

The Food and Agriculture Initiative

@ Monash

Why work with Monash in Food and Agriculture ?

- Food and Ag, a prioritized sector both nationally and locally, with support funding available
- Significant value opportunities locally and internationally for the Australian industry
- Multiple relevant primary research strengths (engineering, chemistry, bioscience, medical & nutrition, ...) with a large talent pool to leverage
- Strong international presence and connection, particularly in Asia

Our approach – build bridges between industry and primary research !

Insights, findings, technologies,
complementary skills

Applications,
multidisciplinary expertise,
translation, talent

Market opportunities,
innovation needs,
consumer aided
design,

**Primary
research**

Translational
research :
Food & Ag
cluster
initiatives

FIC

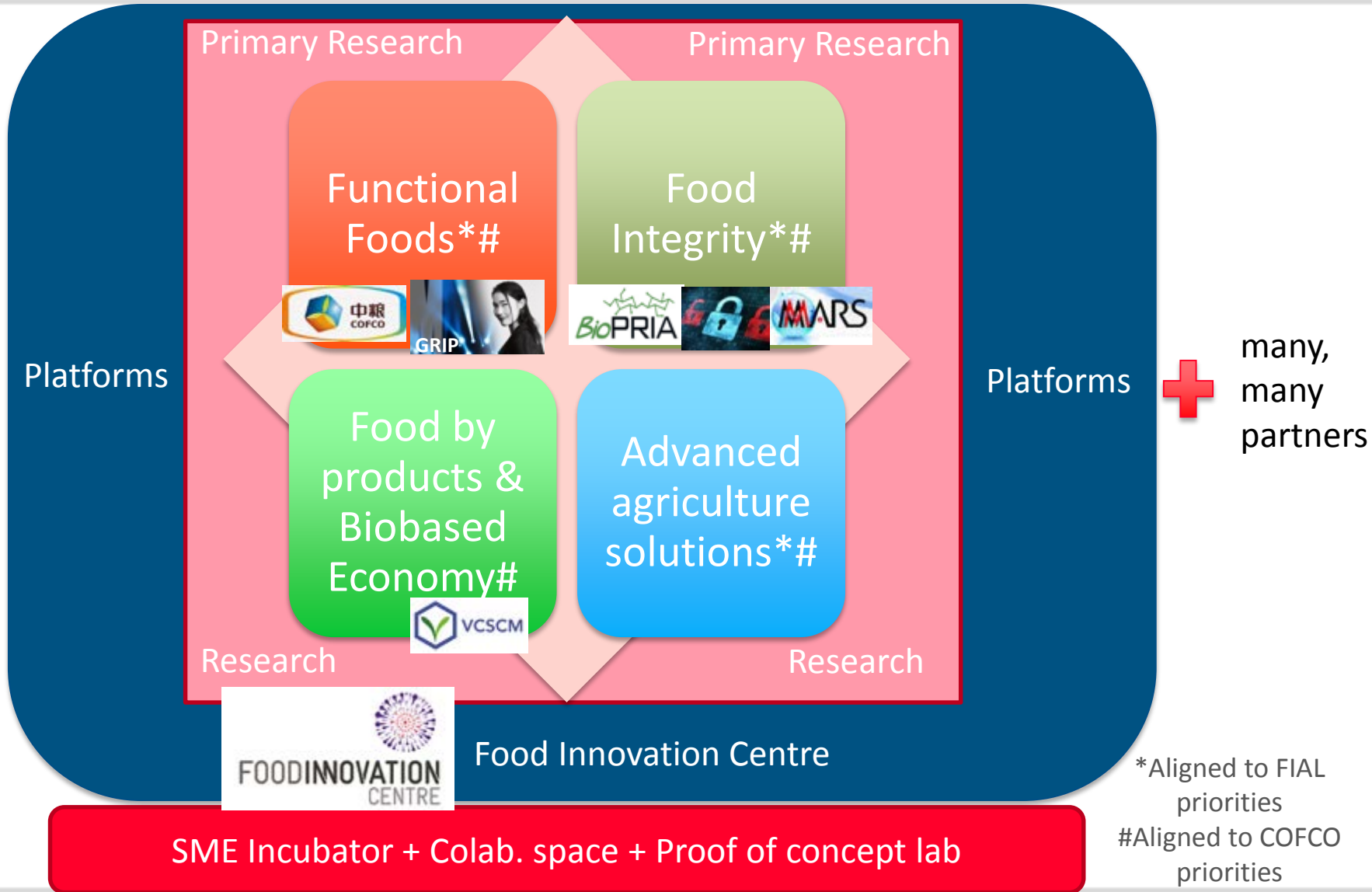
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Long term

