obilising Bioeconomy Knowledge **E**xchange

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TRANSFORM
Producing high-value products from bio-based wastes & by-products
INDUSTRY
CONVERT
Re-purposing industrial sites for bio-based manufacturing
THYME OUTCOMES
Shared pool of KE expertise
Coordinated cross-HEI capability
New HEI spin-outs and SMEs
New bio-based processes and products
Inward investment and new jobs
Stronger UK bioeconomy
Major environmental benefits
INVESTORS
PUBLIC SECTOR
GROW
Increasing productivity associated with bio-based processes
UNIVERSITY OF HULL
Teesside University

Growth & Collaboration Opportunities

- Transitioning the chemicals industry from petrochemical to biobased feedstocks
- Development of novel bioeconomy-ready plant varieties
- Mapping and biorefining available feedstocks including bio-based waste streams
- Linking robotics, AI and gaming platforms with bioeconomy development
- Supporting disruptive innovators and helping them thrive within the region