

EPSRC CENTRE FOR INNOVATIVE  
MANUFACTURING IN



**An overview of our Challenges,  
Projects and Plans**



# A Food Systems Approach

Taking a 'Food System' approach will provide a resource efficient and food secure future of the UK food industry, by engendering vision in the UK science base and improving uptake by the industry.

The EPSRC Centre for Innovative Manufacturing in Food is partnership between the University of Nottingham, Loughborough University and the University of Birmingham. In collaboration with a growing list of major industry partners, the Centre has a focus on manufacturing activities from 'post-farm gate to supermarket shelf', and more specifically the implications of these activities on the areas of Resource Efficiency and Sustainable Production.

The Centre started on 1<sup>st</sup> December 2013 and aims to spend £5.6m on Research



Home > News, events and publications > News > 2011 > Call for EPSRC Centres for Innovative Manufacturing

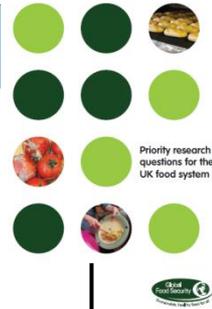
### CALL FOR EPSRC CENTRES FOR INNOVATIVE MANUFACTURING

Issue date: 11 October 2011  
 Type: News  
 Related theme: Manufacturing the future



Monday 12<sup>th</sup> December 2011

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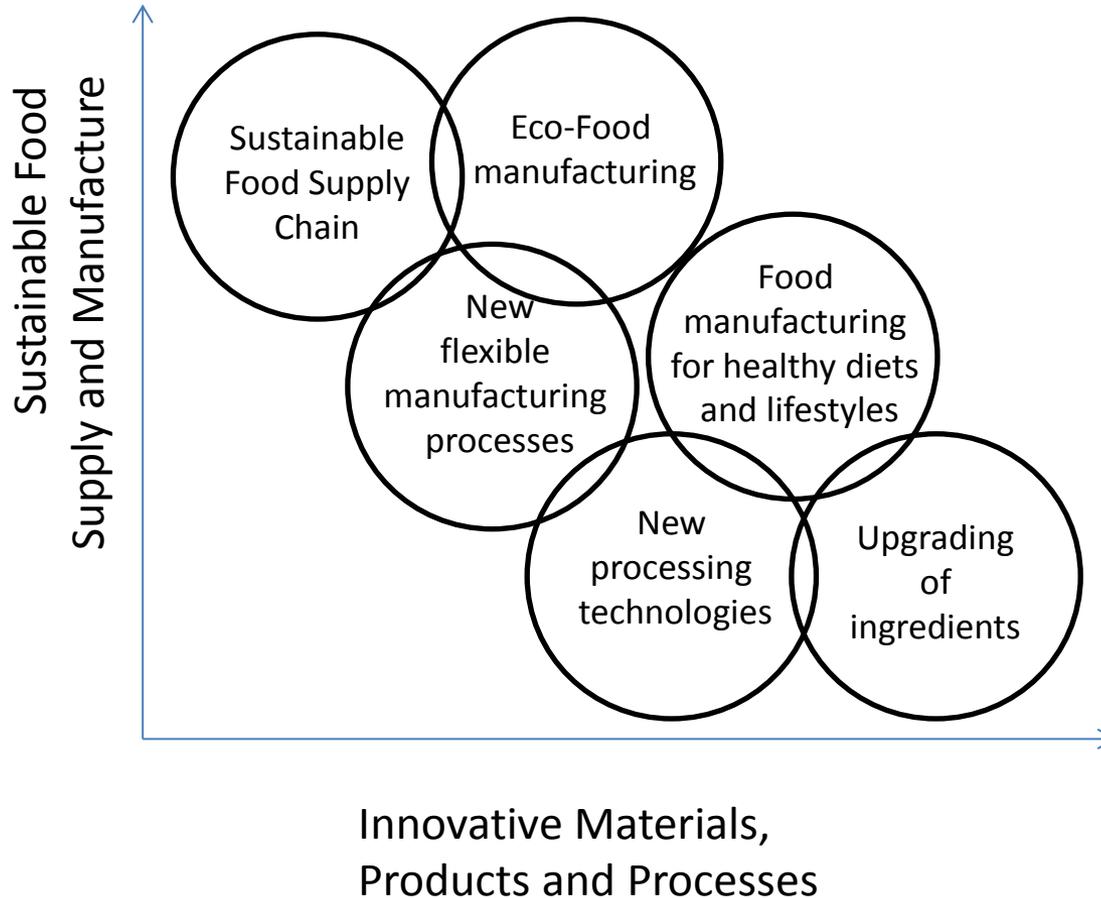
- ### 2007 What is Required?
- Achieving sustainable food production
  - Tailor-made foods to preference / acceptance / needs of consumers
  - Entrepreneurial / innovative Industry
  - Changing operating procedures
  - Small Scale efficient and flexible processing
  - Hygienic processing
  - Ingredient functionality and security of supply
  - Limited water
  - Biomass refining
  - Food product design and fabrication