Medium term

Short term

Focused multidisciplinary applied research clusters, supported by an industry led base

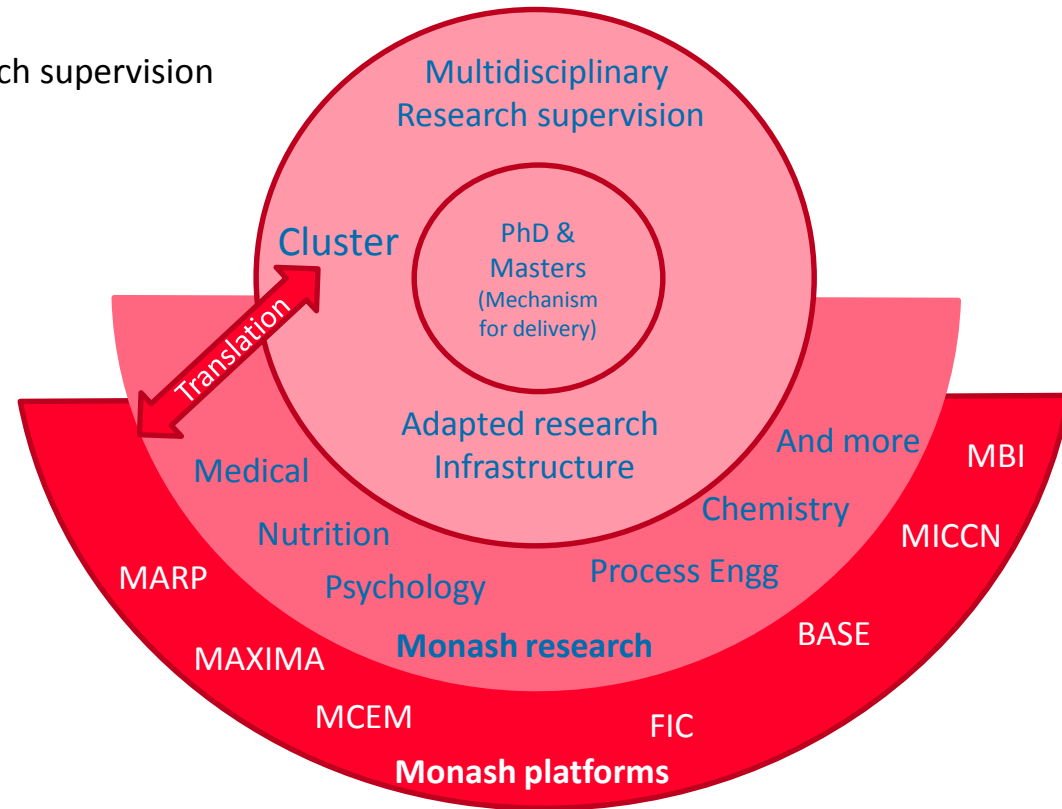


Focused BD team & integration support + Initiative partners (TBC) on advisory board

The identified Food & Ag research clusters can be translated into competitive, value-added products, offers or processes

Unique selling proposition for a cluster:

- critical mass of world class, multidisciplinary research supervision
- access to **unique** & critical infrastructure
- cost effective delivery & talent
- fed by translated findings of world class research
- supported by world class facilities



What is the best way to engage with us?

