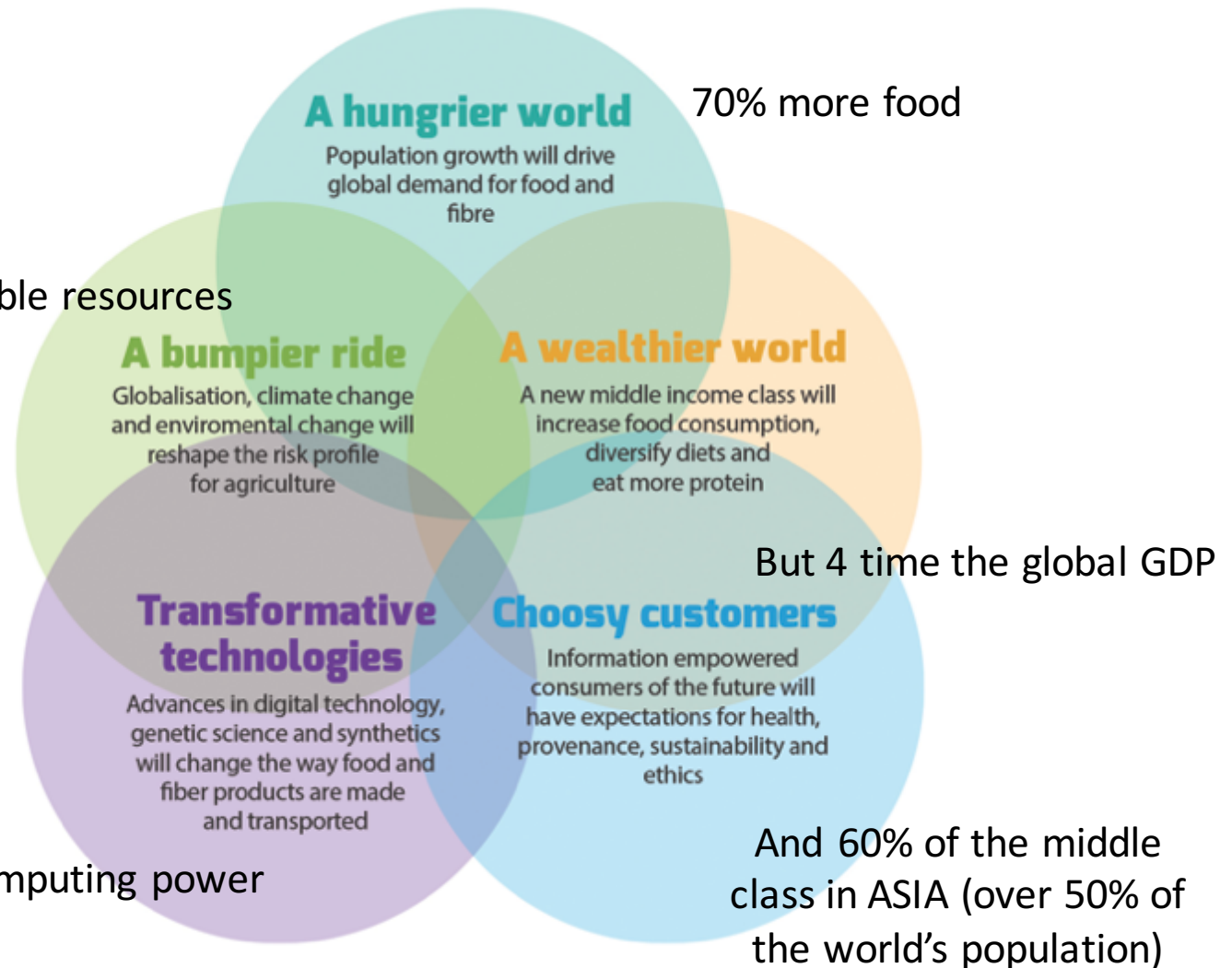


Welcome to the Food and Agriculture Initiative @ Monash (FAI)

Looking out to 2050 shows the transformational shifts coming at our sector ...

With half the renewable resources



... with much uncertainty on its future without decisive actions

Total food production

500 million tons



2000

2050

China's food production may be cut by up to 23 percent by

2050

because of temperature rise, loss of arable land and water scarcity

23%

GREENPEACE

The future of food and farming: 2050s

By 2050, climatic impacts on food security will be unmistakable. There are likely to be 9 billion people on the planet, most people will live in cities and demand for food will increase significantly.

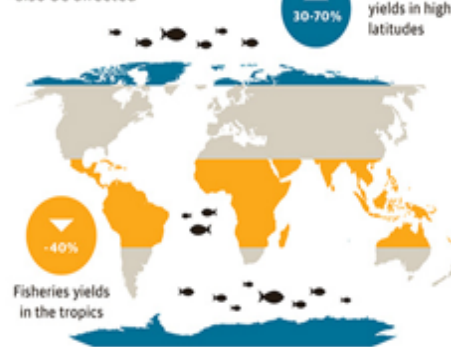


Widespread impacts on food and farming are highly likely

Average decline in yields for eight major crops across Africa and South Asia

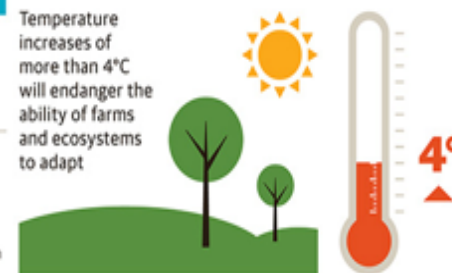


Marine fisheries will also be affected

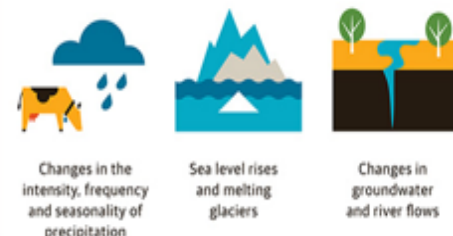


Heat and water may pass critical thresholds

Temperature increases of more than 4°C will endanger the ability of farms and ecosystems to adapt



Water cycles will be very different and less predictable



We will need major innovations in how we eat and farm

To cope with climatic changes, we may need to consider:



Completely different diets



Shifting production areas for familiar crops, livestock and fisheries



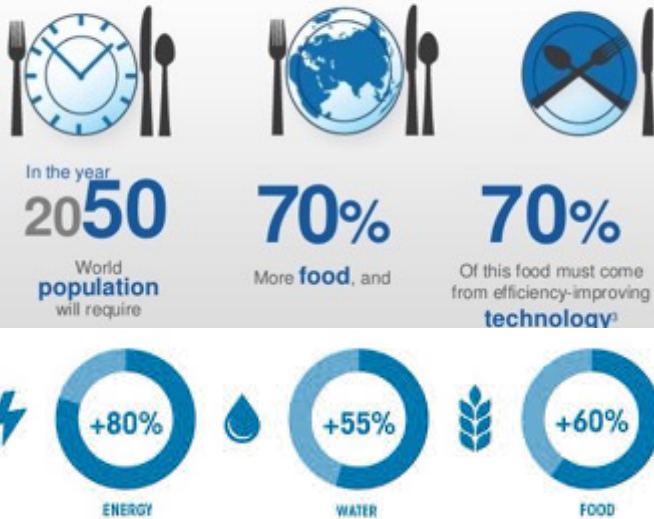
New approaches to managing waste, water and energy in food supply chains



Restoring degraded farmlands, wetlands and forests

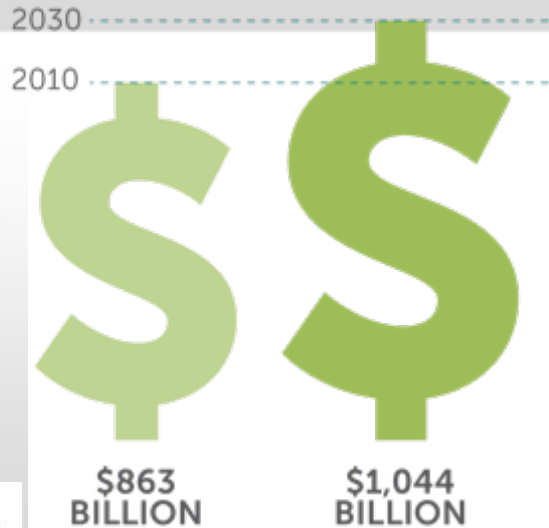
Whilst minding the gap in specific areas

Food, Choice, Sustainability



GLOBAL FOOD LOSS AND WASTE

By 2050, the world will need about 60 percent more calories per year in order to feed a projected 9 billion people. Cutting the rate of global food loss and waste could help close this food gap while creating environmental and economic benefits.

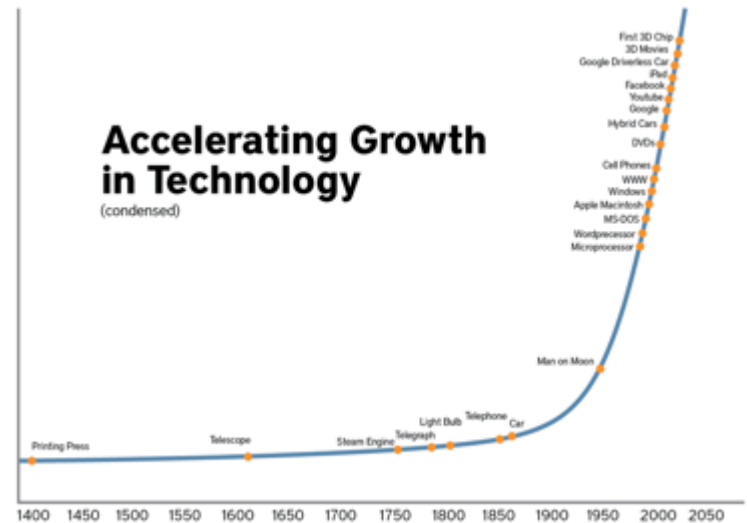


Health Cost of CVD



Accelerating Growth in Technology

(condensed)

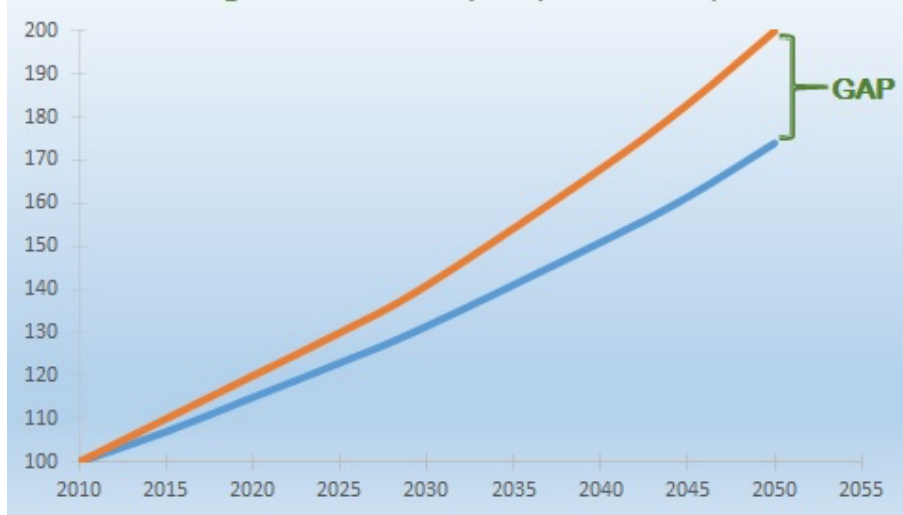


The diagnostic remains the same - the Food and Agriculture industry has huge potential and challenges in our region, but demands **DISRUPTION** :

- More inventions to increase yields, nutrient quality and sustainability of our food production to cope with the world demand & climate change

- More innovation to increase the differentiation and necessary improvements of the food offering on the world stage & cater to unprecedented fragmentation

Agricultural Output (2010=100)



2015 F&B Consumer Trends

- These are the main consumer trends in the food and beverage industry, stemming from the analysis of our SIAL Paris 2014 Database:



BFA
Better For All



LAP
Like A Pro



DIY
Do It Yourself



FUN
...Fun



SF
Stress-Free



NOD
New Occasions/
Demographics

Taking advantage of the Asean Century could be key to strengthening the local Food Manufacturing industry.