- ### 2011 What we will do
- Innovative manufacturing activities from 'post-farm gate to supermarket shelf', and the implications on Resource Efficiency and Sustainable Production
  - Innovative materials, products and processes
  - Sustainable food supply and manufacture
  - Creating 38 new jobs
  - Creating **THOUGHT LEADERS** of the future

- ### 2013 Current views
- 'This approach encompasses the whole life-cycle of processed foods.'
- 'The concept of farm to fork is too limited, and needs to be expanded to that of **from farm through digestion.**'
- Reducing our environmental impact
  - Meeting growing global demand for food
  - Producing more from less as pressure increases on resources
  - Reformulating and creating new products to meet diet and health requirements



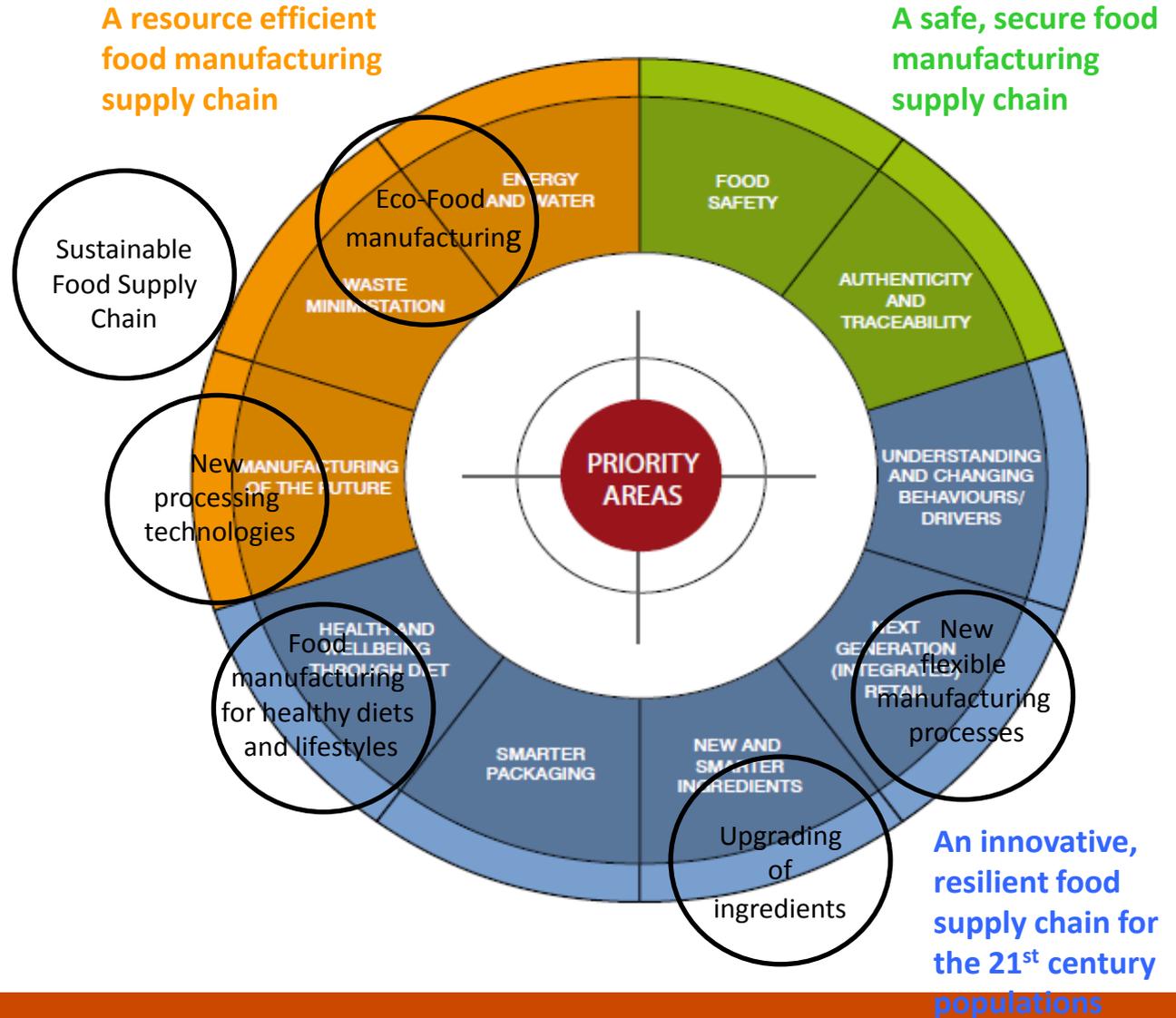
# Our Focus



Co-creating products of the future –  
With ingredient and process developments

PRIORITY AREAS FOR RESEARCH TO MAINTAIN AND ENHANCE THE UK'S COMPETITIVE POSITION IN GLOBAL FOOD MANUFACTURE

Aligned to current thinking





# Current Projects

Grand Challenge	Research Theme	Research Title
Innovative materials, products and processes	Upgrading of Ingredients	Clean label emulsifiers
		Novel routes to structure edible oils via oleogels
		Modulation of tomato fruit texture
	New processing technologies	Spontaneous emulsification
