

National Growth and Innovation Systems -Commercial Best Bets in Agriculture

NEXT Foresight Project in
Trinidad and Tobago

What is a National Innovation System?

- Foresight - a view of the future, and national goal- destination.
- Leadership Motivation, Drive and Intent
- Scenario planning, visioning
- National Innovation Strategy and priority sectors
- Growth and Innovation Framework- with whole of government approach
- National innovation surveys

Phases of building a National Innovation System

1. Global Foresight -understanding what is going to happen
2. Sector foresight and national capability
3. Setting a National Innovation Strategy
4. Sector priority setting
5. Coordination of policies, programmes and institutions - Growth and Innovation Framework (GIF)
6. Implementation by programme, by sector, by region, by event

The 3 Horizons for Planning

HORIZON Three

10 Years +

An understanding of long-term trends and an economic vision for the country

Horizon Two

3-5 years

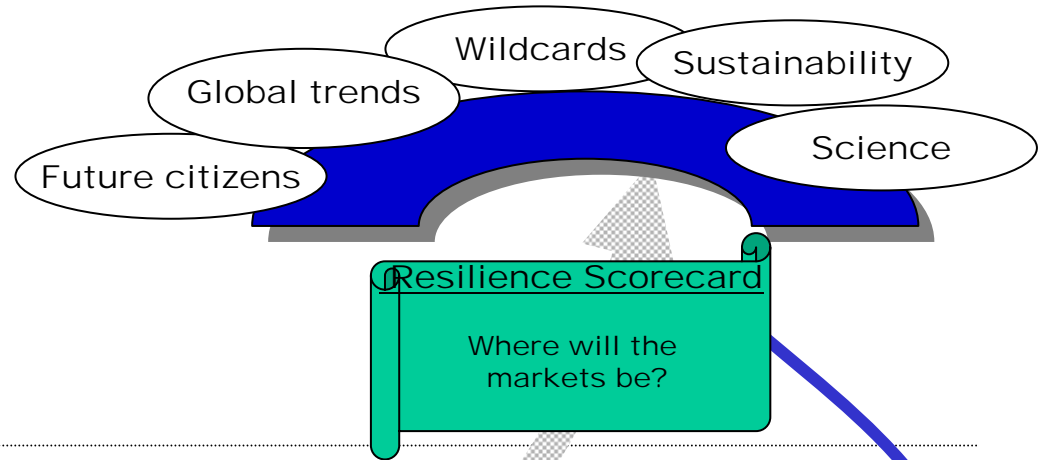
National Growth and Innovation Strategy and economic goals

Horizon 1 year

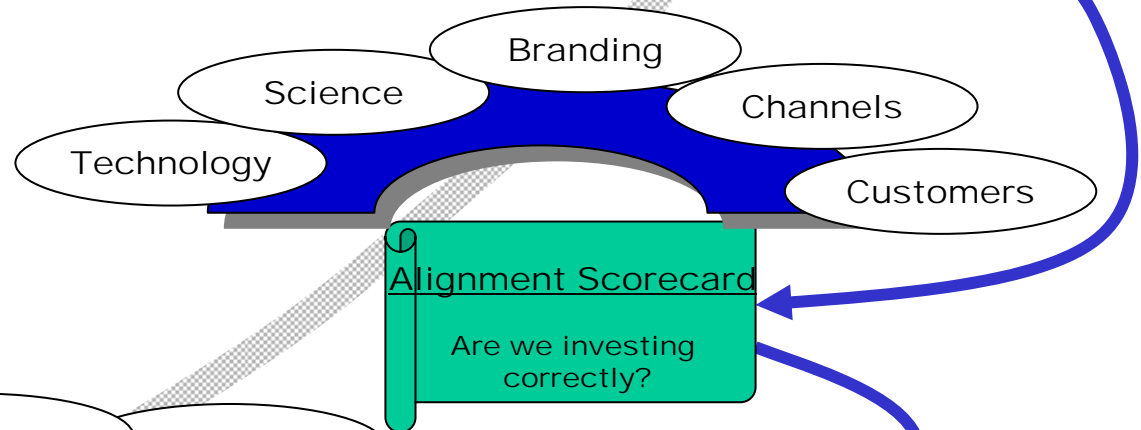
National budgets, projects, short term goals, and performance requirements

Foresight makes future aspirations the focus of innovation today

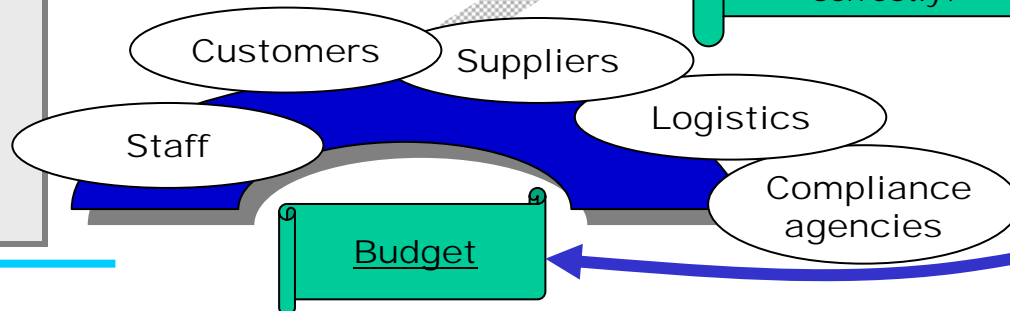
Horizon 3
Strategic Resilience
10-15+ years



