

## Food Innovation; The Journey & Challenges

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## Session Mudmap

- Traditional "Food Innovation"
- The challenges for Australia
- What has NFIS done to make a change?
- A paradigm shift – "Open Innovation"

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## Traditional Innovation?

- **"Innovation"**
    - A process that draws together two elements;
  - **"R&D"**
    - Invent, create a new product, process or technology.
  - **"Commercialisation"**
    - Take the new product, process, technology through to a commercial outcome.
- From: Trott; London as quoted by Howard & Partners Report for DAFF

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## Food Industry Council



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## October 2002 - Challenges

- Low Private / Public R&D Investment
- Perception – IP is difficult to access
- Fragmented R&D resources
- In effective linkages between food companies and R&D providers
- No "World Class" Centres Of Excellence

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## Food Innovation Team



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## People Development



- Joint project with the Australian Institute Of Food Science & Technology
- Encourages Year 9 to Year 12 science students to pursue food science or food technology as a career
- Sent to 2700 Australian secondary schools
- Resource for Science and Careers Teachers

## Food Centres Of Excellence

### Centres Of Excellence = \$12.5m Invested

#### KPIs

- Building science capability in two key areas
- Consolidate R&D effort

#### Current Position

- Two Centres x \$5.0m committed
  - Functional Food Centre
    - Consortia of R&D providers led by Wollongong University
  - Food Safety & Integrity Centre
    - Consortia led by the University of Tasmania
- Both Centres driven by Industry Boards
- Good progress to date



## Food Innovation Grants

- \$ for \$ grants to food companies
- Broad definition of food company
- Competitive bidding
- Compelling science / commercialisation business case
- Maximum grant \$1.5 million
- Kick start new food R&D investment
- NFIS take no IP position in the outcome
- Lots of front end engagement with food companies
- We want to learn - what makes food innovation "tick"



## Food Innovation Grants

### Current Scorecard:

- 200 prelim applications
- 109 full applications
- 36 projects funded
- \$63 million in new R&D investment
  - \$26 million in grants
  - \$37million in company co-investment
- 31 Applications for FIG funding in current Round



## Dairy FIG Grants

		FIG Funds	Total R&D
Murray Goulburn Co-Operative	Dairy Peptides	\$910 000	\$1 820 674
Murray Goulburn Co-Operative	Powder Packaging	\$450 000	\$3 100 000
Lemnos Foods Ltd	Process Automation	\$900 000	\$2 906 000
Tatura Milk Industry Ltd	Functional Food	\$993 100	\$1 985 000
Numico Research Australia	Functional Food	\$1 000 000	\$2 500 000
		<b>\$4 353 000</b>	<b>\$12 311 674</b>

## Murray Goulburn - FIG



- 20 million 25kg milk powder sacks per year exported from Australia
- 29 400 shipping containers
- Increase from 17 to 20 tonnes loaded in each shipping container
- 20% lighter weight sacks = less paper, less plastic
- 3500 less shipping containers / trucks to Melbourne Wharf

## Matilda Farms - FIG



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## Allen Consulting Review

- Improved expertise or knowledge
  - "...three new patents...."
  - "...30% improvement in marketing capacity...."
- New Markets / Improved Market Share
  - "New markets worth \$43 million per annum...."
  - "...increased sales of \$16.5 million....."
  - "...exports increased 21% in the second year....."
- Productivity Improvements
  - "...66% improvement...."
  - "...\$420 000 decrease in production costs per annum...."
- People
  - "...8 to 10 new people in the R&D team...."
  - "...decreased casual employment, increased higher technology employment...."

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## Big Companies

- Large Companies:
  - George Weston Foods, Goodman Fielder, Murray Goulburn, CUB, Royal Numico
- Outcomes:
  - FIG has challenged and enhanced innovation processes
  - FIG has given the R&D Team recognition at Board level and the Board have invested further in other projects
  - FIG has been a catalyst in getting two R&D Divisions to work together
  - FIG has delivered "triple bottom line" outcomes

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## Small / Niche Operators

- Small Companies
  - Matilda Farms, Mulgowie Farms, Nutra Dry, Dover Fisheries, Anchor Foods, Dorian Farms, Lemnos Cheese
- Outcomes
  - The small companies understand the supply chain in which they work and have an "inbuilt sense" of how to manage innovation
  - Often the FIG project unlocks the supply chain

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## The "Heartland"

- The Heartland – Mid sized Companies - \$200 to \$600m pa
- These guys are really struggling with innovation
  - Flat out on day job / real time activities
  - Little time to build networks
  - No time to think strategically
  - Hard to marshal all the disciplines into an coherent strategy
  - No time to write applications for funding
  - Struggle to see how R&D fits their local production situation

