

From innovation to commercialisation



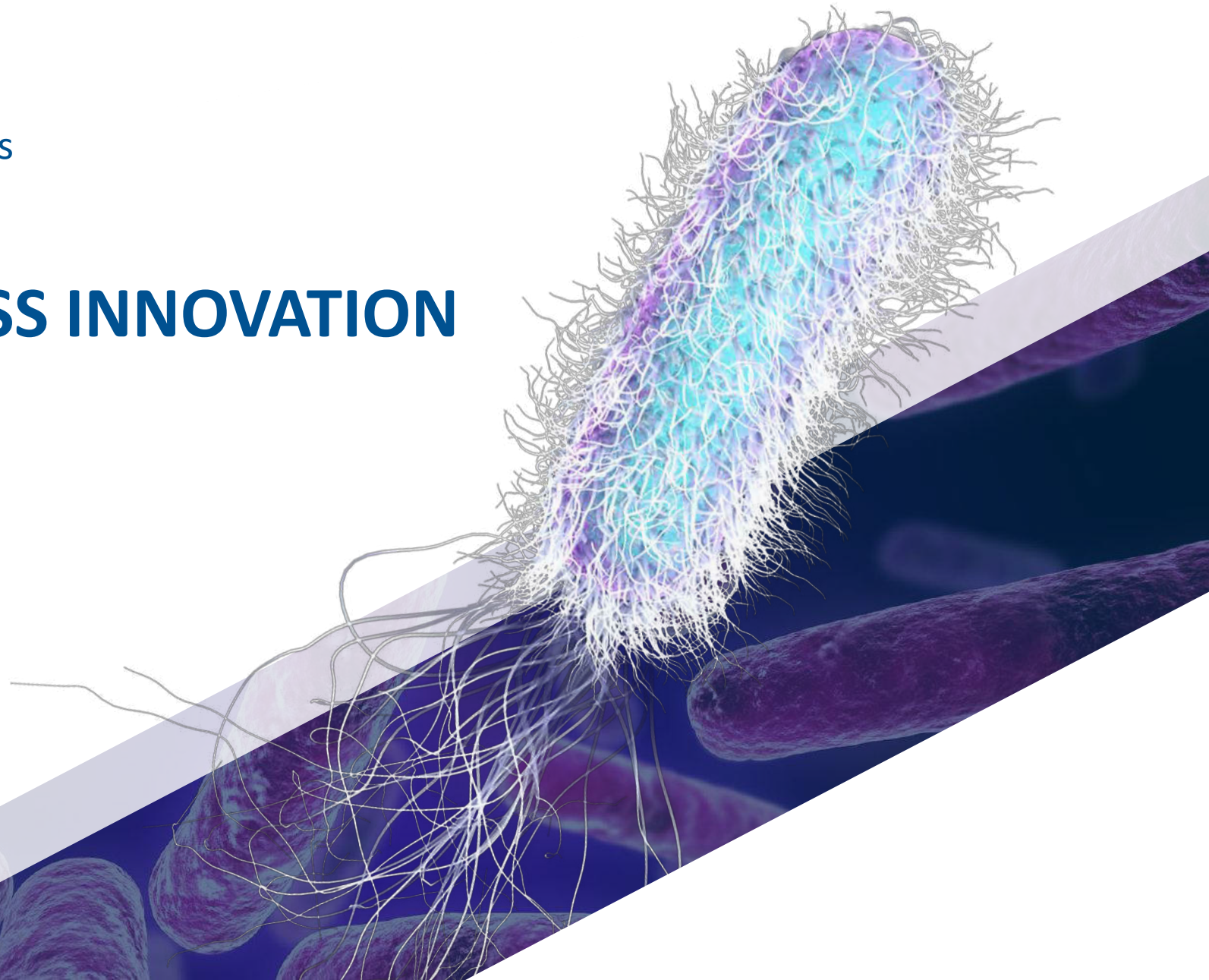
Innovhub – Bioeconomy Dialogues

13th June 2018

# CENTRE FOR PROCESS INNOVATION OVERVIEW

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Technology and Innovation Officer  
Industrial Biotechnology & Biorefinery  
CPI



*We are an...*

# **INDEPENDENT, OPEN ACCESS**

technology and innovation centre

We help companies to develop, prove and commercialise the next generation of products, processes and services





## REDUCE RISK

by demonstrating and refining novel technologies before investing large sums of money on new facilities



## PROOF OF CONCEPT AND SCALE UP

to show the feasibility of new ideas before approaching potential investors, stakeholders or funding programmes



## DECREASE THE TIME TO MARKET

for novel products or processes by providing access to proven demonstration assets and key expertise





Home to four  
**NATIONAL CENTRES**



A catalyst for growth and success in the UK

Seven UK-based centres for excellence, covering high value markets, and sharing **expertise and knowledge** to create a robust support network for advanced manufacturing in the UK.