Horizon 2
Strategic Plan
3-5 years



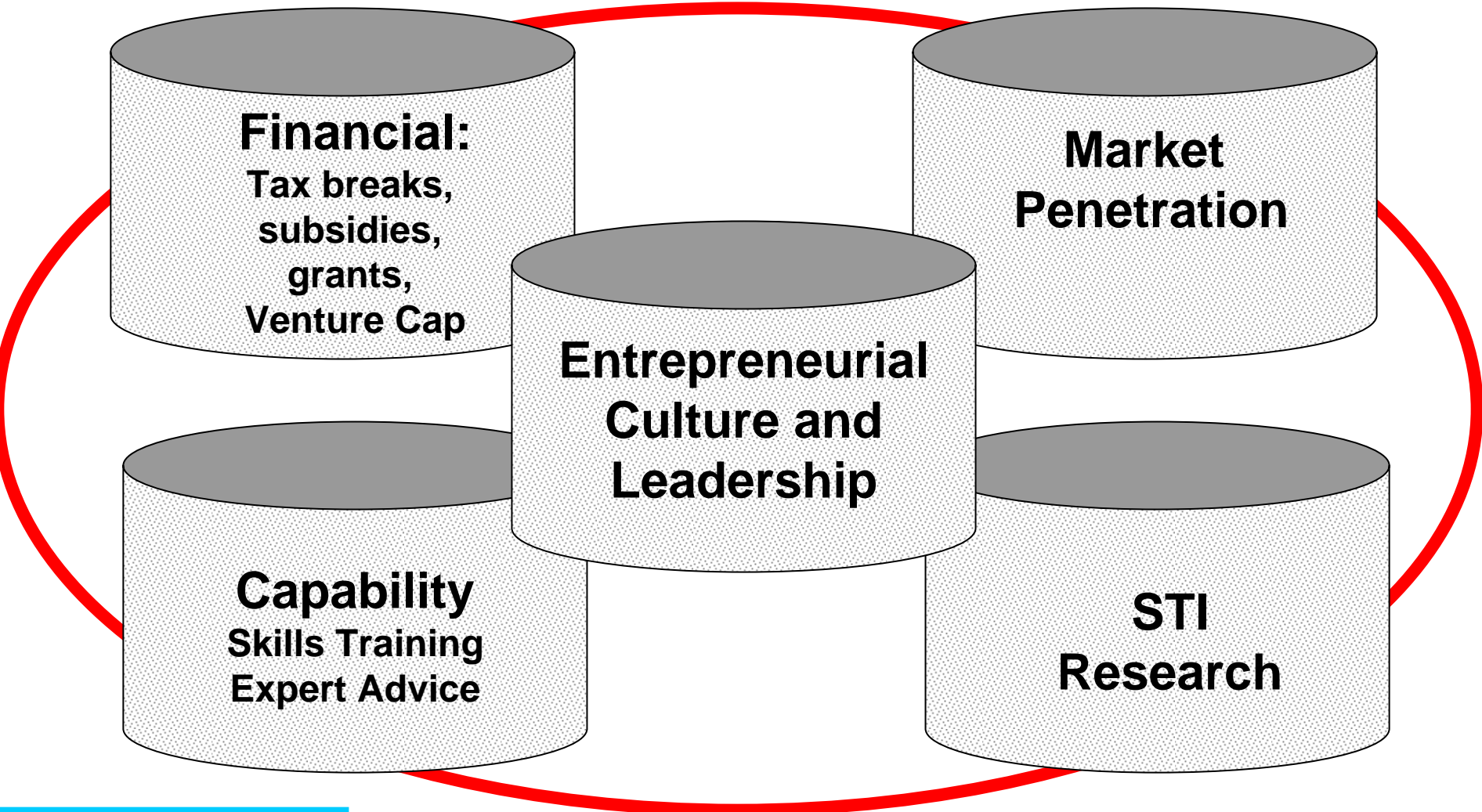
Horizon 1
Business Plan
12 months



A National Innovation System - wide ranging government policies

- Social policy
- Labour market policy
- Education policy
- Industrial policy
- Energy policy
- Environmental policy
- Science and technology policy