60%

of the world's demand for Agrifood will be from Asia by 2020¹

2.78b

The number of incremental people moving into the middle class in the Asia-Pacific region by 2030²

8

of Victoria's Top ten export markets are in Asia and the Middle East³

9%

of Australian businesses only are currently operating in Asia⁴

- Source:
1. Linehan, V, Thorpe, S, Andrews, N, Kim, Y & Beaini, F 2012, Food demand to 2050: opportunities for Australian agriculture, 42nd ABARES conference, Canberra.
 2. Kharas, H 2010, The emerging middle class in developing countries, OECD Development Centre, Paris.
 3. Victorian Government, 2013. "Food to Asia Action Plan"
 4. PwC, 2014 "Passing us by: Why Australian businesses are missing the Asian opportunity. And what they can do about it"

To rise up to this scale of challenges and opportunities, we need more
INVENTIONS = disruptive or transformative changes starting with the sector

“Seventy-five percent of the world’s largest companies are forecast to leave the S&P 500 in the next 15 years,” A. Walduck – Australia Post



“Fast-growing companies account for less than one percent of total exports in Australia, way behind Israel and the US which boast figures in the mid-to-high teens.”
Carnegie - ANZ

“Australia is very good at knowledge creation,” Carnegie, the former head of Google A/NZ, said. “What we’re very weak at is knowledge transfer and knowledge application ... and we’re going to have to address that. The key to success in the innovation game is partnerships and collaboration”



How do we get our sector to lead its own transformation & disruption ?

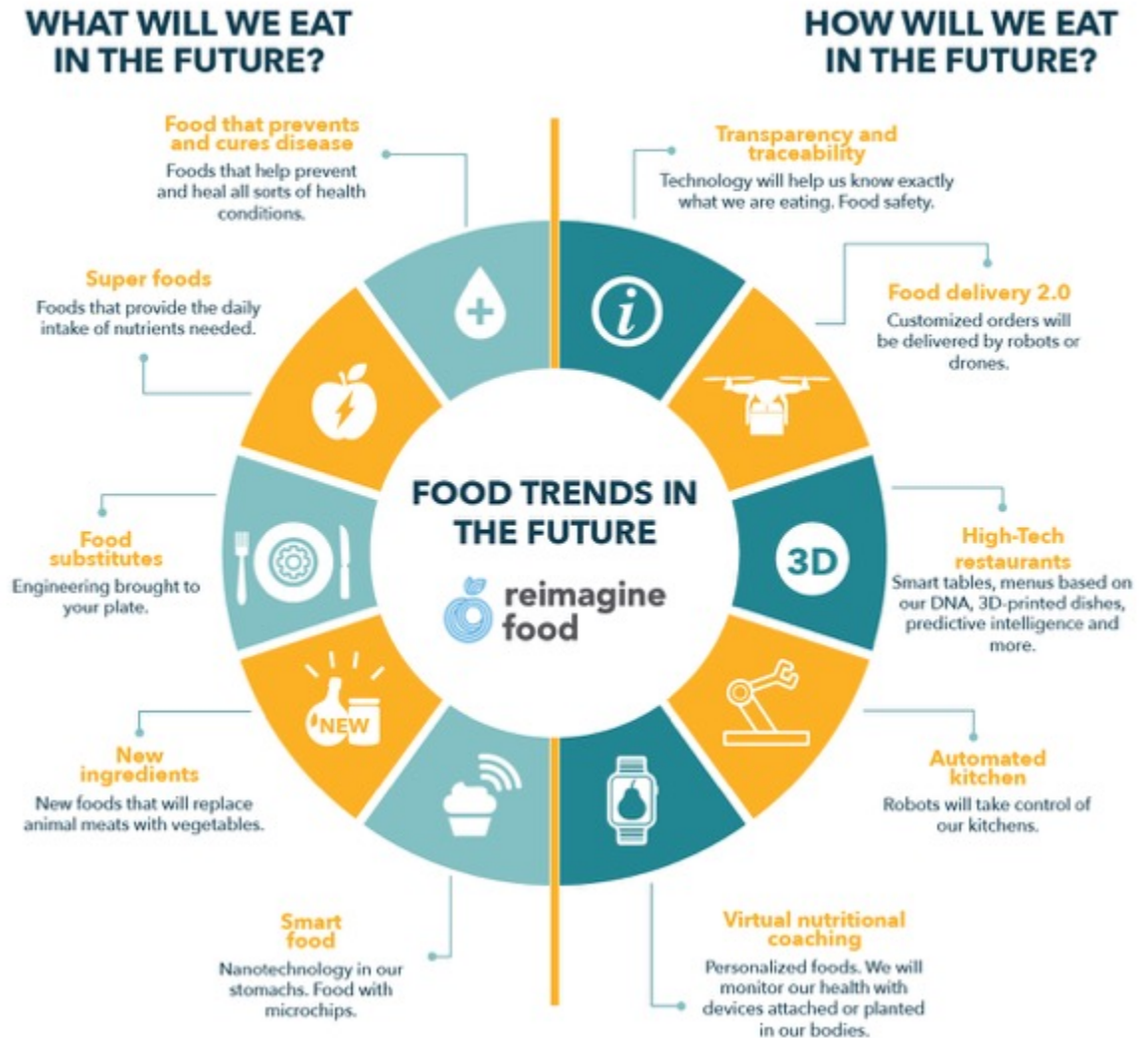


Our answer

**KEEP
CALM
AND
INNOVATE**

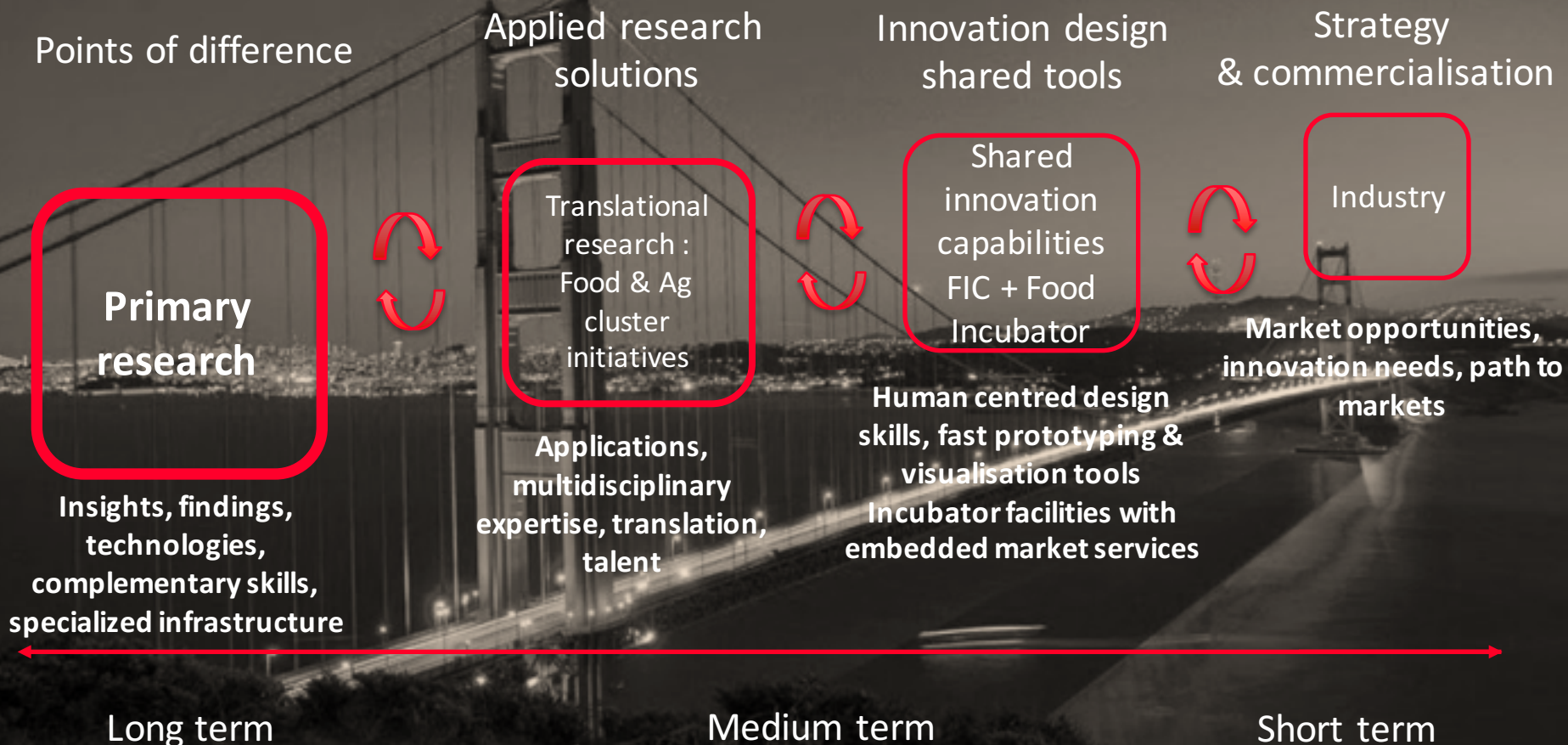
The FAI mission is:

To co-create the future of foods

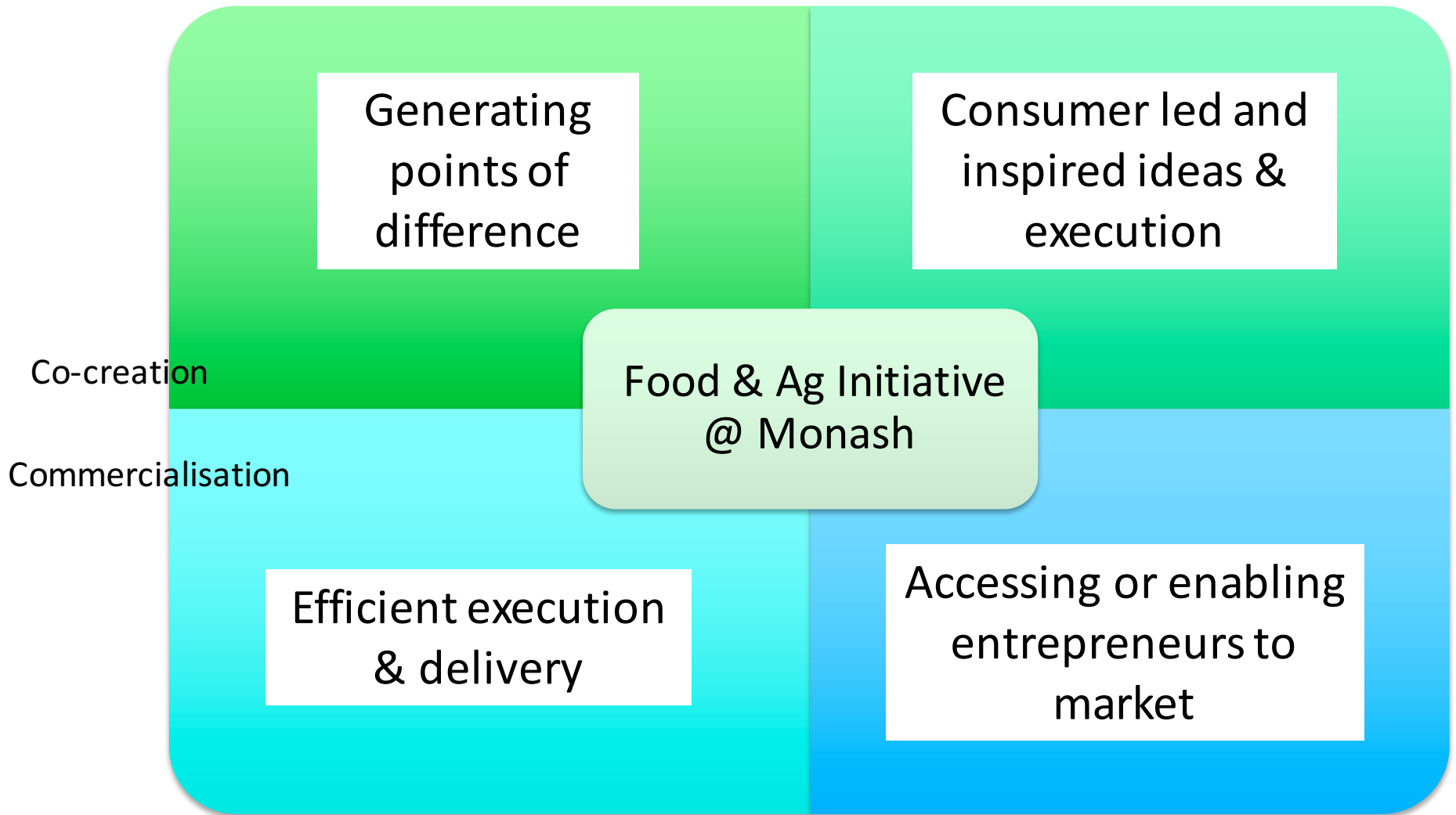


By developing a successful model of commercial and social innovations connecting and leveraging industry opportunities and research discoveries

The Food & Ag initiative

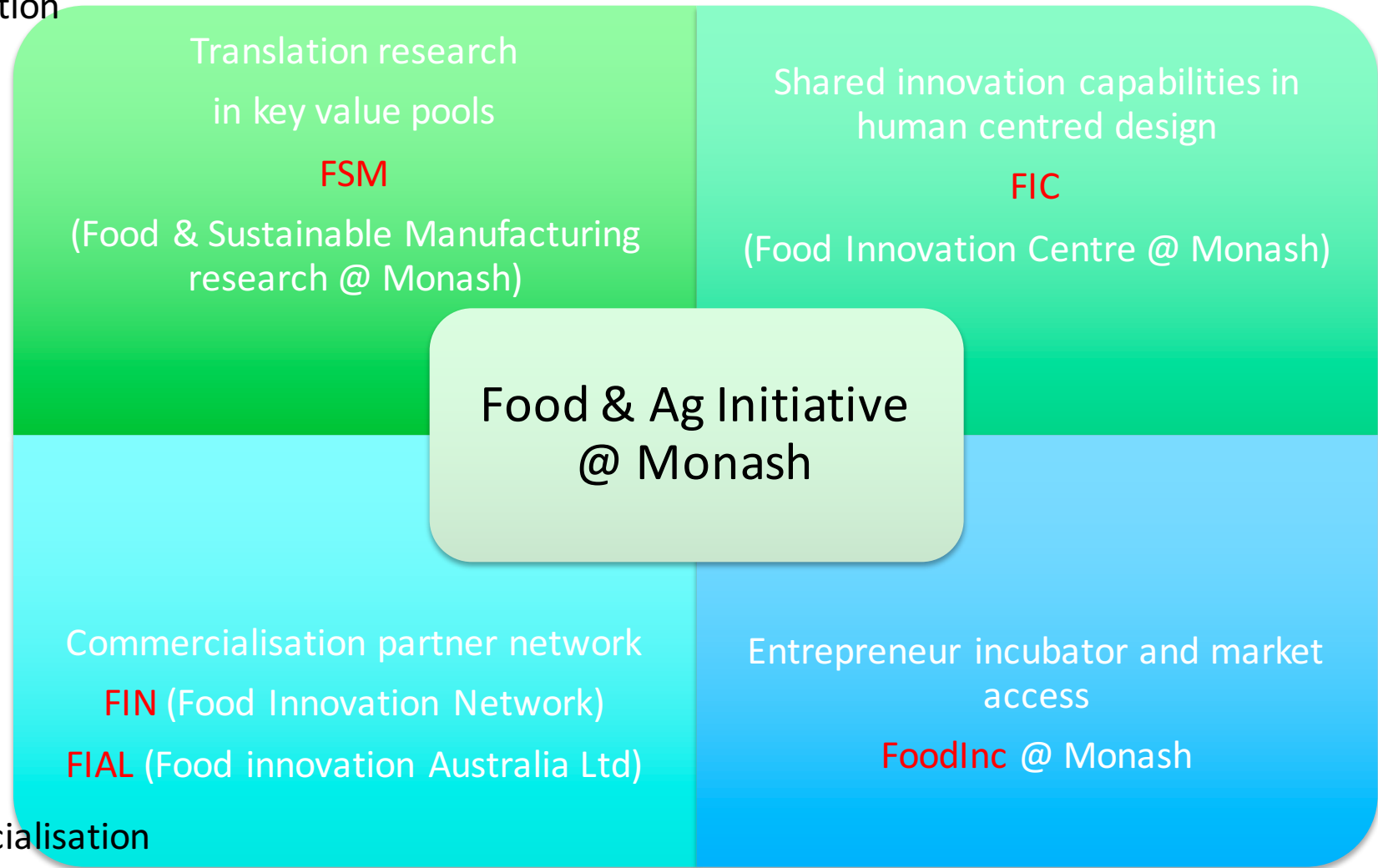


The FAI aims to be a versatile partner & inspiration for your innovation needs



Leveraging the collective scale of capabilities, infrastructure, ideas, talent and delivery for a stronger value creation that you or we would do on our own!