**AFRC**  
ADVANCED FORMING RESEARCH CENTRE  
UNIVERSITY OF STRATHCLYDE

The University of  
**Sheffield**  
Advanced Manufacturing Research Centre  
*BOEING*

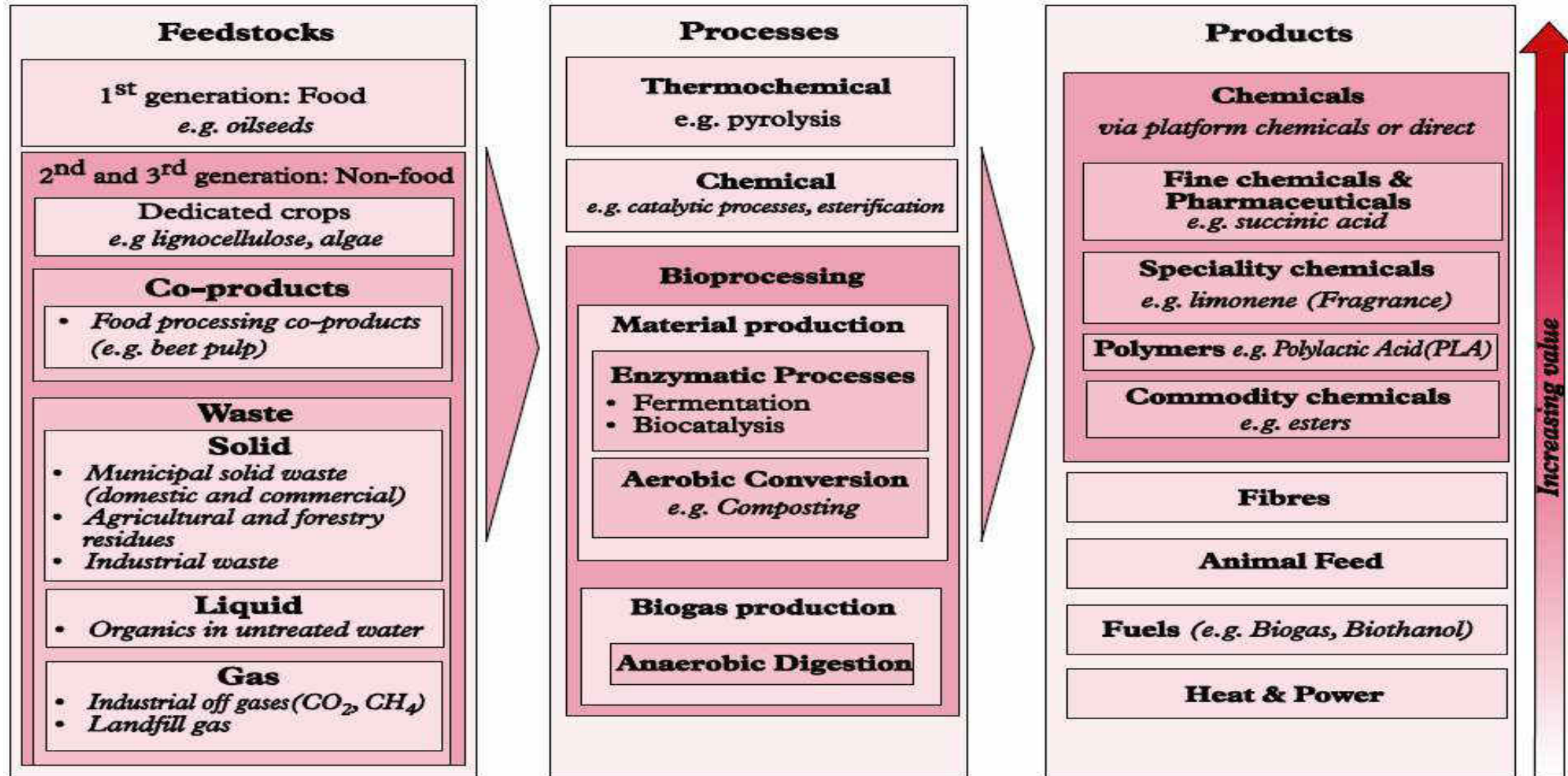
 **cpi** *mtc*  
Manufacturing  
Technology Centre

 NATIONAL  
COMPOSITES  
CENTRE

 NUCLEAR AMRC  
ADVANCED MANUFACTURING RESEARCH CENTRE

 **WMG**  
Innovative Solutions

# CPI-IBB: Technology Space



Source: AD Little, 2014; for House of Lords; Waste or resource? Stimulating a bioeconomy.