Framework – Five pillars

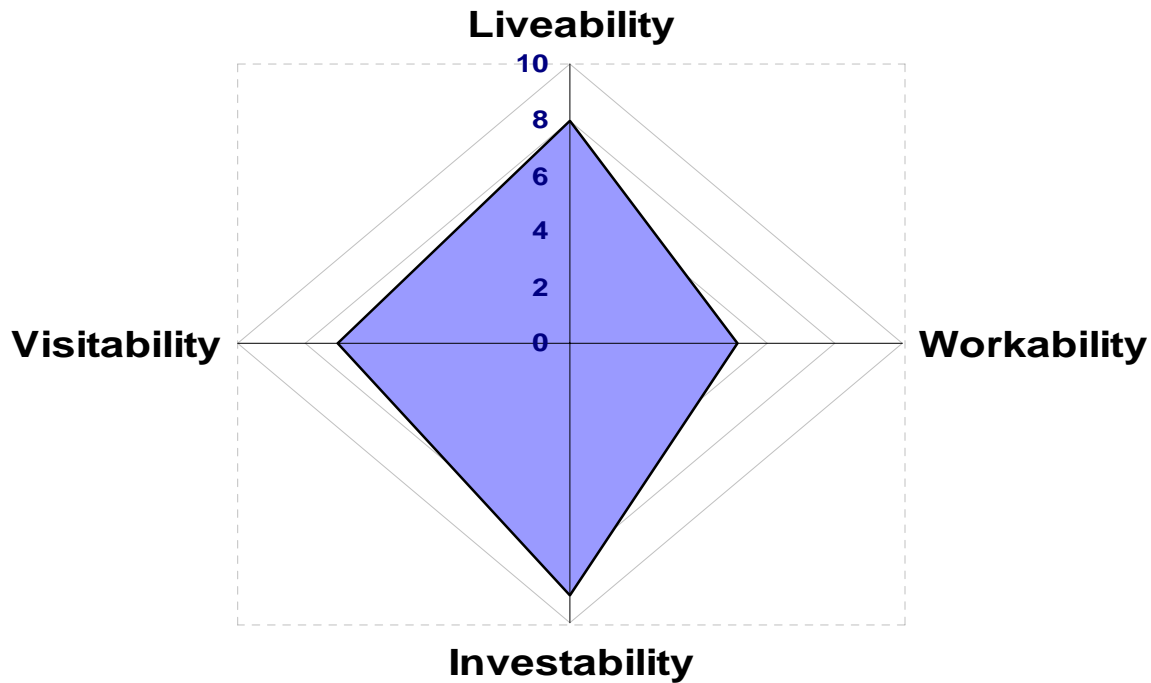


The Trinidad and Tobago Foresight Project

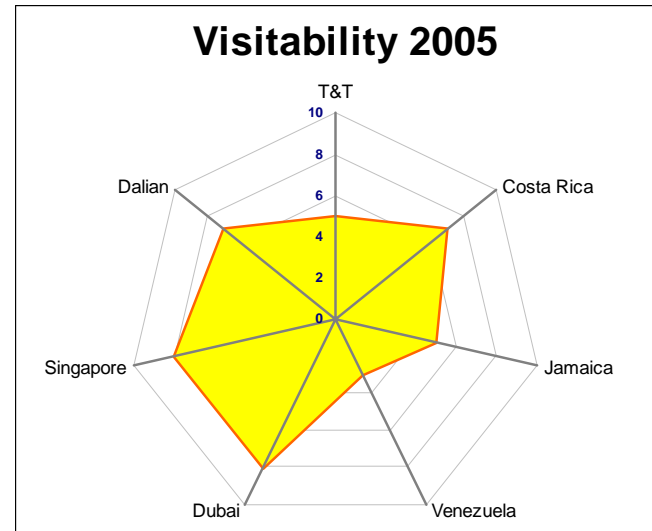
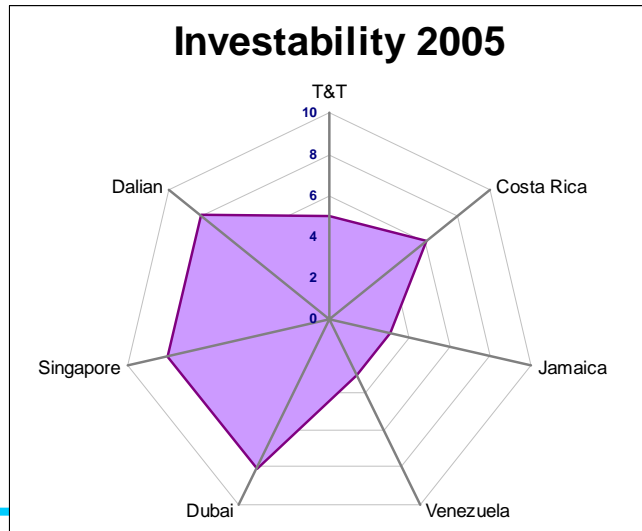
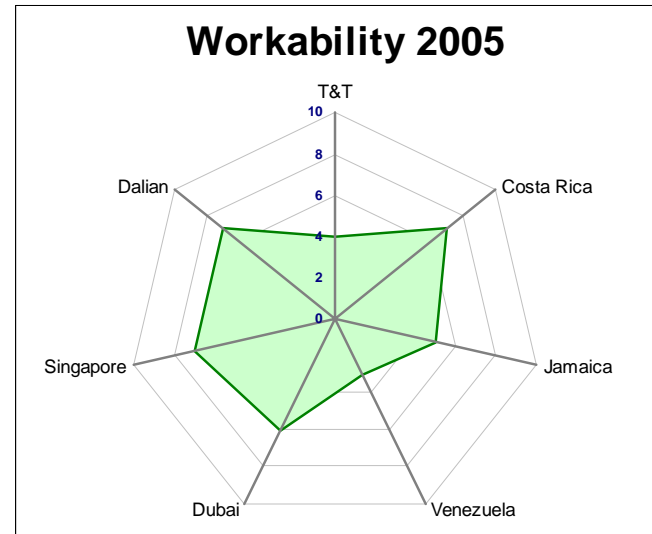
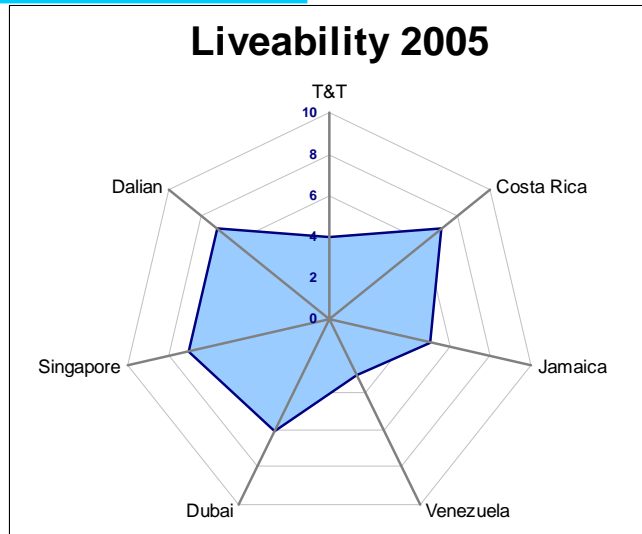
**Best Bets for Commercialisation
in Agriculture- food and beverage**

The Four Attractors country scoreboard

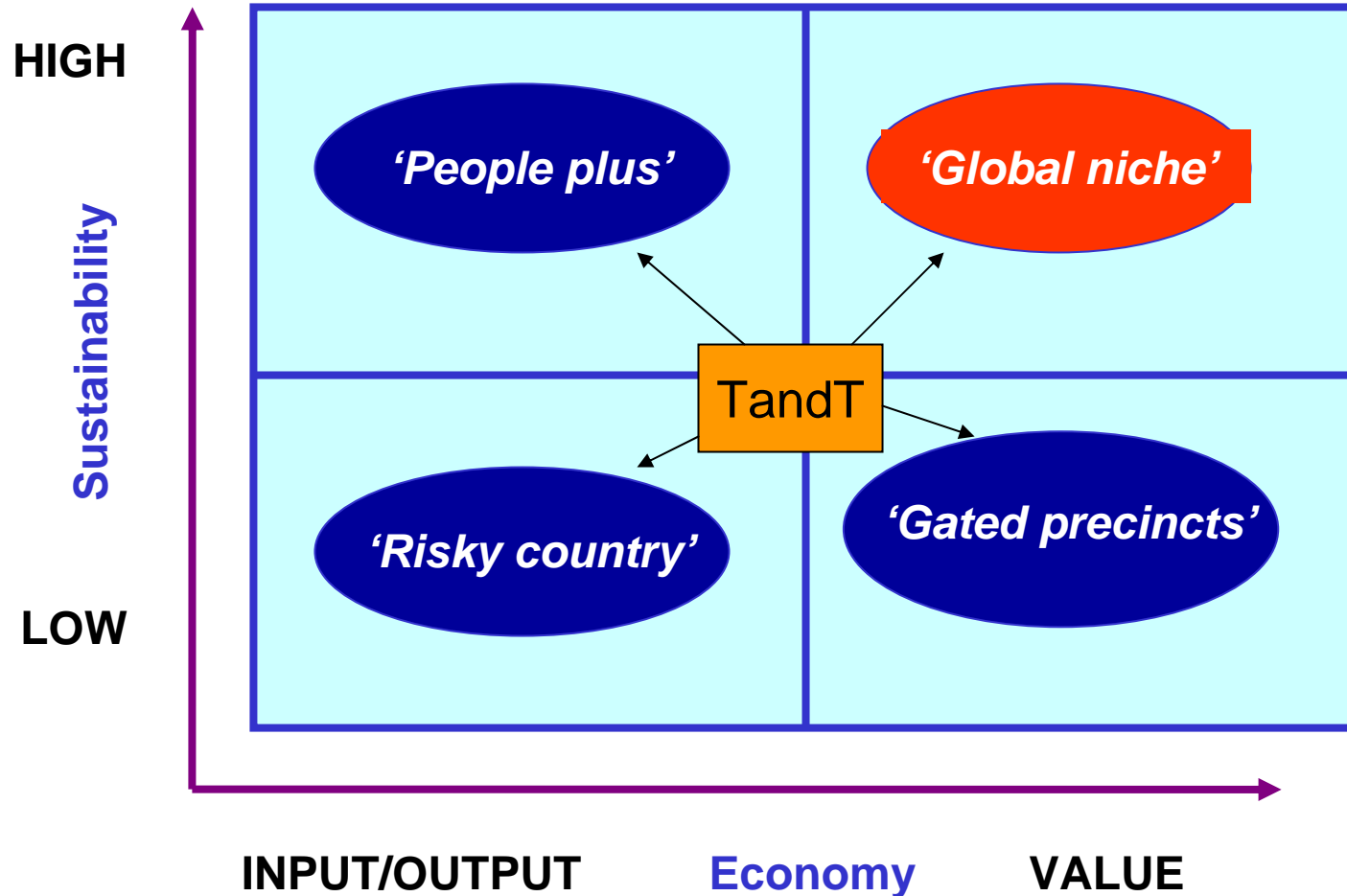
The Four Attractors



How does TT compare to other small countries?