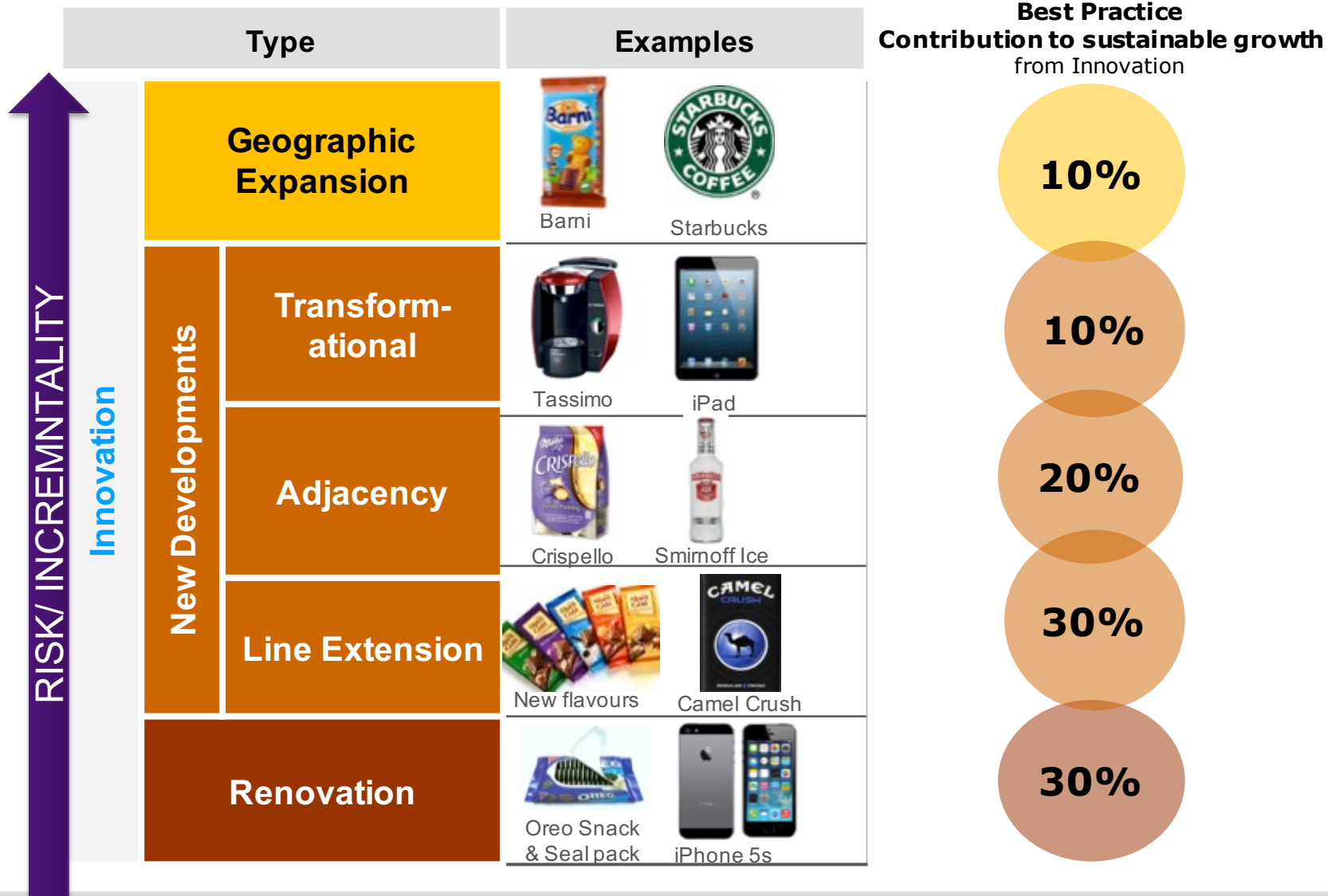
Co-creation



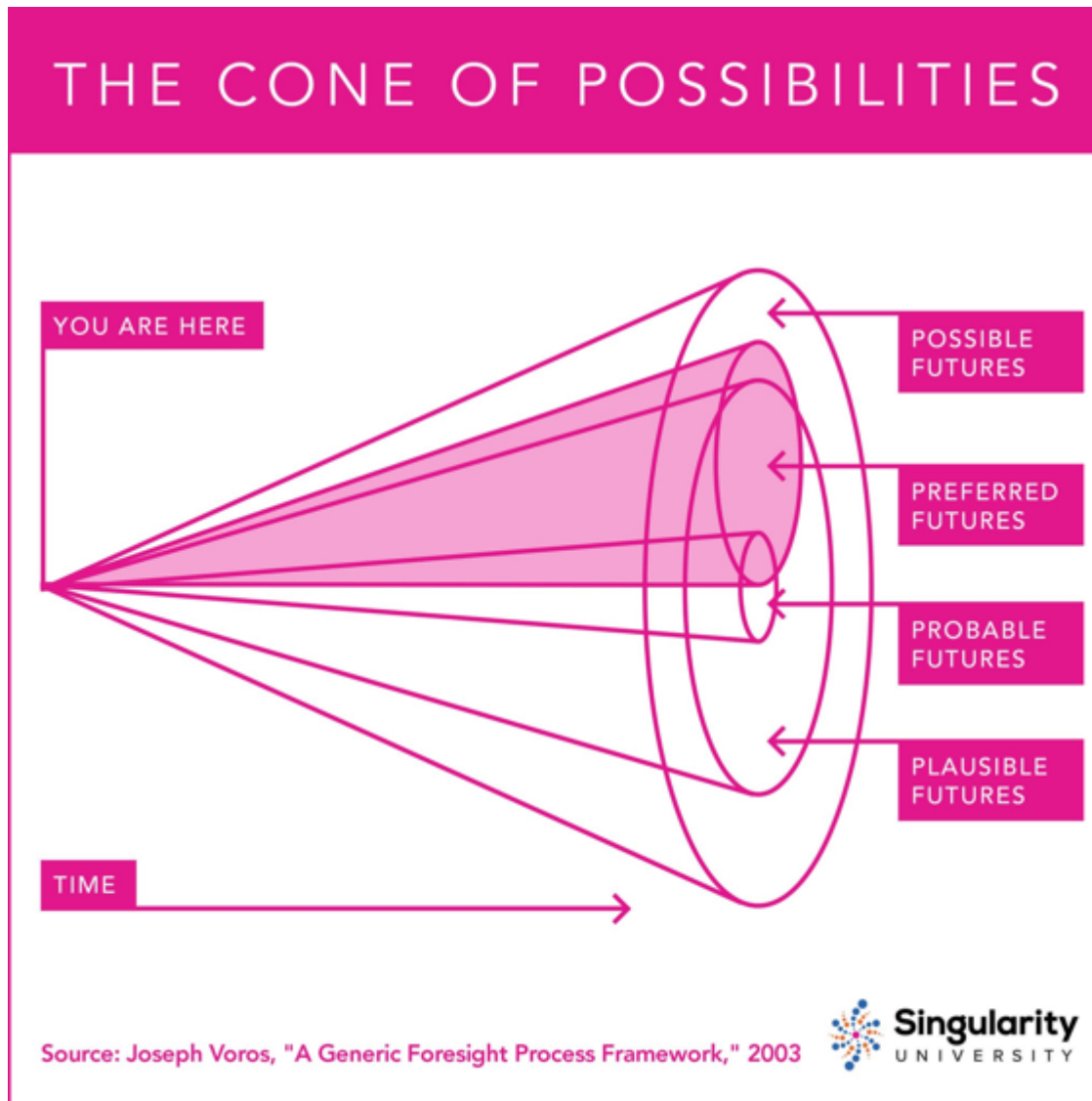
Commercialisation

How does it work?

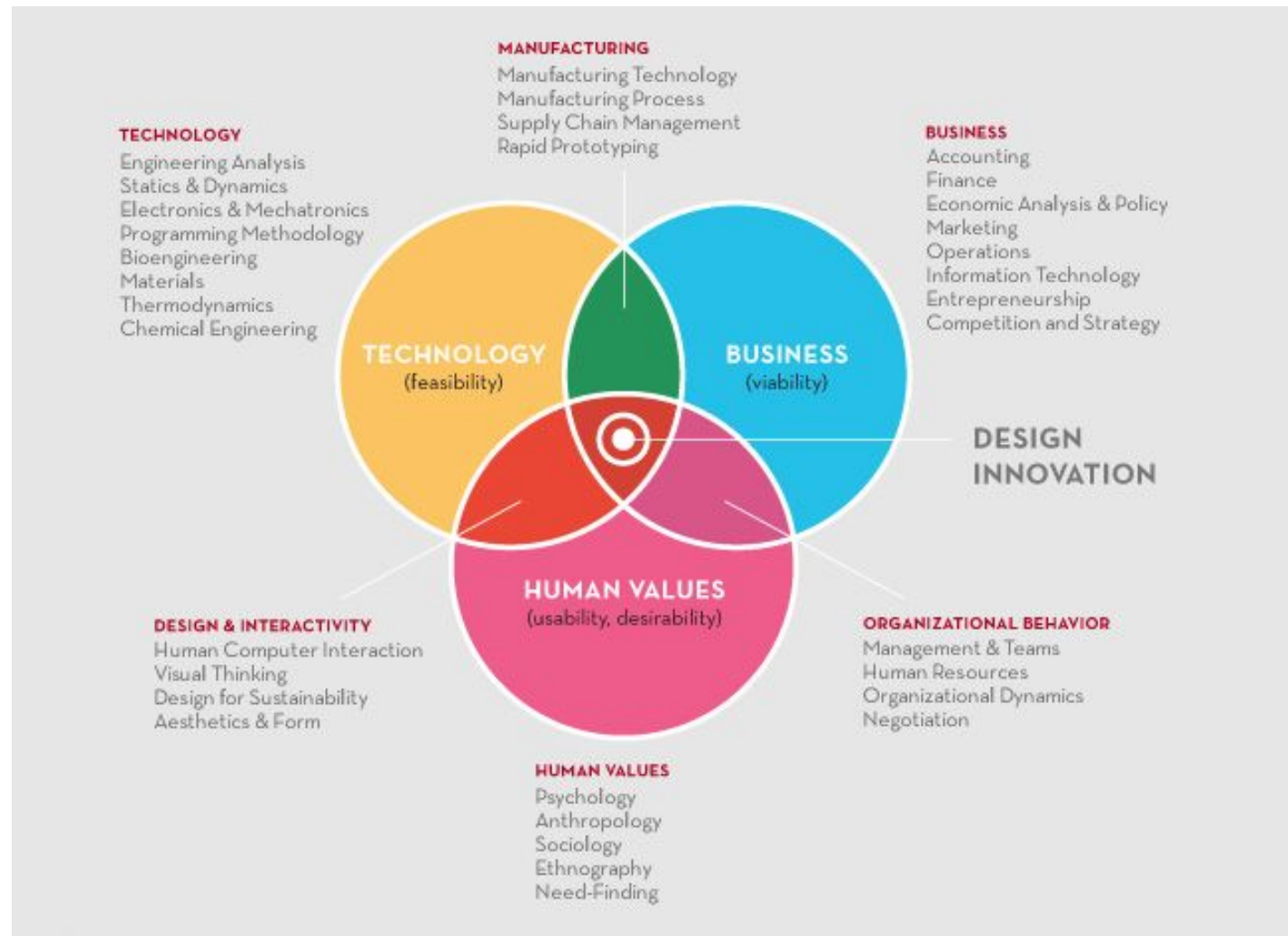
We start by focusing on your innovation PORTFOLIO strategy first and focusing on higher risk / higher rewards opportunities ...



... and we explore together where these opportunities might go or come from ...



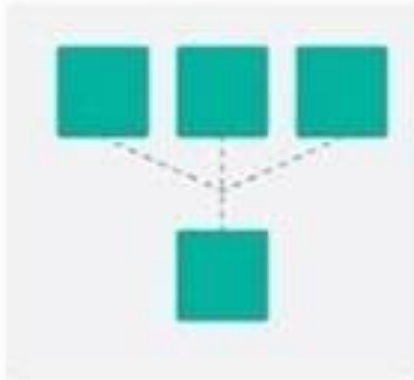
... we identify with you what you need to unlock the value in these opportunity areas ...



Source IDEO !

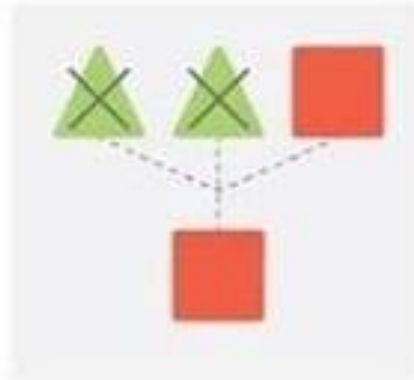
... co-creating the ideas at the intersection of research, technologies & consumer insights ...