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## Low Investment In R&D

- Australian food companies = 0.3% Sales
- International Benchmark is closer to 1%



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## Competitors Public R&D

- USA
  - Total R&D investment 2003 / 2004 equals US\$105 Billion
    - US\$ 54 Billion in R&D
    - US\$ 46 Billion on Development
    - US\$ 5 Billion on R&D Plant
  - Total R&D Investment 2002 - USA Universities
    - John Hopkins US\$ 1.1 Billion
    - Madison US\$ 662 Million
    - Cornell US\$ 496 Million
    - Penn State US\$ 493 Million
    - UC Davis US\$ 457 Million
    - Ohio US\$ 453 Million



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## Fragmented Effort

- R&D resources are fragmented
- There is no critical mass
- There is no real "world class" facilities
- Culture of "ownership and control"



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## Intellectual Property

- IP perceived to be inaccessible to food companies
  - Complex IP Agreements
  - Universities double dipping
    - Tax payer funded initial research; and
    - IP cash-flow from companies for IP



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## People Issues

- Food science / food technology
  - not a career of choice.
- No ongoing development of people
- No networks or linkages
  - Between R&D providers and food companies
  - Links between management functions of marketing, R&D, production, finance, process engineering.

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## We Operate In Real Time

- We work on "urgent" issues; not
- Important long term issues



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## "Food Innovation"

- We need a uniquely Australian solution
  - Characterised by;
    - Adopting the "Open Innovation" concept
    - Broad Architecture
    - Shared Strategic Focus
    - Networked



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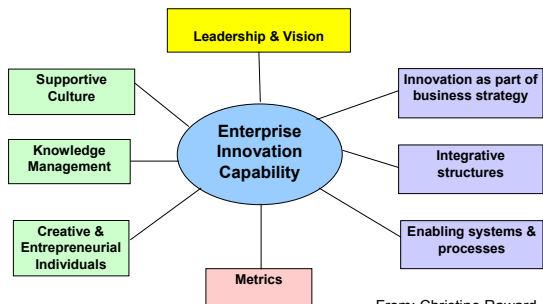
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## “Open Innovation”

- Professor Henry Chesbrough – University of California
- Moving
  - From ownership and control.....To *influence* and *leverage*
  - From in-house R&D ..... Networking with other smart people
- Develop technologies that embrace and extend existing intellectual property
- Leverage
  - Work with competitors on generic issues like food safety
  - Work with other commodity sectors on issues like market research
  - \$100 000 project
    - Dollar for dollar project with Government support
    - Five industry partners
    - \$100 000 worth of IP for a \$10 000 investment



## Unique Architecture



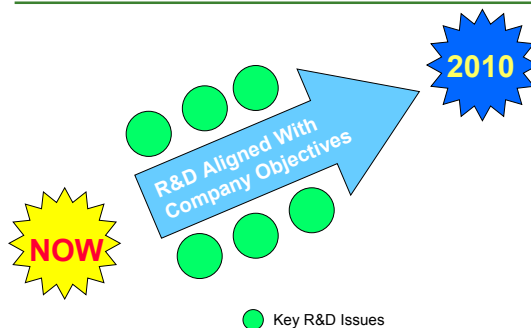
From: Christine Raward  
Meat & Livestock Australia

## Knowledge Management

- Outcome = “What are the emerging opportunities for us?”
- Market Demographics
  - Establishes the “Path to Market” Business Case
  - Generally demand for our products exceeds our ability to supply
  - Identify long term, growing and profitable sectors
- Science
  - Invent, create new products, processes and technologies
  - Underpins the commercialisation process
- Company's Point Of Difference
  - Understand and exploit the company / industry's competitive advantage



## Shared Strategic Focus



## Networked

- Building diversity and size your personal network
- Building global networks
- Seamless meshing of R&D and commercialisation across the customer chain
- Forming, managing and disbanding multi-disciplinary project networks on an ongoing basis



## Smart People

- A defining issue
- Attracting, developing and holding smart people
- Cultural fit to the organisation is vital
- Diversity is good
- Not all smart people work for you!



## Key Messages.....

- Australia needs a unique “Food Innovation” process
- We need a clear global picture of where we are going
- We need to focus very limited resources on long term, growing, profitable market sectors
- We need to support and nurture the “Heartland”
- We need to celebrate our Aussie “Can Do” culture, be harder and faster to market
- Our success will be defined by our ability to recruit, build and lead diverse networks