Four growth & innovation scenarios for TT



The T&T Best Bet project process

Chapter 1

Global Foresight & Global Growth Market Niches

T&T Capabilities, enablers, 'best bets' & draft roadmaps

Chapters 2 & 3

Best Bet 1

Best Bet 2

Best Bet 3

Best Bet 4

Best Bet 5

Best Bet 6

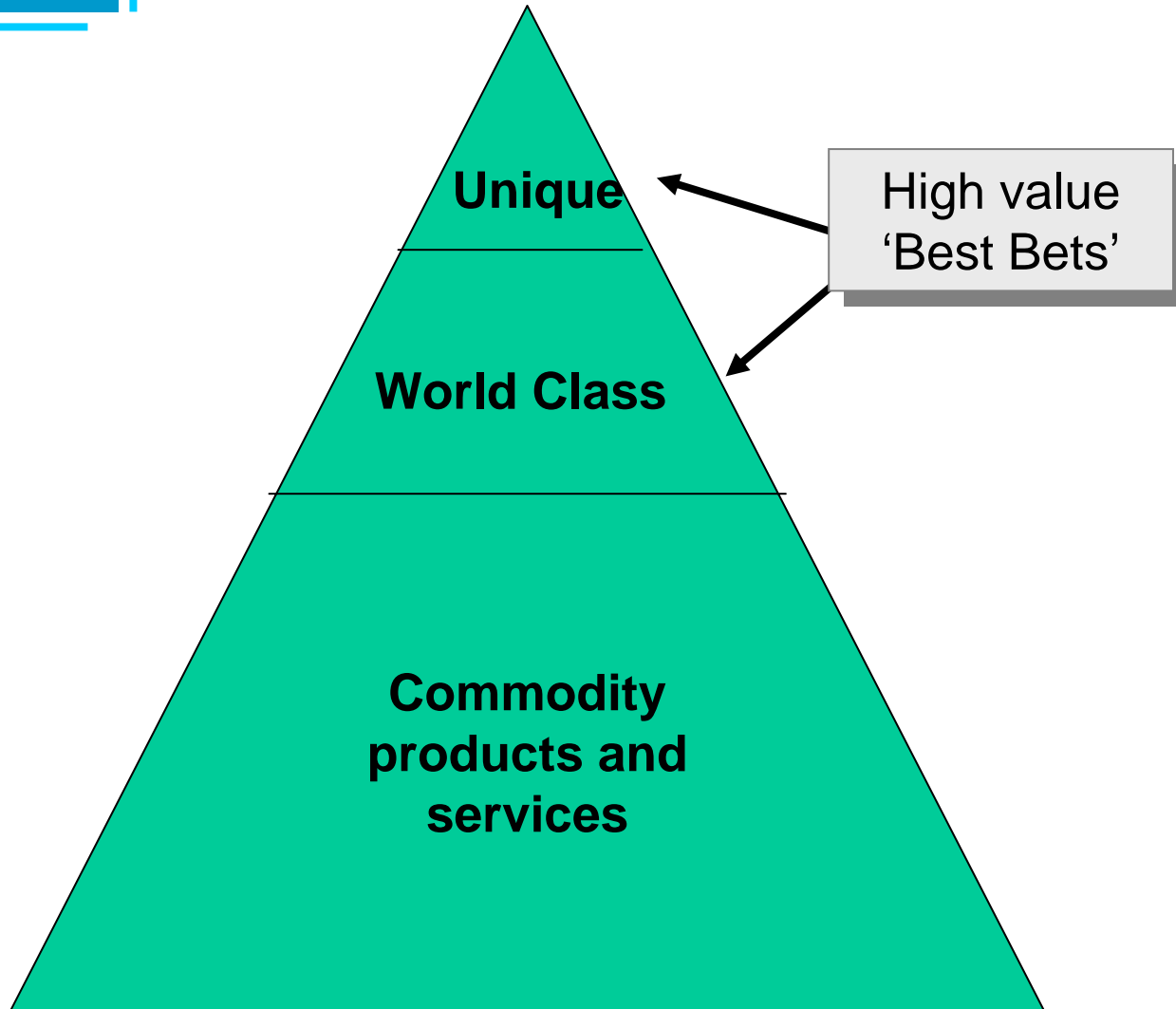
Chapter 4

Business Investment Case Completion

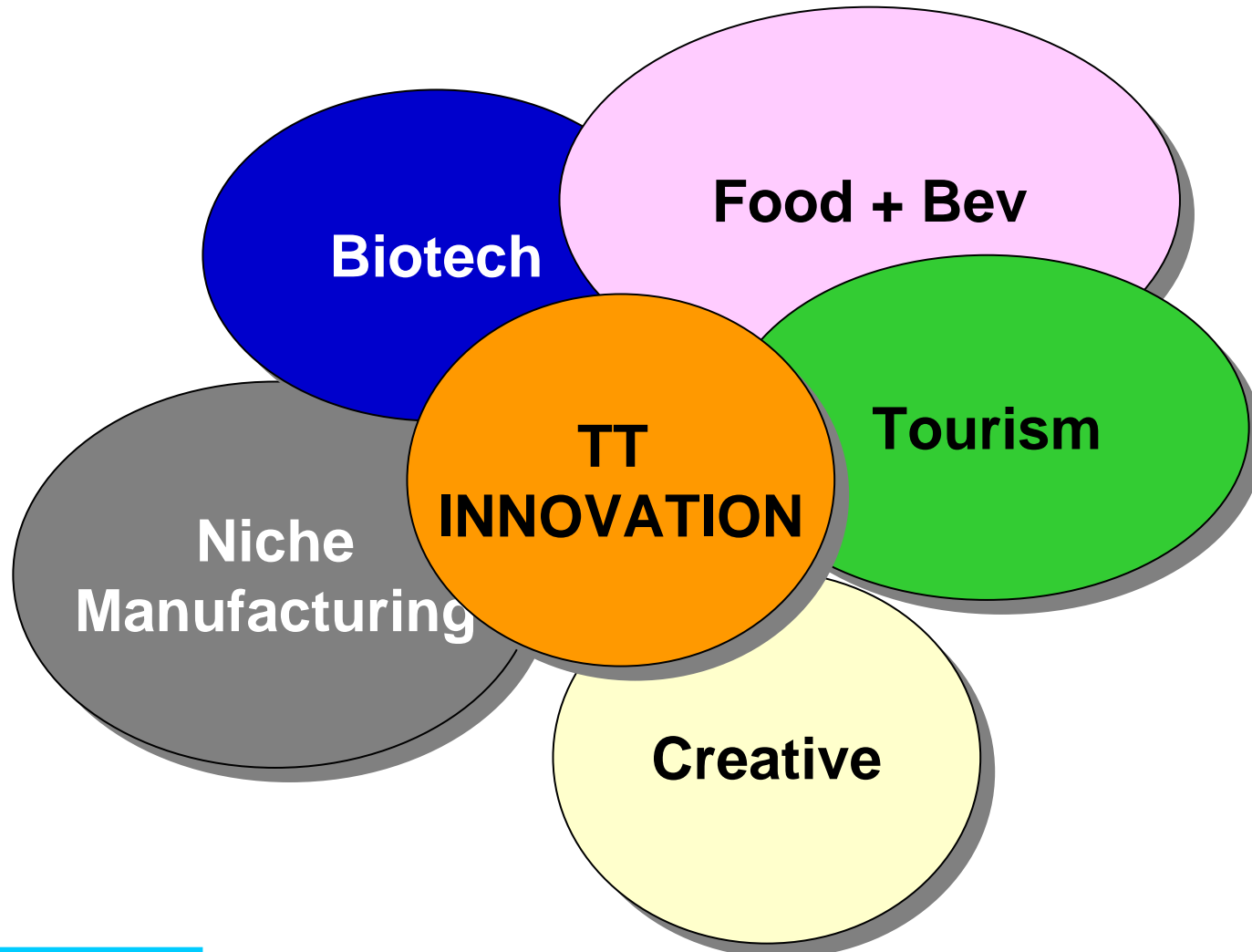
Chapter 5

Commercialisation Action Plan

'Best Bet' sector investments



Sector 'Best Bets' and convergence



Scorecard example

GROUP:	
BEST BET : TT Export to Bangalore	SCORE
ATTRACTION POTENTIAL	
Good market Niche	4
Good margin and profitability	4
Channel to market	3
Potential brand value	4
1 – 3 year returns	5
Low capital investment	3
CAPABILITY	
Local supply chain	4
Entrepreneurial	2
Marketing	2
Manufacturing	3
Access to offshore capability	2
RISK ATTRACTION LEVEL	4
TOTAL ATTRACTIVENESS SCORE	40
TOTAL POSSIBLE SCORE	60
WHO COULD DO THIS?	

Scoring:

Scale 1 to 5

1 = poor

5 = excellent

Agric Case Study: Cacao – ‘Brown Gold’

Trinitario cacao

- **Known for its special qualities.**
- **Supply currently exceeds demand. There are issues with growing**
- **Little done to add value.**

This ‘Best Bet’ opportunity focus:

- improving the basic genetic plant material
- Protection by international plant variety rights.
- measuring the PEA (phenylethylamine content)
 - ‘feel good factor’ of different strains of cocoa – the higher the content the higher the value.
- Developing an ‘appellation system’ around PEA concentrations
- Trinidad immersion tourism ‘Feel the Passion’ Includes cacao growing experience

Satisfying the Market

- Satisfying the need for fascination and more intense pleasure experiences.
- Improving personal health and wellness whilst indulging in pleasure.
- Extended use into non-food areas such as cosmetics and 'feel good' products.
- Cocoa/chocolate with a defined PEA measure that has an associated premium.
 - An associated 'appellation' to defend against competition
- The trend towards total immersion and eco Tourism

- **Serving a demand that far exceeds the current supply of high quality Trinitario cacao.**
- **A historical association with cacao growing and processing.**
 - **Plant material, including the Trinitario strain.**
- **A germplasm bank plus a breeding programme to boost mother stock quality and disease resistance**
- **A capability to produce our own T&T based cacao-derived products**
- **Specific R&D skills.**
 - **The Cacao Research Centre**
 - **Knowledge of at least some of the components that make cacao/chocolate an ‘essential’ for many consumers.**
- **Land and a unique environment for growing cacao.**
- **Existing marketing plan and branding that can be enhanced**
 - **Some experience with estate related marketing.**
- **Some innovative product developments based around cacao in the non-food sector.**

Capability Gap- including STI needed

- **Top notch R&D and support of the research arm at University of West Indies**
- **Better dispersal of research knowledge**
- **Improved genetic plant material.**
- **Development of a PEA practical measurement scale**