INDUCTIVE



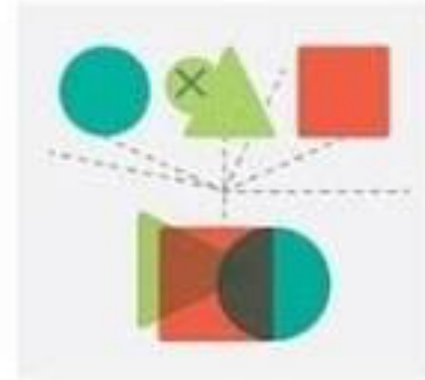
Generalize
existing ideas

DEDUCTIVE



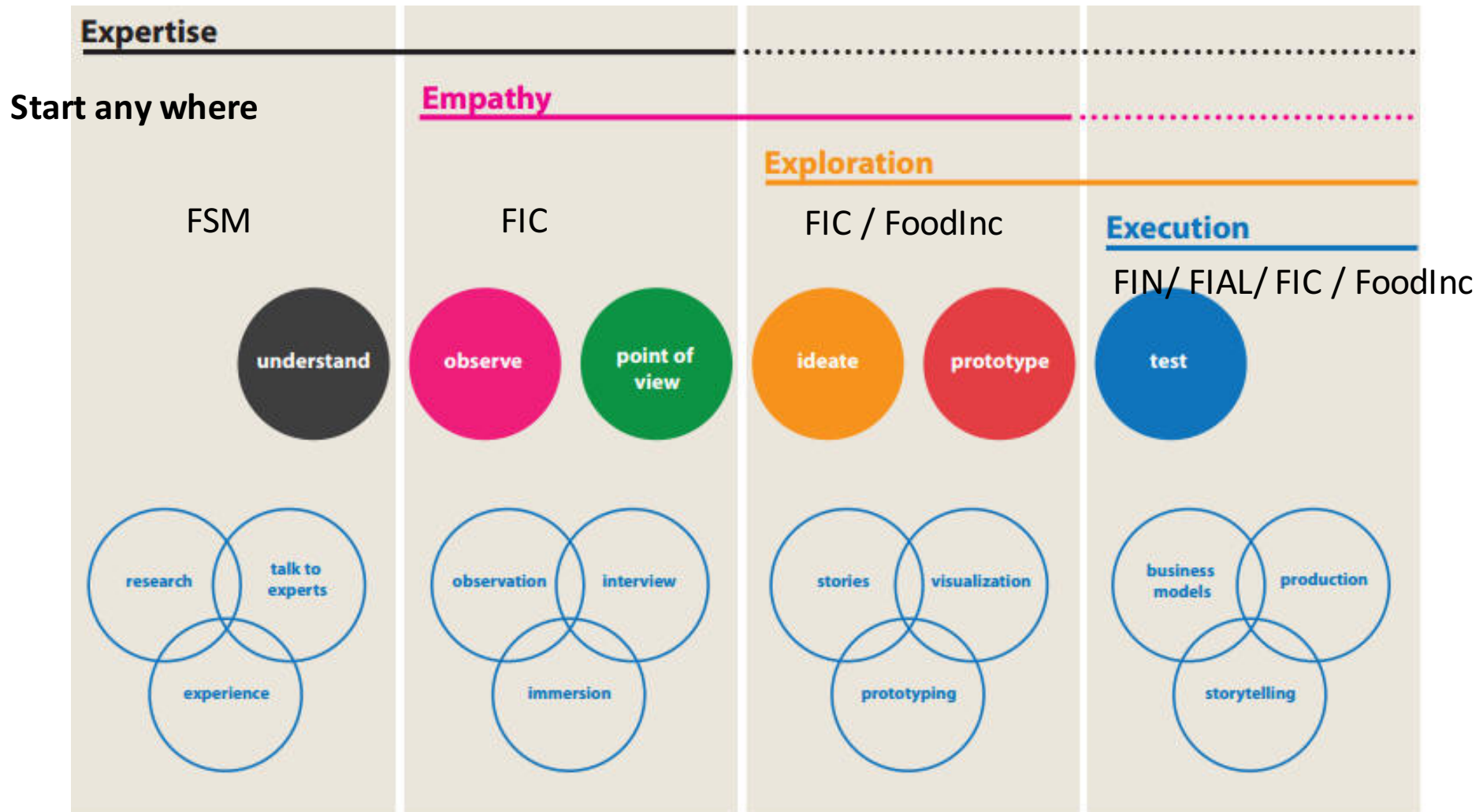
Narrow down
existing choices

ABDUCTIVE

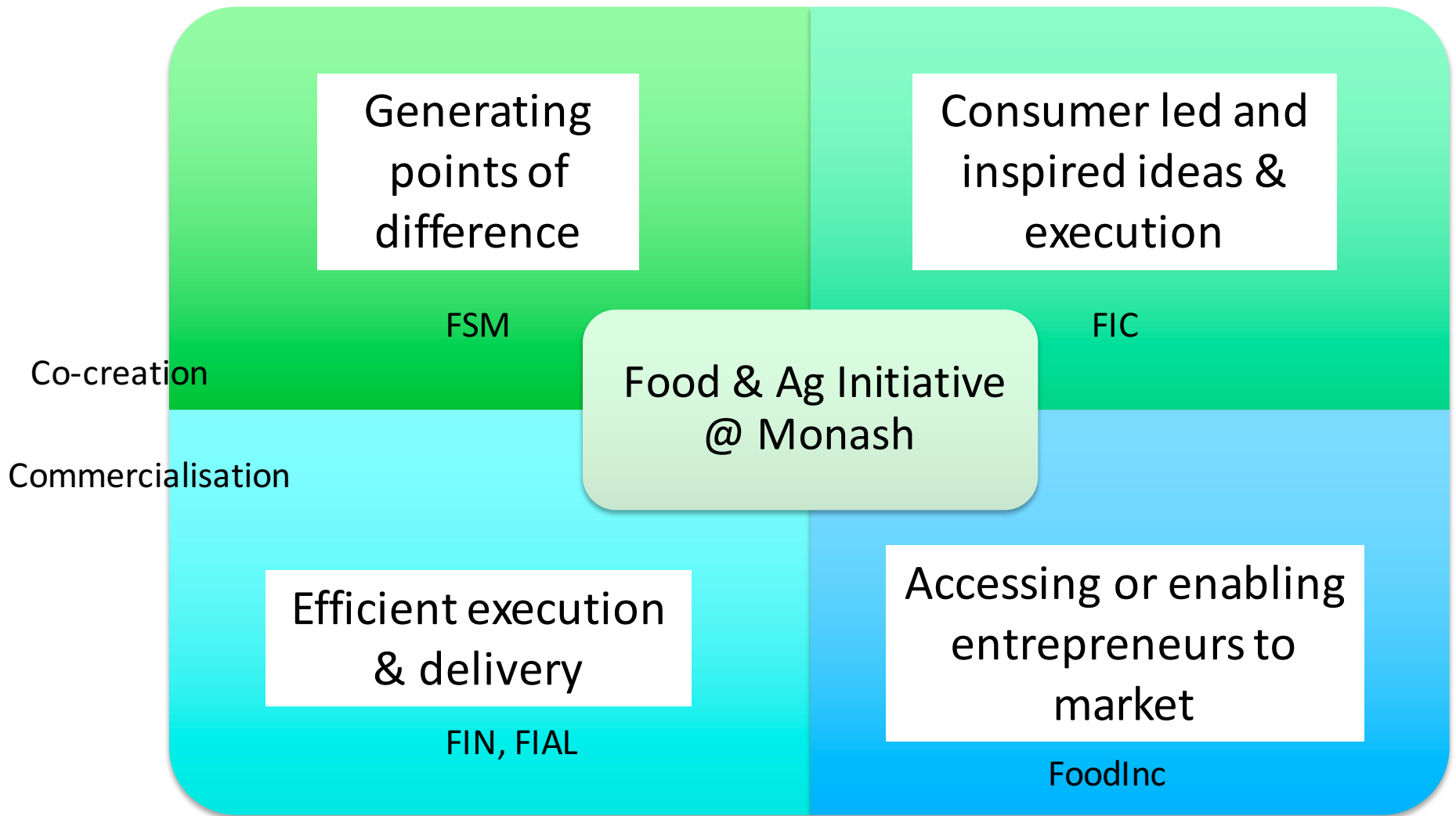


A combo approach:
create space to
generate new ideas

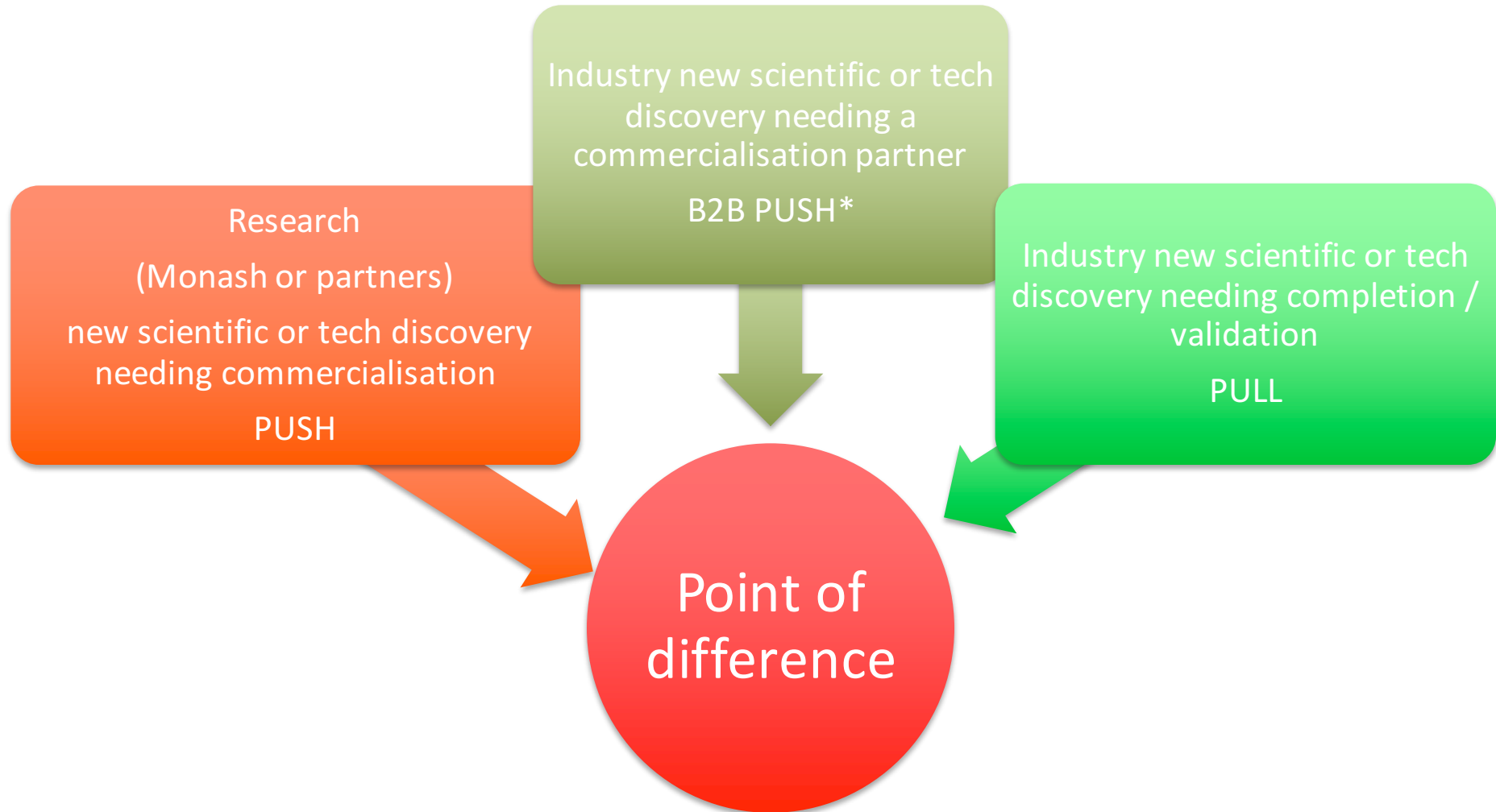
... and help you access it as and when you require : ideas, research, services, talent or capability development where we are qualified to ...