# CPI-IBB: People



- **Business Development & Project Management;** 7 staff consisting of Business Development; Project Management; Finance.
- **Technical Development** 12 staff consisting of Bioprocess development; Microbial Physiology & Host Strain Development; Process Analytics & QC.
- **Engineering** 6 Staff consisting of Chemical/Process Engineering and Modelling & Simulation (ASPEN & CFD) (Engineering maintenance now run across business)
- **Fermentation Group** 13 staff consisting of Fermentation Scientists & Engineers (Early & Late); Manufacturing Support Group.
- **Operations** 18 staff consisting of 3 day staff + 2x5shift team 24/7 operation for Pilot and Demonstration facility. Logistics & supply
- CPI Group holds all central supporting operations.



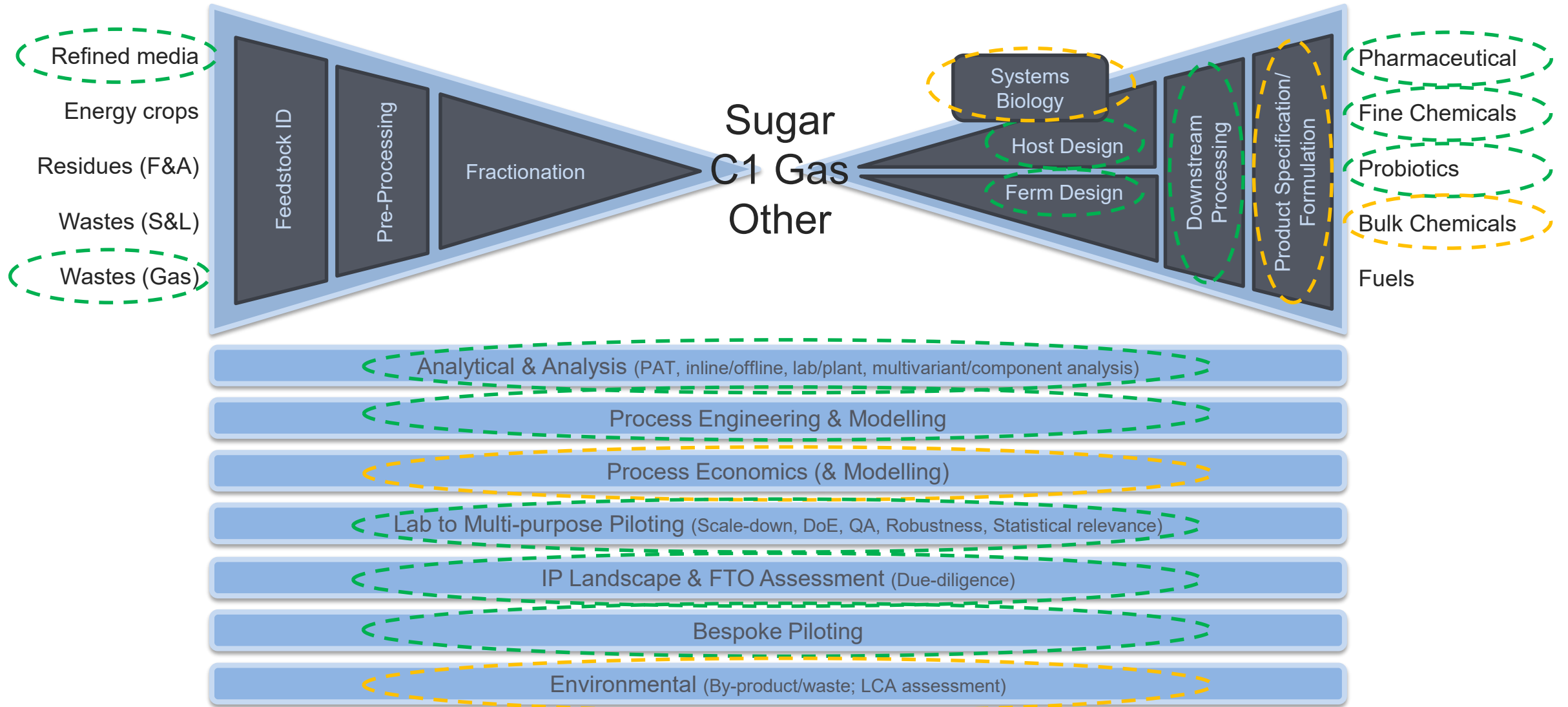
# CPI-IBB: Assets



CPI has designed and operates four facilities to deliver our Industrial Bioprocessing services (Each facility operates to ISO9001 standards):