- **Identify how Trinitario derived plant material can achieve international plant variety rights protection**
- **Developing higher value non food uses for cocoa butter**
- **Labour saving devices and coverage of lack of skills**
- **An industry marketing plan.**
- **Top notch market research – especially with potential end users (traditional and non-traditional) – to identify mutually beneficial ways of leveraging extra value.**
- **Branding. Creating Premium status and value**
- **Broadcasting the unique characteristics of Trinitario cacao more widely.**
- **Turning at least one cacao estate into a ‘living experience’ for tourists.**

Capability gap- including STI required

- **Identifying key alliances and relationships**
- **Value chain analysis and optimisation.**
 - **Own storage in major markets such as Europe.**
 - **Regional cooperation with producers e.g. in Jamaica**
- **Moving to fixed price contracts.**
- **TQM at all levels including maturity and harvesting**
 - **Quality based incentive payments to producers**
- **A supply buffer in order to provide consistent supplies to premium end users.**
- **Preserve good agricultural land in T&T.**
- **A new industry structure to handle production, processing and marketing to global buyers**
- **Investment into land, plants, and machinery.**

Case Study - 'Trini Flava' pre-prepared meals

Pre-prepared meals and snacks based around T&T fusion concepts based upon healthy ingredients and processes.

These can be made up as 'heat and eat' take home products that can be purchased from selected retailers.

They can also be the basis of an additional product line for existing fast food outlets.

They could also form the basis of a completely new franchised retail operation – 'Trini Flava' – which uses either imported product from T&T or uses T&T developed recipes as the basis of the franchise concept. This could be supplemented by an entertainment component built around Caribbean music genres including traditional 'Steel Pan' entertainment.

Beverages based upon specialist ingredients that enhance personal health, wellness, and performance. These could include components such as bois bande, seamoss, high PEA cacao, etc.

Case Study – TT Hot Peppers

- ⊖ Unique 'Trini Flava' branded and authenticated food, health and wellness products derived from T&T grown hot peppers and shadon beni.
- ⊖ Finished high-end gourmet food products that are either T&T branded or branded under high-end market labels that have a connection with specific local and regional consumer groups in offshore markets.
- ⊖ An internationally recognised 'hotness' scale based around a specific measure of the capsaicin content of individual variety or estate-based lines of peppers.
- ⊖ Perhaps a similar scale can be applied to Shadon beni as a measure of its uniqueness and/or quality.
- ⊖ New ranges of products specifically aimed at the high-end health and wellness market.
- ⊖ An online marketing portal for T&T branded products to both offshore consumers and wholesalers who wish to order stock (a two tier pricing structure and portal access function).