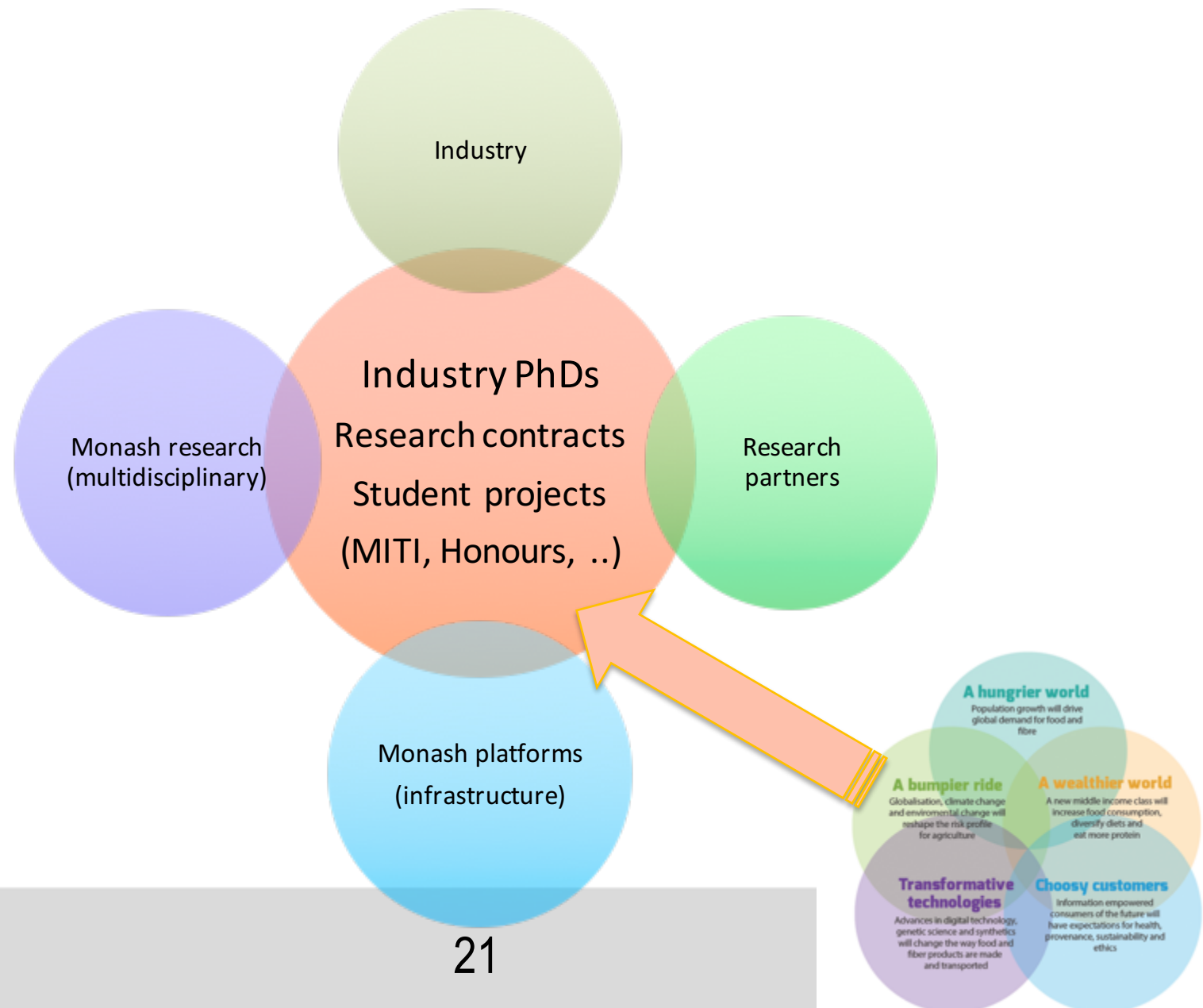
The FAI aims to be a versatile partner & inspiration for your innovation needs



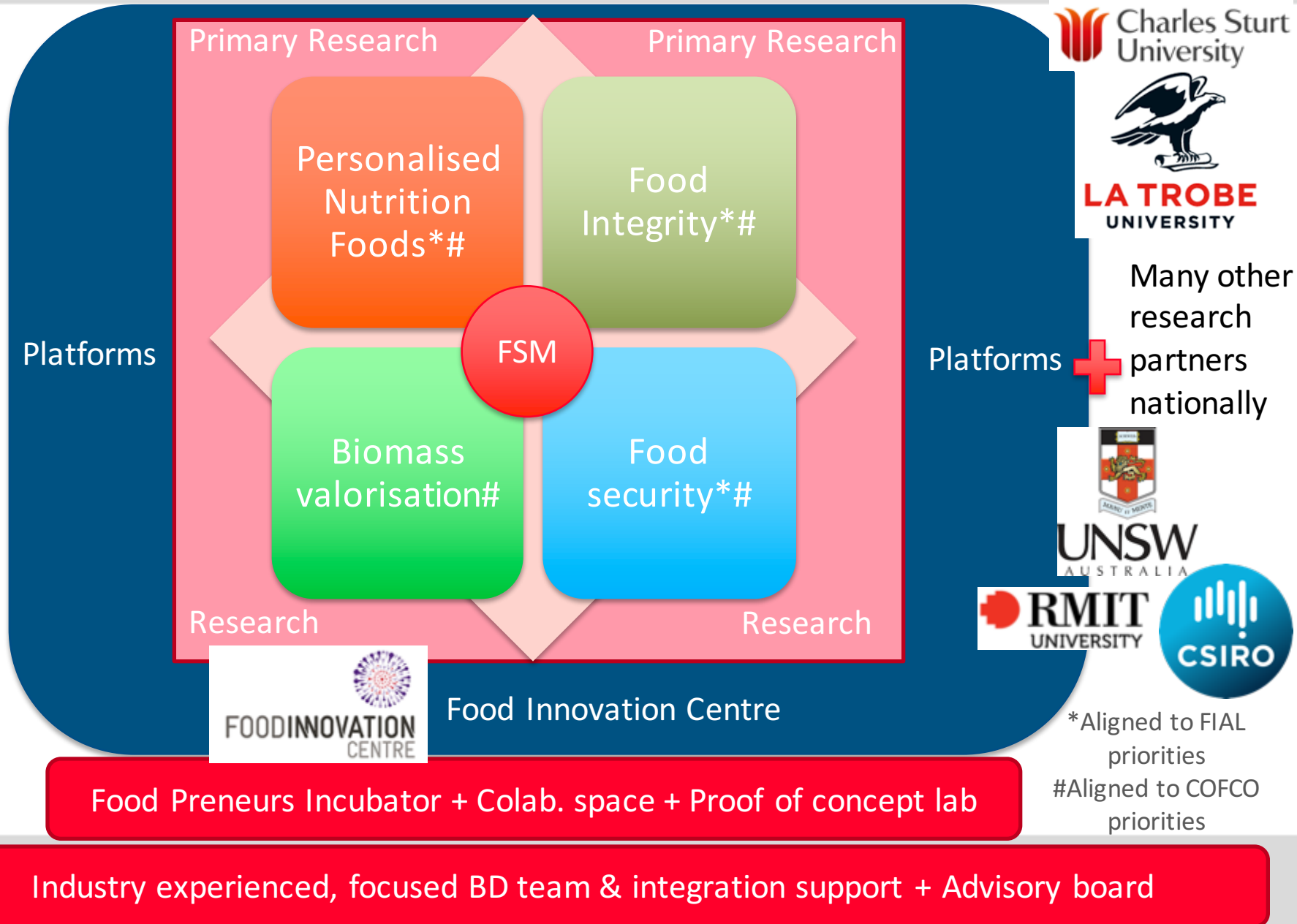
High value innovations require a **new point of difference**, generally underpinned by a scientific or technology discovery as the **core piece** of the puzzle ...



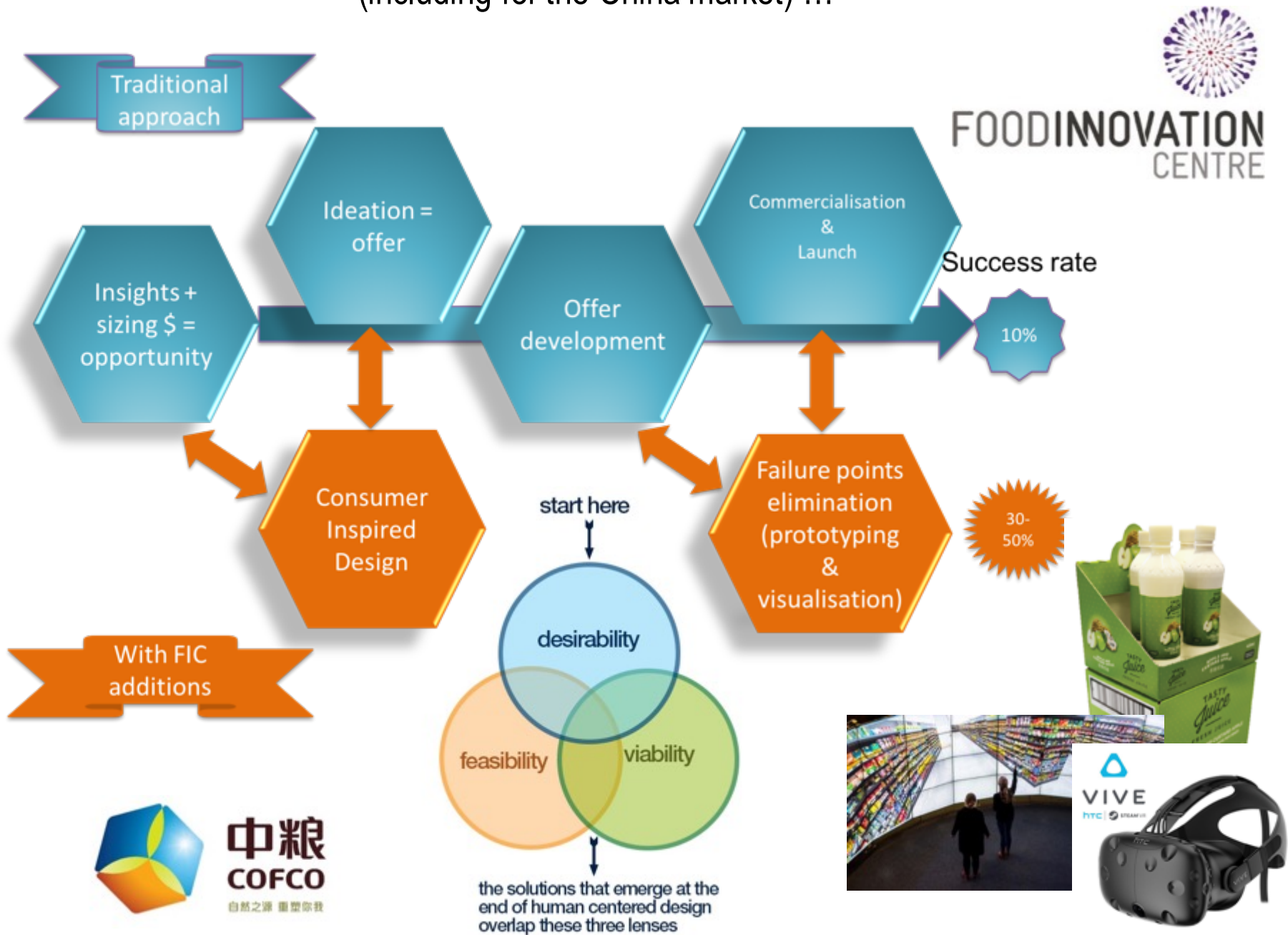
The Food & Sustainable Manufacturing (FSM) translation research enables the delivery through virtual research teams where we can offer **critical mass** of research discoveries, skills & infrastructure ...



... via **focused** multidisciplinary applied **research clusters**, supported by an industry led base, inspired by solving the **2050 food challenges** to create commercial and social value



The FIC helps you de-risk your innovations using the human centred design approach & tools (including for the China market) ...



...and support your needs from opportunity to market launch with a range of partners and avoiding duplications.