		Ice stabilisation in frozen drinks
		Drying mechanisms in food systems
		Protein-pectin complexes to stabilise functional emulsions
	Food manufacturing for healthy diets and lifestyles	Redesign of biscuit manufacture
		Distributed manufacturing of food products
	Sustainable food supply and manufacture	New flexible manufacturing processes
Emerging flexible manufacturing processes		
Eco-food manufacturing		Eco-production of food: reducing the impact of food waste
Sustainable food supply chain		A multi-view approach to establishing resilience in the food supply chain

# Who are we working with?



Cargill,  
British Sugar

Unilever,  
Nestle, Mars,  
Pepsico, 2  
sisters FG,  
Premier Foods,  
McCains

Sainsburys,  
M&S

**+ more industry players to follow**

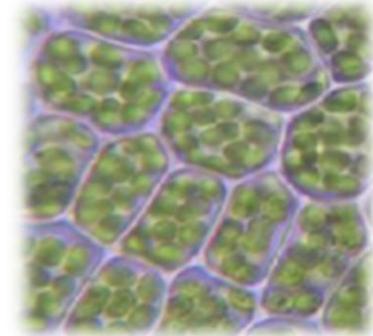
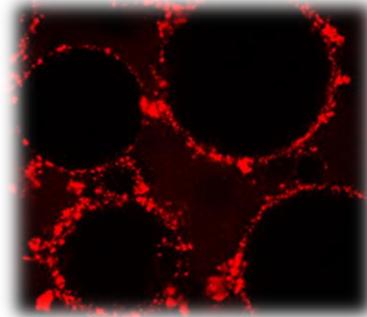
- **£5k pa membership**
- **Early access to data / talent**
- **Enabling a National scope**



# The Challenges and Opportunities for Food Manufacturing

- Global Food Security
  - (not just growing more food but how to turn it into the food we eat!)
- A move from Nutrition to Sustainability
  - (market(ing) drivers, but real opportunities for innovation)
- Personalised Nutrition – Personalised Products
  - (moving production closer to the consumer)
- Food manufacturers – Retailer Interaction
  - (new supply chain models)