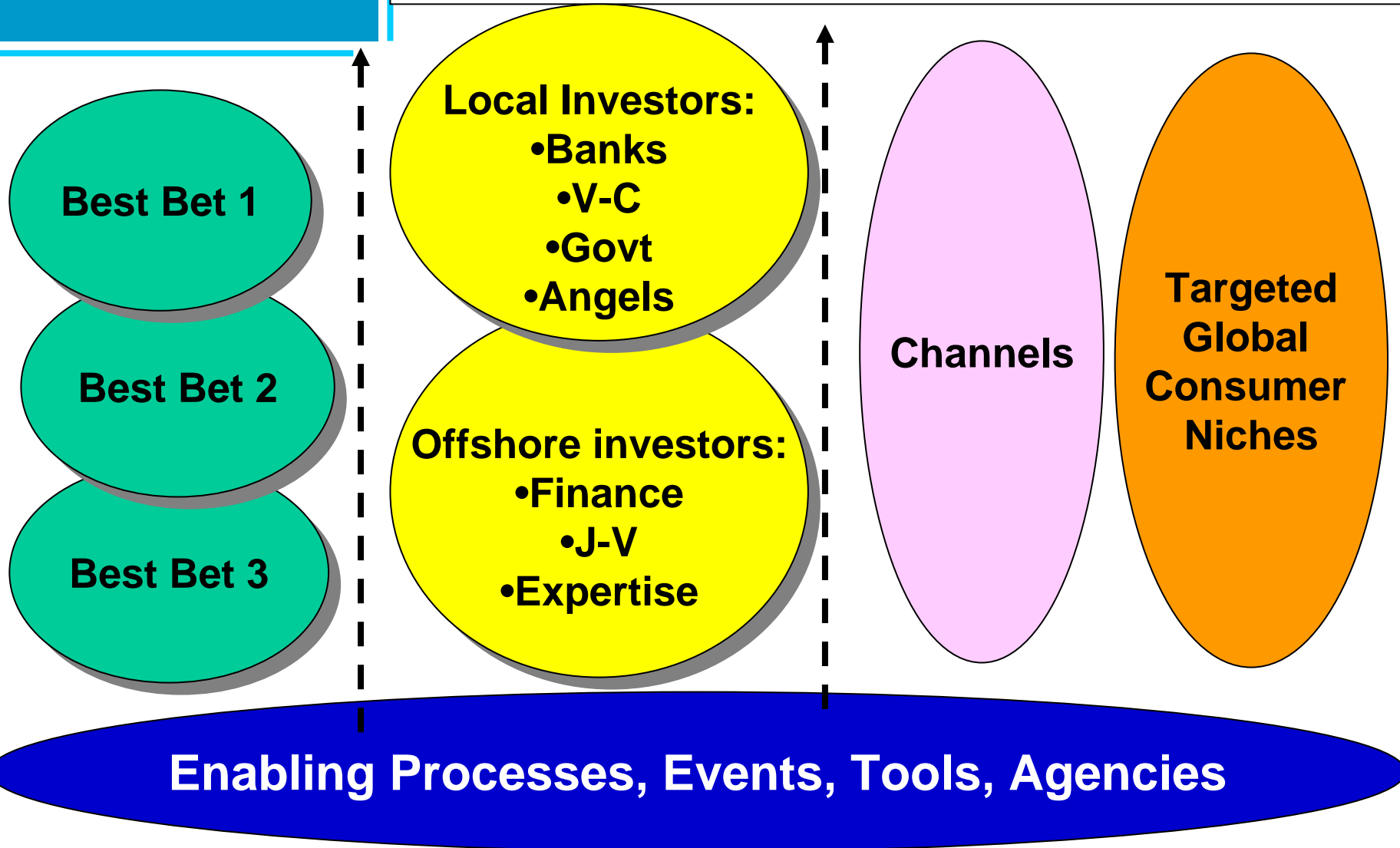
Some ideas brought to life

- **India:** Computerised kiosks in rural areas provide government services – e.g. drivers licence, but expanded to sell insurance, match prospective brides/grooms, health advice, passport photos
- **Caribbean:** gourmet pasta from breadfruit flour, virtual game and globally distributed education tool based around a local idea. CSME Regional social and economic equity plus more international ‘clout’
- **Dubai:** Moved to 10% oil dependence by investing in ‘trade cities’ Media, internet, Healthcare, Knowledge
- **Singapore:** National pride, economic growth, housing and education
- **Romania:** Moving away from the ‘grey economy’
- **Iceland:** sustainable energy systems
- **Denmark:** genome, pharmaceutical and medical derivatives from pig farming
- **St Lucia:** ‘Fairtrade’ banana - premium marketing positioning
- **Slovenia:** Huge collaborative openspace advertising creative group
- **Ireland:** new ways of exploiting marine resources