A FRONT END INSIGHTS & DEDICATED INNOVATION INFRASTRUCTURE

B MARKET CAPABILITY ASSESSMENT & ENABLING TECHNOLOGY

C PRODUCT TESTING & COMMERCIAL TRIALS CAPABILITY

D SUPPLY CHAIN TESTING & NEW TO MARKET TECHNOLOGY

A & B delivered by front end capability

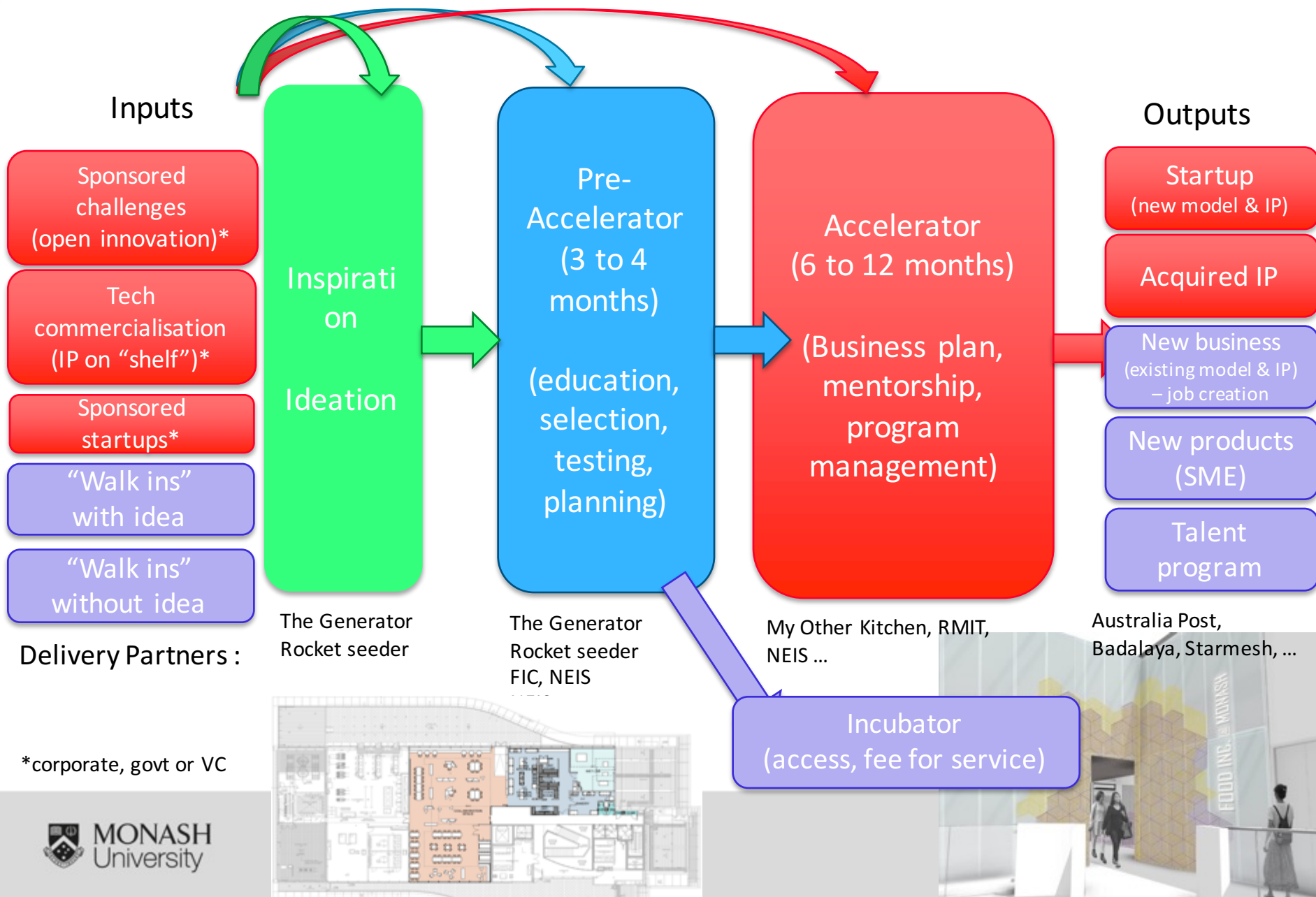
C & D delivered by a network of facilities



FIN – Food Innovation Network is a VIC state initiative linking the above providers

FIAL – Food Innovation Australia Ltd is the Federal Growth Centre

Our upcoming Food Incubator aim at connecting you to the entrepreneurs who may be a crowd sourcing of ideas or an opportunity to outsource the riskier ones to market



Finally, we events for networks and invention stimuli so you can find like minded people around you !



Personalized Nutrition



A symposium of lead thinking by Monash, UNSW, La Trobe & CSU.
With industry guests from Sementis, Smart DNA & Textured Concept Foods.

Personalized Nutrition Symposium

Date: Tuesday 28th March 2017

Time: From 8.30am until 6.30pm
Event ends at 6:30pm

Venue: Collaboration Lounge, Level 4, New Horizons, 20 Research Way, Monash University Clayton
New Horizons is in close proximity



A start-up competition to launch awesome ideas toward commercial success

All ideas are eligible - any technology or industry sector

Winning teams receive \$20,000 plus entry into the ACCELERATOR - a training program to get the start-up packaged and ready to pitch for seed investment or strategic partnership

Applications open 28 July
close 18 August

THE PITCH ORIGINATOR

A MONASH START-UP COMPETITION

monash.edu/entrepreneurship



3D FOOD PRINTING CONFERENCE



Appendix : Monash Clayton a hub for innovation

The precinct is an R&D ecosystem that has benefited from major investment to date

R&D
infrastructure
investment
since 2011



MONASH
University

\$197M



\$28M



\$260M

INDUSTRY &
PHILANTHROPIC PARTNERS

\$56M

=

TOTAL

\$521M



State of the art facilities

- Australian Synchrotron (ANSTO)
- New Horizons
- Green Chemical Futures
- Translation Research Facility
- Victorian Heart Hospital (future)

27 R&D platforms (ISO 9001 certified)

- Biomedical imaging
- Cryo Electron Microscopy
- Biomedical Materials Translational Facility
- MASSIVE High Performance Computing



World Class Centres

- CSIRO (Advanced Manufacturing, Materials, Medical Devices)
- Melbourne Centre for Nanofabrication
- Monash Institute of Medical Engineering
- Australian Regenerative Medicine Institute
- Monash Centre for Additive Manufacturing
- Woodside Innovation Centre
- Food Innovation Centre

We have a vision for a thriving Clayton Cluster that will contribute to innovation and economic development

INPUTS

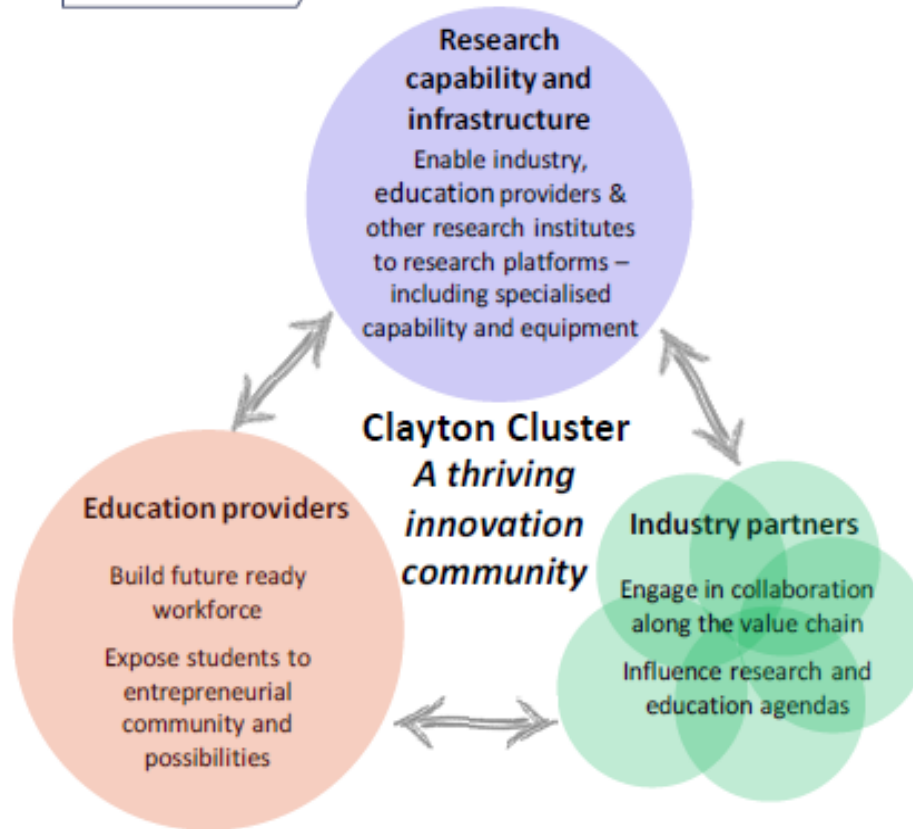
Physical infrastructure

Dedicated people & capability

Access to investors and capital

Accessibility through transport linkages

VISION



OUTPUTS

Improving access to new markets



Opportunities to translate new knowledge



Job creation in key industries

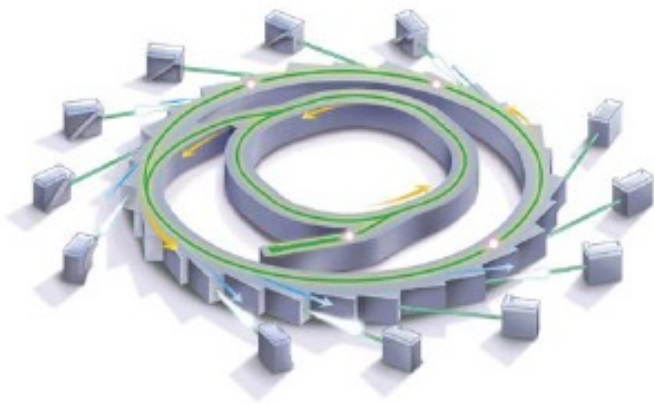


Innovation to attract global investment



A range of case studies illustrate Monash's commitment to investing in innovative partnerships