- If we have common areas of interest in our focus points, let us connect so we can understand your business better to determine:
 - possible research or technology findings you could be an industrial partner to realize differentiation and value in your categories
 - opportunities or challenges you'd like to see if we can help
 - opportunities to link you with other businesses who may have a use of your offers
- And in the meantime, talk to us about your innovation needs and get to the Food Innovation Centre

How we can collaborate with you



Graduate Research Interdisciplinary Program

Monash Industry Team Initiative

Under-Graduate & Post-Graduate Student Projects

Consultancy

Contract research

Collaborative R&D projects

License technology

Specialised seminars tailored to your corporate needs

Executive and continuing education

Monash University's campuses around the world



Some cluster examples – projects or capabilities

Functional Food Examples



Australia-China Joint Research Centre in Future Dairy Manufacturing

Theme 1: Developing Functional Dairy Products

- New probiotics and fortified products
- Bio-mimicking digestive analysis of dairy products

Theme 2: Improved dairy manufacturing processes

- Increase yields from industrial spray dryers
- Anti-fouling surfaces and efficient cleaning processes

Theme 3: Innovative membrane processes

- Biomimetic membranes with high flux and selectivity
- Anti-fouling membrane technology

Theme 4: Modelling for process optimisation

- Particle design via spray drying
- Improved quality of spray-dried powders

Low GI sugar (phase 1)



- Winner of SRDC global innovation award 2009
- 6% retail market share 1 week after Australian launch
- 1st sugar to be endorsed by Diabetes Australia & GIF
- Developed with support of over \$6m in government & \$9m Nestle funding
- Company acquired by Nestle 2009



FOOD INTEGRITY

MONASH CAPABILITY

FOOD AUTHENTICITY



FOOD INTEGRITY



FOOD SAFETY

Data security & traceability

- Cybersecurity & Digital Tamper Proofing
- Chipless RFID

Consumer & Customer Friendly solutions

- Consumer Aided Design
- Asian panels
- Rapid Proto & testing
- Virtual Shopping validation

Origin Testing

- Genomics
- Mid IR & biomarkers
- Biomarkers synthesis

Education & Training

- Insights to solutions

Packaging solutions

- Smart sensors
- Anti counterfeit attribute

New pack materials for shelf life

- Nanocellulose

Instant Testing

- Instant pathogen testing (IR)

A TOOLBOX OF TECHNOLOGIES TO OVERLAY IN A FOOD INTEGRITY SYSTEM

Bio spectroscopy Diagnostic :

Portable IR testing in seconds,
with cloud dedicated algorithms

*Food Safety:

-pathogen fast screening (60s)

*Food Authenticity:

-specific biomarker identification

Food Grade Biomarkers synthesis

Chipless RFID

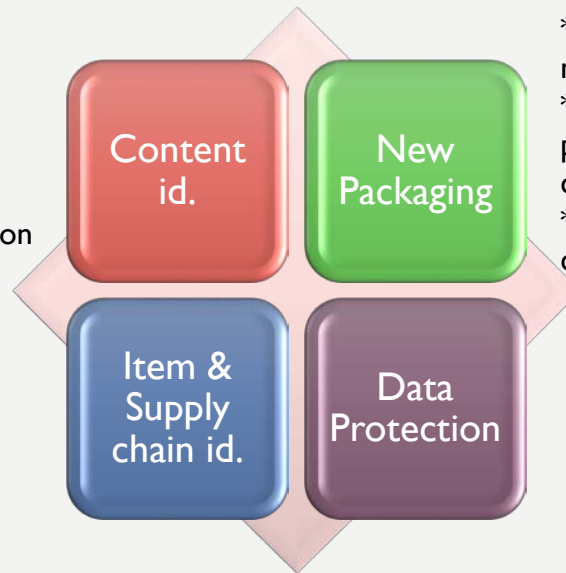
All the benefits of RFID, at low cost

*Food Safety:

-on pack sensor capturing
supply chain conditions
(temperature, ...)

*Food Authenticity:

-unique information by batch



New Packaging Materials:

*Recyclable, increased shelflife,
nanocellulose based packaging

*On pack paper sensors capturing
product or supply chain condition
changes

*Fluorescent fibers, print markers anti
counterfeiting pack attributes

Cybersecurity Chain of Custody

Data signatures protecting and validating the
integrity of the data used by the other
technologies