# How are we addressing these Challenges?

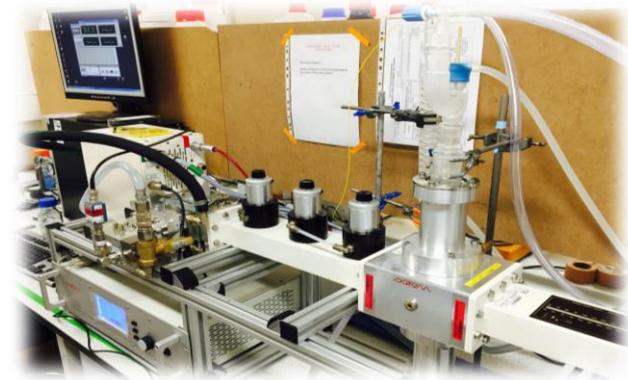
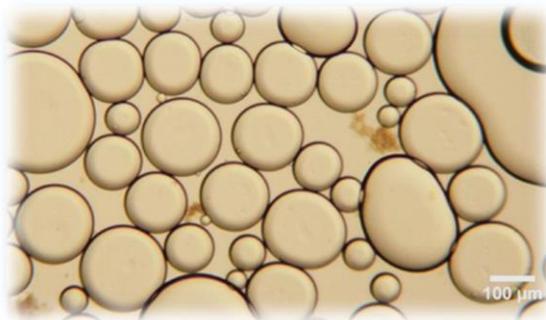


- Value-add propositions
- upgrading ingredients
- Better utilisation of nature's ingredients
- Factory to the farm



# How are we addressing these Challenges?

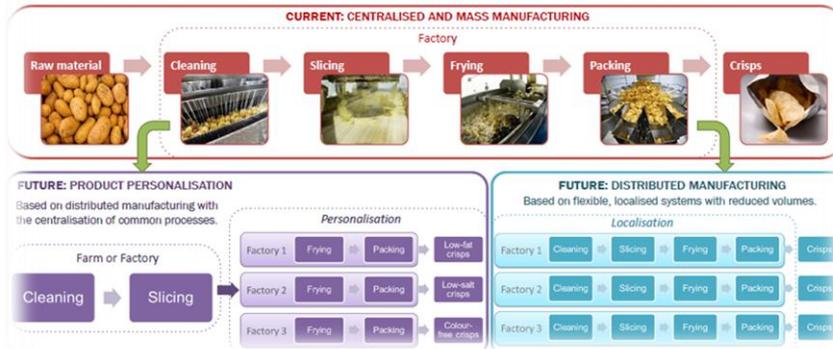
- Exploring emerging technologies: Microfluidics, Microwave Vacuum Drying (MVD), 3D printing, supercritical CO<sub>2</sub> drying, membrane emulsification
- Exploring structures for stabilising particles or for encapsulation and release



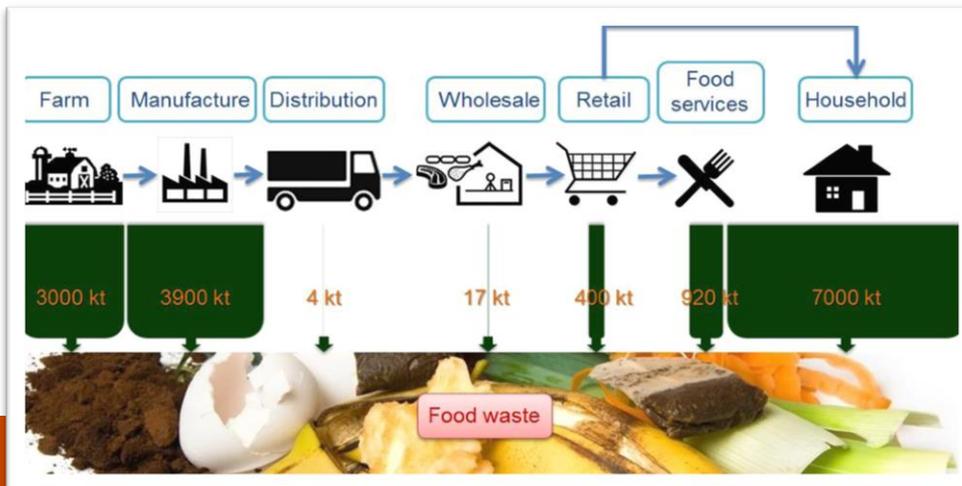
# How are we addressing these Challenges?