Building a National Growth and Innovation System

The NZ Case Study

Innovation engine - From 'Best Bets' to investment

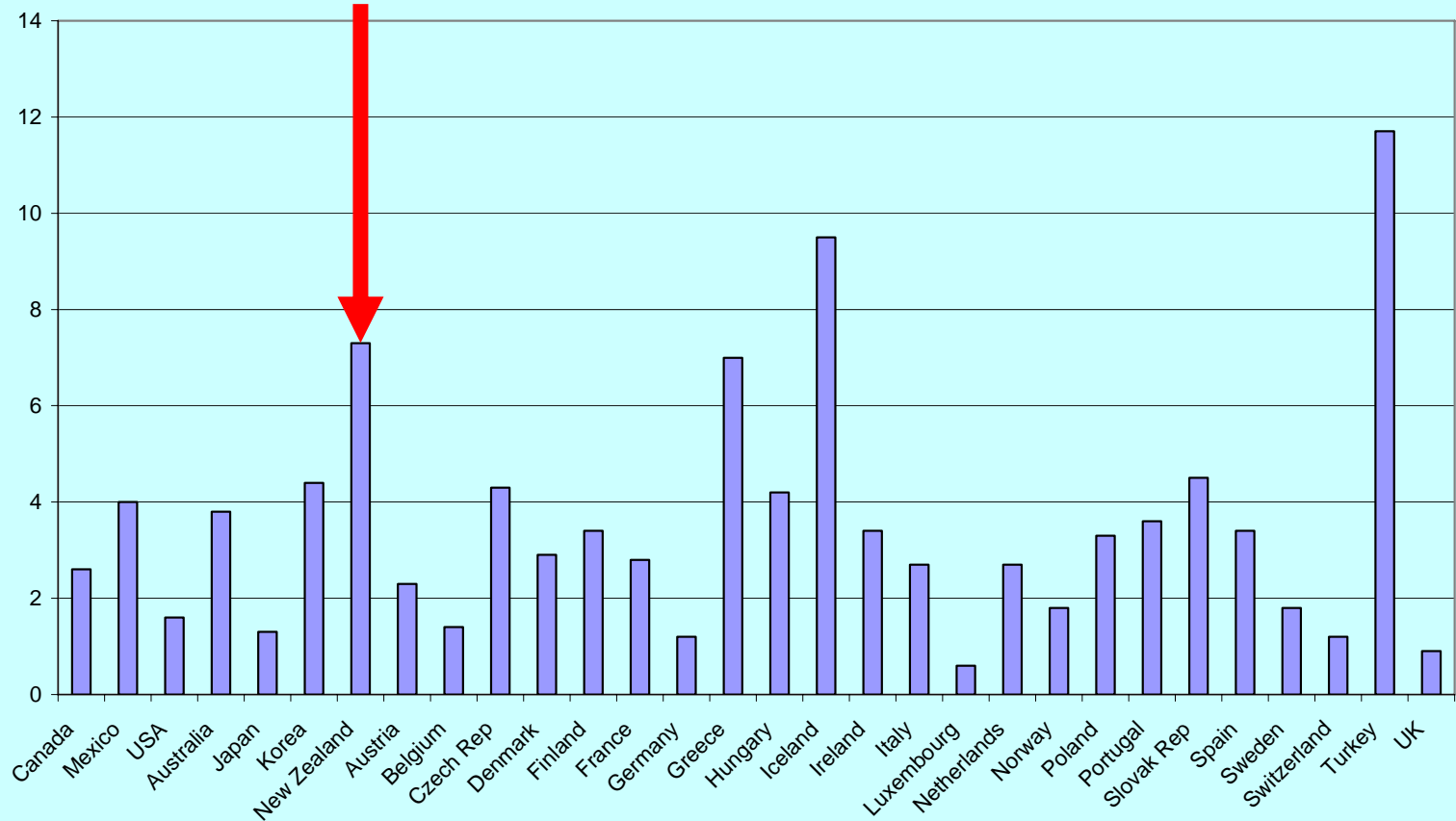


New Zealand economy - agricultural focus

Fig. 8. Agriculture, Forestry and Fishing Value Added as % of GDP

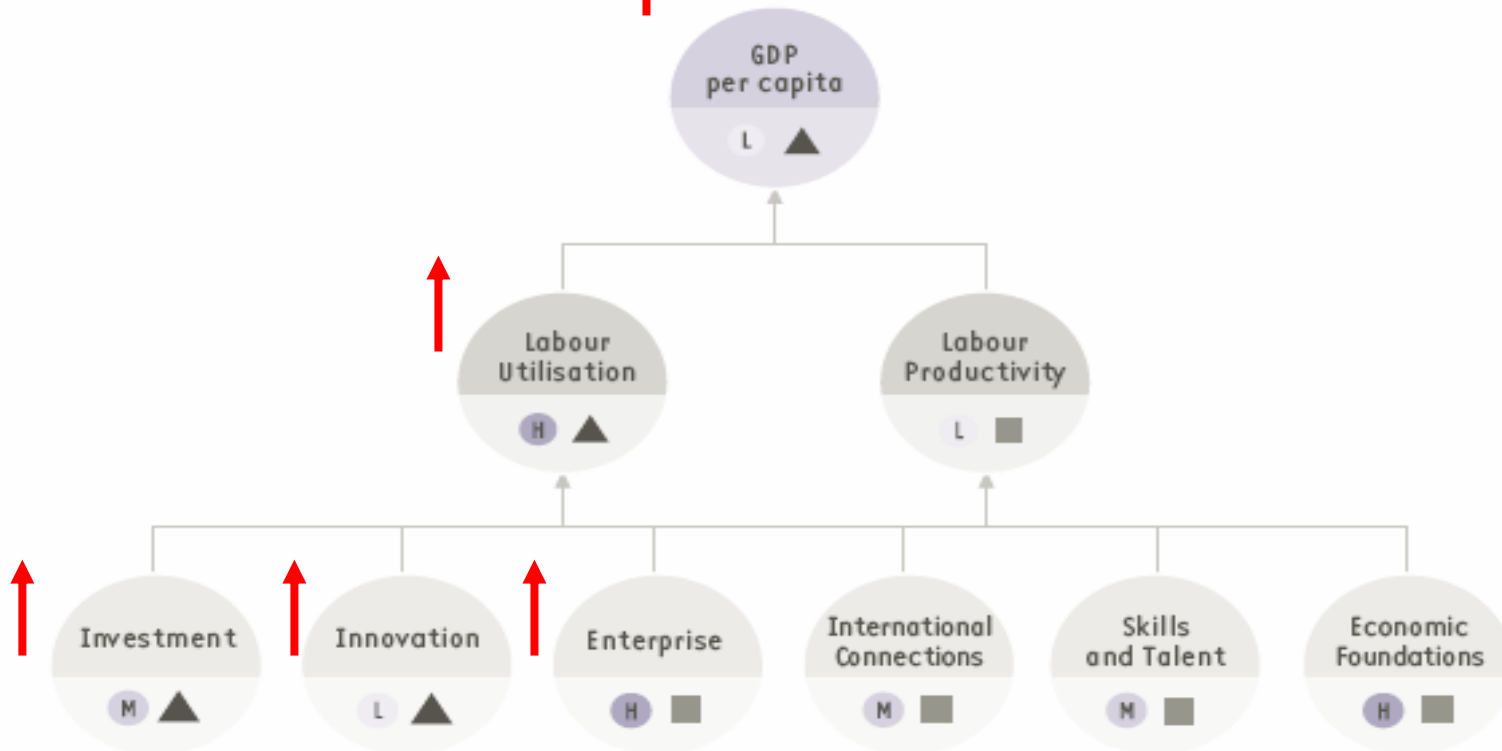
N.Z.

(OECD , 2004)



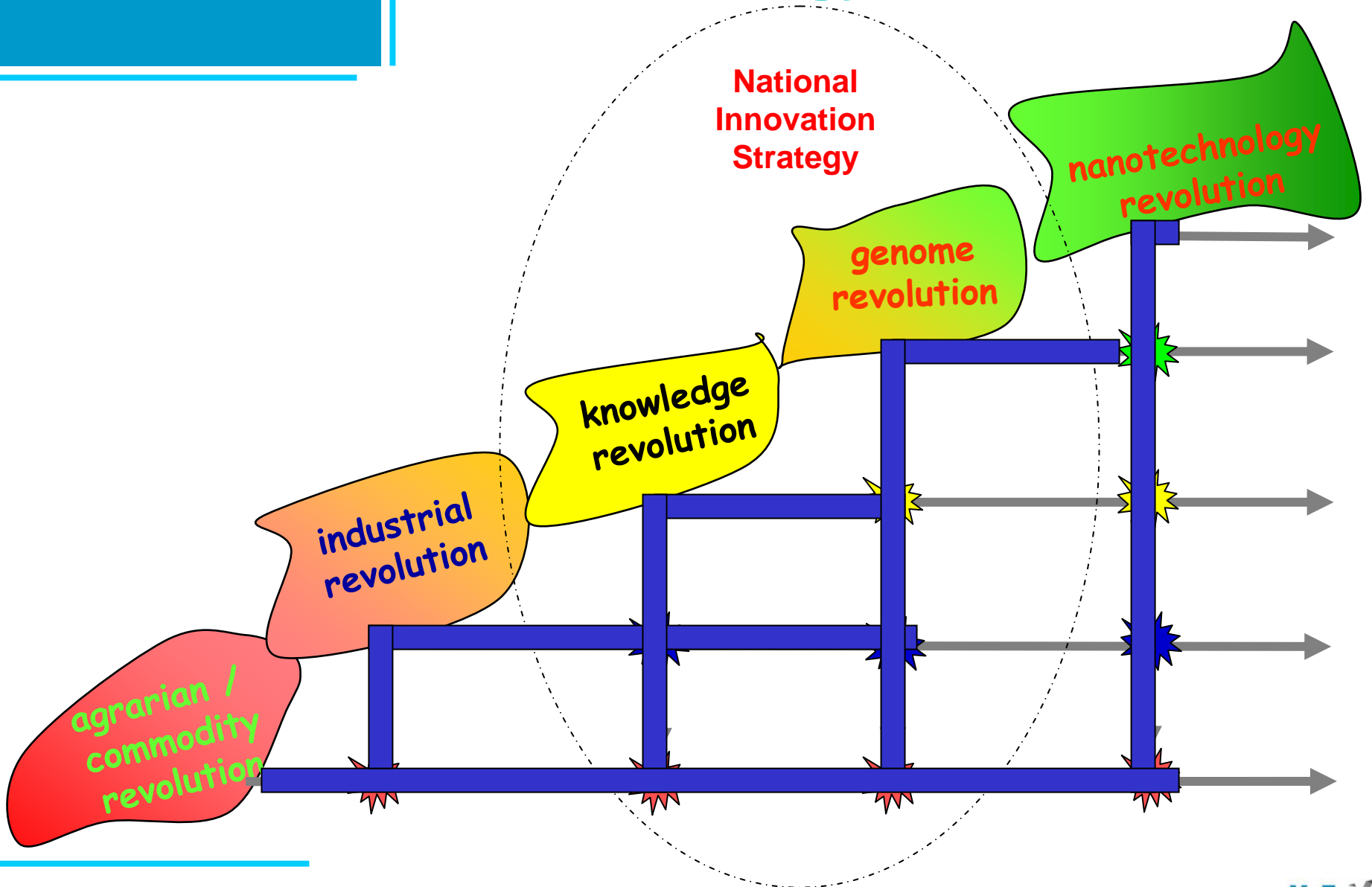
The Response - NZ National Scorecard 2004