The Australian Synchrotron



Food Innovation Centre



The Generator

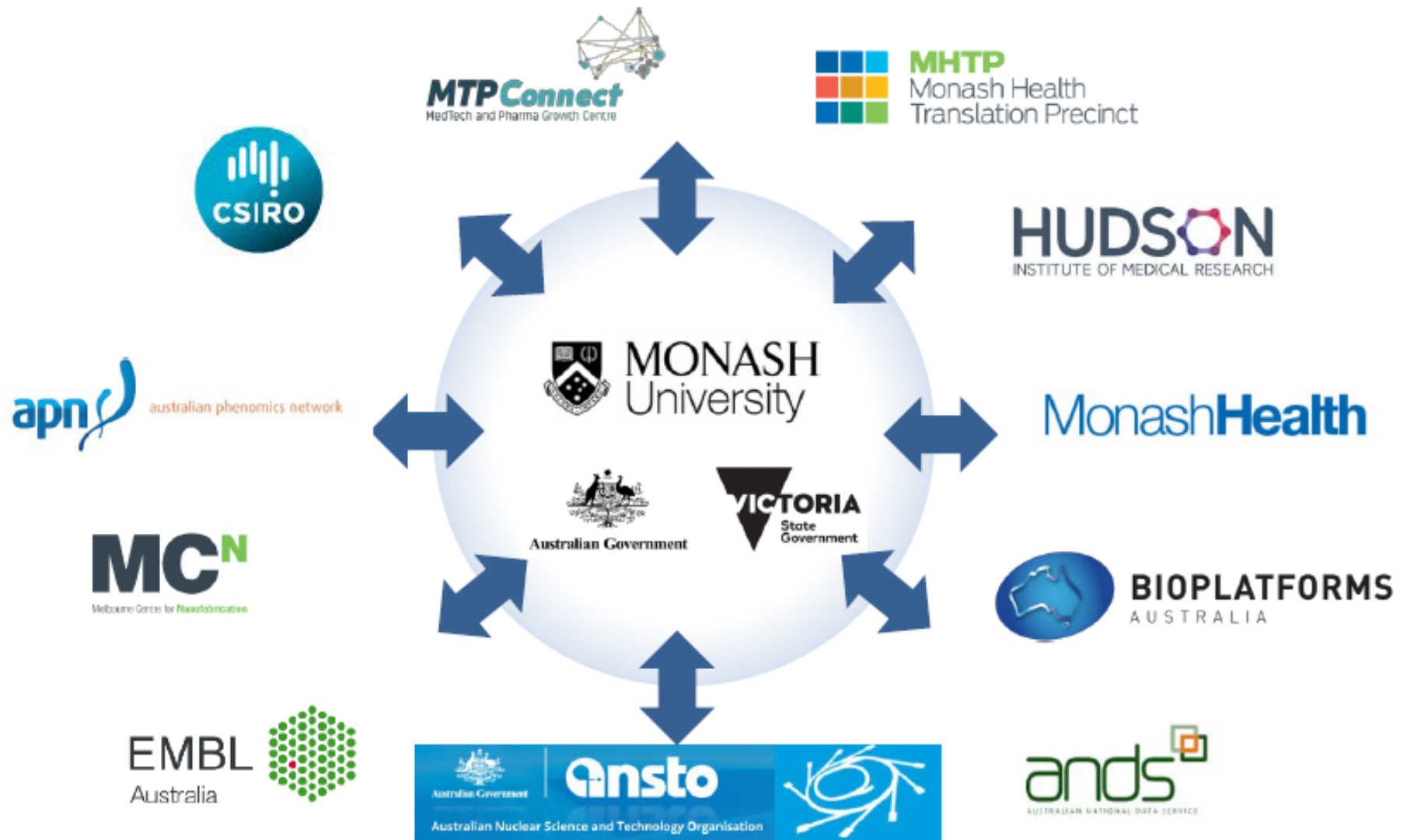


Amaero Additive Manufacturing

Source: Monash data, Desktop Research

Detailed case studies in appendix

The precinct extends well beyond its borders with many famous partners



Source: Monash partnership experience

Monash University's campuses around the world – especially strong in Asia



Appendix - the FAI teams



The Food and Agriculture initiative at Monash

Prof. Nicolas Georges, Director, Food and Agriculture Innovation, Monash University

Nicolas Georges joins Monash from Mondelez International where he was the Research Development and Quality Director for the \$1.7 Bio USD Asia Pacific Chocolate category, after performing the same role for the \$2 Bio USD Australia New Zealand business across all its categories. As part of this role, he headed up one of the largest and most successful food R&D teams in Asia which counted over 100 food innovators.

Since starting with Kraft Foods in 2011, Nicolas has helped spearhead the company to become one of the most innovative food manufacturers in the country. Nicolas has presided over breakthrough product launches such as Cadbury's Marvellous Creations and LiveFree, Australia's lowest fat tasty cheese which is four time lower in fat than other light tasty cheese.

In the decade prior to working at Kraft Foods, in addition to expanding category channels and driving efficiency transformations from manufacturing areas through to head office functions, Nicolas has led many breakthrough innovations, launching more than 500 new products in four countries whilst working for companies such as Nestle, Godfreys and Vitasoy – some of these include Heaven Extras, Drumstick Loaded, Hoover Range and Vitasoy Café for Barista. He has experienced and shared many innovation practices from processes, techniques or simply environments and shared those in a string of conferences over the years.

Nicolas is one of the two founders of the Mondelez Food Innovation Centre (FIC), with Simon Talbot, currently Head of export at Coles, an initiative he has jointly imagined and supported since 2011 until now, with the support of the Victorian State Government and Mondelez International, and now Monash University, an industry leading research facility tackling the capability and facility gap for the Australian food industry in front end innovation.

Finally, Nicolas has led several organisations, small and large, through major transformational change. Achievements include developing successful talent programs through all levels of the organisation as well as industry leading profitable growth results in several industries. He is first and foremost an innovator and a system thinker, connecting dots, people and capabilities for unexpected results and possibilities. Uniquely experienced across all functions (manufacturing to sales, marketing, strategy and R&D) in FMCG and Retail, including general management and P&L responsibility in both industries, he focuses on expressing people's potential and creating new paths.

The Food and Sustainable Manufacturing Translational Research– key personnel



A/Prof. David Kannar Since graduating from Monash in 1998 David has led several large international functional food and drug delivery research projects protected by over 50 patent families.

His research underpins new products launched by industry partners including vitamin E, low GI sugar, garlic dietary supplements, dairy, bread, transdermal drug delivery and a new sublingual drug delivery system. David has a distinguished record of research with his findings changing the United States Pharmacopeia (monograph USP 724A) and awards from the Australian Federal Government including winner of the 2009 Food Innovation Award, winner of the 2009 Food Challenge Awards for the Best New Food and 2012 CSIRO Innovation Medal. Grants and funding received include Accelerating Commercialisation, ARC Linkage, Commercial Ready, Food Innovation Grant, Researcher in Business and Sugar Innovation Fund totalling over \$17m.



Dr Noel Dunlop Noel is a highly qualified professional used to operating at board level within national and international organisations. He has a successful track record delivering high profile, high value business driven technology and operations initiatives.

He has a unique background with strengths in both business and academia with over 25 publications in high impact journals as well as an outstanding track record of business development, in particular in biomass valorization and green chemistry solutions.

An innovative problem solver and accomplished leader, Noel has worked in start-ups, SMEs, and multinationals both in Australia and internationally, and has worked for the Department of Innovation within the Victorian State Government..

The Food and Sustainable Manufacturing Translational Research– key personnel



Dr Ian James has been with the Monash University since early 2013 as the Senior Sector Specialist for the Industrial and Fine Chemicals Industries. Ian is a graduate of the School of Chemistry at Monash University and has a PhD from the Australian National University. He has recently completed a Masters in Intellectual Property Law from the University of Melbourne.

Prior to joining Monash University, Ian worked for nearly 20 years in the commercial application of research, working in a contract research company and as an independent consulting supporting early stage research focused companies. His experience covers a number of facets of commercial research including development of novel products and processes, business development, management of contracts and development of intellectual property.



Shankar Kumarasamy. Attached to the Faculty of Engineering, Shankar works across Monash University to foster a strong collaboration with the food, agriculture and manufacturing businesses. Shankar holds both, science (BSc) and technology (MTECH) qualifications and his experience spans multiple sectors including manufacturing, agribusiness, government, and research services in Australia and New Zealand. He has over 18 years of experience delivering solutions to considerable R&D, regulatory and business challenges. The organisations he has worked for include: The Victorian Centre for Sustainable Chemical Manufacturing, Coca Cola Amatil / SPC Ardmona, Food Standards Australia New Zealand, NZ Pork, and Plant & Food Research.

FIC@Monash team - credentials



Kate Baker – Consumer and Shopper Manager

Food Innovation Centre

Kate has a BSc majoring in Psychology and Psychophysiology and a background working with research companies such as Colmar Brunton & Bergent Research, and most recently on the Consumer Science team at Mondelez running in-house research for front end innovation projects. Her passion for understanding consumers and curiosity for innovation saw her successfully manage the research programs of key blue-chip FMCG companies. Kate's expertise spans both sensory, quantitative and qualitative research



Elesha Kelly – R&D End to End Project Manager

Food Innovation Centre

Elesha has a Food Science & Nutrition degree and a background working in Regulatory and R&D product development at Mondelez across multiple markets in Asia Pacific in chocolate and confectionary category. She has a passionate interest in product development using front end innovation design from idea through to execution and product commercialisation. Elesha has a proven record for delivering critical projects with complex activities in tight timelines supported by strong communication and stakeholder management.



Dr Angeline Achariya – Chief Executive Officer

Food Innovation Centre

Angeline is a highly capable senior executive with extensive experience in commercialising innovation, strategy development and end to end execution. Angeline's leadership in fast moving consumer goods & food service retail in commercialising innovation across Australia, New Zealand, Japan, China and Thailand markets has resulted in a successful track record of over 800 innovations launched across grocery and quick service restaurant categories in these markets. Angeline's career in the food industry has spanned from small business, consultancy to blue chip FMCG companies like Masterfoods Japan part of the MARS group; Fonterra, Yum! Brands (owners of KFC, Pizza Hut & Taco Bell), Mondelez International and has delivered significant projects in innovation and change management initiatives over her career. Angeline's strong commercial and innovation skills have paved the way for her leading and establishing a world first innovation capability and services start-up, the Mondelez International Food Innovation Centre (FIC).
<https://au.linkedin.com/in/angelineachariya>

FIC@Monash team - credentials



Daryl Thompson – Design Studio + Virtual Store Manager

Food Innovation Centre

Over 26 years experience in packaging development, business development and account management
Collaborative, can do attitude and experience has produced real growth and packaging IP assets for his clients and employers

Experienced in manufacturing, supply chain, elegant logistics and FMCG packaging solutions across UK, Europe & Australasia. BA (Hons) Industrial Design Engineering



Nicholas Booker – Senior Industrial Designer

Food Innovation Centre

Over 10 years experience in the front-end creative and conceptual design of product and packaging spanning Australia and the UK.

Throughout his career he has been very passionate about creating new and bold designs whilst delivering ground-breaking products with clients' and consumers' needs at the forefront.

BA (Hons) of Industrial Design



Rod Heath – Capability and Programs Manager

Food Innovation Centre

Senior executive experience spanning chocolate, everyday food, sport, toys, alcohol and health. Multinationals to SME's. (Kraft, Cadbury Schweppes, Funtastic, Heritage Chocolates, CUB)

Held a diverse range of cross functional roles with the core being in Marketing, New Product Development (over 300 innovations launched), Sales and Business turn around. Long history of engaging and inspiring people to do the best they can for the businesses they work for, and themselves.

Bachelor Of Business (Marketing)



Kristy Lawrence – R&D End to End Project Manager

Food Innovation Centre

Kristy has a wealth of Fast Moving Consumer Goods and Industrial experience having worked in a breadth of roles including Product Development, Value Engineering, Quality Assurance and Procurement, on market leading brands such as Kellogg's, McDonald's, Leggo's, Edgell, KFC and Steggles to name a few. Kristy's methodical yet agile approach has seen her lead complex projects and multi-year programs in New Product Development, Finance, Engineering, Packaging and Nutrition at over 20 manufacturing sites in Australia and Asia Pacific.

Bachelor of Science – Food Technology

Monash Industry Team Initiative – MITI

An Australian first, MITI embeds multi-disciplinary student teams at undergrad, Masters and PhD level into industry to innovate solutions to real problems and challenges over the summer

Pilot in 2013/14 with 4 teams

2014/15 18 teams with 14 companies

Positive feedback from all participants, all returned

2015/16 36 teams in 26 companies, 2 teams abroad

miti.monash.edu

Diverse and innovative solutions created including app development, immersive data analytics, innovative product development, optimisation, community art-based projects, clean water system for developing town, digital engagement and interactivity concepts, sustainable solutions, etc.

Received top National Award for University-Industry Collaboration B/HERT 2015



Monash Industry Team Initiative – MITI

MYER



ARUP

woodside



GARDINER FOUNDATION

transurban



AECOM



aurecon



FUJITSU