- **Pilot Facility** (est 2006; £10m investment): 10/20/50/750L fermenters, associated downstream processing; Flexible plug & play configuration.
- **Demonstration Facility** (est 2011; £12m investment): 10,000L fermenter; Flexible upstream and downstream processing; Flexible plug & play configuration.
- **Anaerobic Digestion Facility** (est 2010; £2m Investment): 5,000L horizontal digester and 2x1,000L vertical digesters; Associated pasteurising and solids and gas handling equipment
- **Bioprocessing & Gas Fermentation Laboratory** (est 2013; £2m) Performs 1ml to 10L scaled-down process development for host strain characterisation and bioprocess development. Includes complete analytical suite.

# CPI-IBB: Competencies



## GAS FERMENTATION PILOT ; PRODUCT: FISH FOOD

- Phase 1: Engineering Feasibility Study
- Phase 2: Pilot Plant design, Build & Commissioning
- Phase 3: Technical Transfer of process & Pilot Plant operation
- Phase 4: (In parallel with Phase 3) R&D studies

D-LOOP

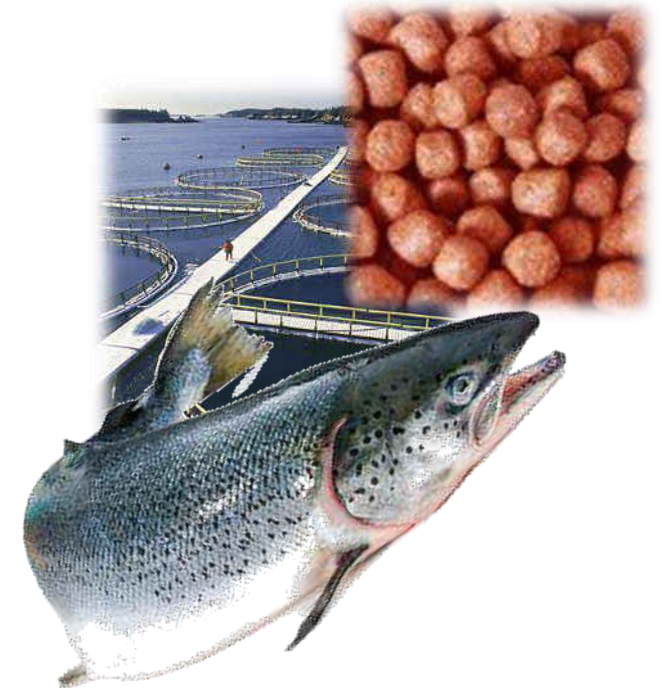


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Gas Lab/NIBF2



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# Case Studies



	COMPANY	SERVICES PROVIDED	PRODUCT(S)
<b>BESPOKE PILOTING</b>	<a href="#">Calysta</a>	Design management, build, OM&M, and R&D	Single-cell protein and chemicals
	<a href="#">Applied Graphene Materials</a>	Design management, build, and commission	Graphene
	<a href="#">Coressence</a>	Design, build, and operation	Polyphenols from fruit
<b>MULTI-PURPOSE PILOTING</b>	<a href="#">Cellucomp</a>	Process characterisation	Micro-fibrillated cellulose from root veg
	<a href="#">Celtic Renewables</a>	Process characterisation	ABE fermentation process
	<a href="#">Fiberight</a>	Process characterisation	Municipal solid waste processing
<b>TECHNICAL DEVELOPMENT AND DUE DILIGENCE</b>	<a href="#">AlgiPharma</a>	Process development, optimisation piloting	Alginate oligomers
	<a href="#">Oxford Biotrans</a>	Process development and optimisation	Nootkatone
	<a href="#">Biome</a>	Process development and optimisation	Bioplastic monomers
<b>MANUFACTURE</b>	Johnson Matthey	Production at 750L and 10,000L	Biocatalysts for API manufacture
	Oxyrane	Production at 750L and 10,000L	Novel therapeutic protein
	Volac	Production at 10,000L	Whole-cell biocatalyst for ensiling



# Companies



# Collaborative UK Universities & International Centres



# THANK YOU

*for more information  
please get in touch...*

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Centre for Process Innovation Limited