## FUTURE FRAMEWORKS FOR MANUFACTURING

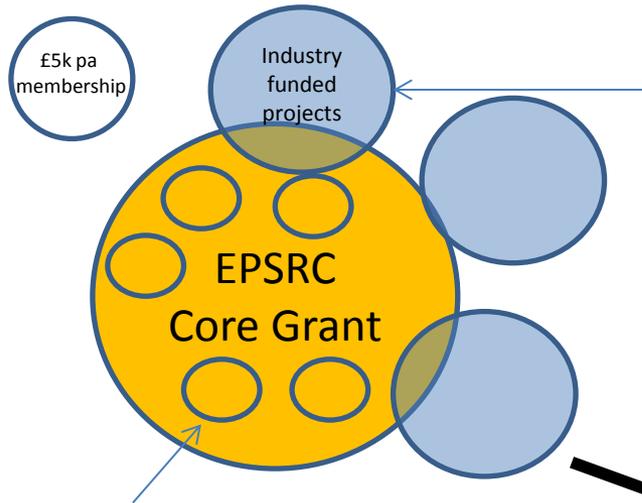
How existing centralised models of mass manufacture can evolve to realise personalised products within localised production systems.



- Late stage customisation and product personalisation by the consumer via a 'Redistributed manufacturing'
- Eco-production of food
- Resilience in the food supply chain



# Business Model



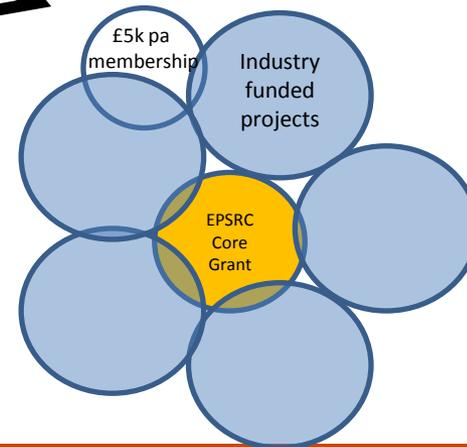
Industry funded projects could be EU/ RCUK / TSB / self funded projects. The industry funding in these grants could be costed to include the £5k pa membership.

The membership fee allows industry access to findings in the EPSRC core grant projects, through attendance at the dissemination events, access to progress reports and access to publications prior to submission to journals (~ 4 months ahead of publication). This might then promote involvement in industry funded projects.

EPSRC projects funded from the core grant.  
The findings could migrate to industry funded (as above) projects  
With the EPSRC know-how forming the background art.

As the core grant is spent, then EPSRC Centre continues to work through the grouping of industry funded projects.  
**Industry funded projects may contain one or more of the EPSRC Centre academic partners (UoN, UoB, LU).**

Time





# Ways of working with us

- Sponsor a PhD studentship project
- Sponsor a MSc summer student project
- Work within the CIM via a KTP or other technology transfer scheme
- Industry or academic secondments
- Feasibility projects
- Collaborative R&D projects / H2020 / Innovate UK
- Pay an annual subscription fee of £5,000 (ex VAT)



# Membership Benefits

- Findings from the EPSRC core grant projects
- Dissemination events, including industrial and academic workshops
- Progress reports
- Publications prior to submission to journals
- Participation in future activities, with invited guidance to refocus research direction
- Opportunities for industrialists to spend time within the CIM, working closely with researchers
- Rapid uptake of methodologies, technologies and tools created by the CIM through its Grand Challenge themes via demonstrator systems (including support from the Manufacturing Technology Centre (MTC))
- Registration fees for conferences organised by the CIM, (at least one of which will be targeted at an international audience)
- Access to the wider capabilities from the partner universities



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