FIGURE 1 New Zealand's performance against key indicators



> NZ ranking by OECD standards H = High M = Medium L = Low
 > NZ trend relative to OECD ▲ = Improving ■ = Static ▼ = Deteriorating

New Zealand National Innovation Strategy 2005-2015



National Innovation Strategy - Priority NZ sector investments

Three sectors have been highlighted by the government for particular assistance because of their potential. As they grow, individual businesses within a sector often face similar issues. Many of these issues are best approached collectively.

High Value priority Investments

- Biotechnology and agritech
- Information & communications technology
- Creative industries

Enhanced Value priorities

- Food and beverages
- Wood - building and interiors
- Specialised manufacturing
- Education
- Services
- Maori enterprises
- Tourism

Key 'whole of government' Strategies for Economic Growth – Ministry of Economic Development

1. ENCOURAGING INNOVATION BY FIRMS

- Building Capability in Firms
- Building Supportive Networks and Encouraging Collaboration
- Creating More High Growth, High Value Firms
- Aligning Public Research on science and technology

2. DEVELOPING SKILLS AND TALENT

- Realigning the Tertiary Education Sector
- Working with Business to Build Workforce Skill Levels
- Attracting and Retaining Talented People Impacts

3. STRENGTHENING INTERNATIONAL CONNECTIONS

- Actively Promoting Trade agreements
- Stimulating Foreign Direct Investment
- Deepening International Relationships with particular countries
- Promoting New Zealand Offshore

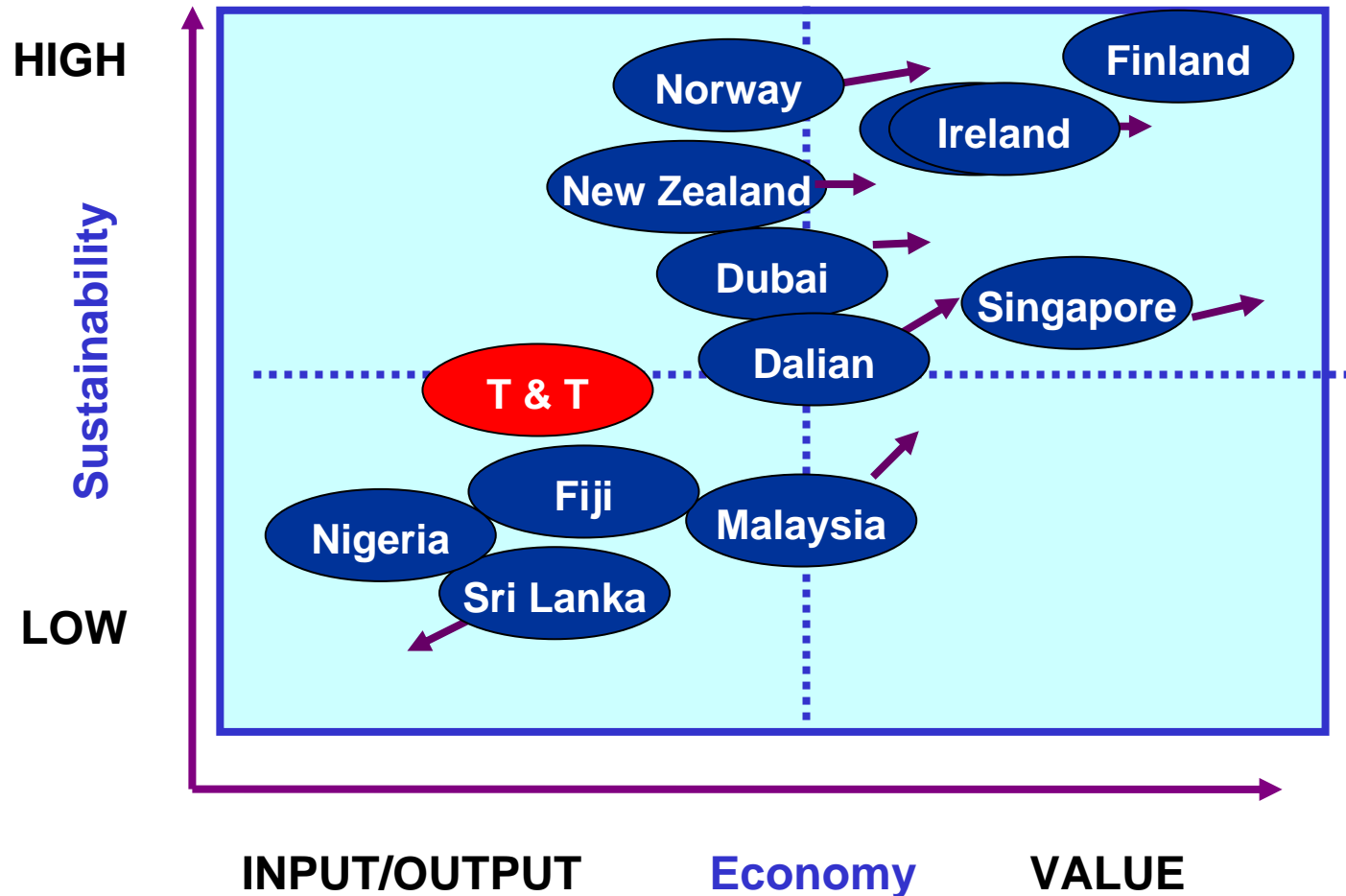
4. SUPPORTING ECONOMIC DEVELOPMENT IN SECTORS AND REGIONS

- Engaging with Sectors
- Catalysing Regional Economic Development Impacts

5. ALIGNING OTHER POLICIES TO SUPPORT INNOVATION

- Providing Supporting Infrastructure
- Improving the Tax System
- Creating the Appropriate Regulatory Environment for Businesses

Small country national innovation strategies



Entrepreneurial culture

- [Business and Enterprise Culture programme](#) publicises the success of innovative businesspeople as the transformers of our economy.
- [Enterprise Culture and Skills Activities Fund](#) supports activities that positively encourage entrepreneurial activity and business success, especially among young people.
- [NZTE Export Awards](#) recognise outstanding export achievement and business excellence across industry sectors.
- [Brand New Zealand](#) - 'New Zealand -New Thinking', 'kiwi', ALL BLACKS, 'Pure New Zealand', CarboNZero- that opens doors internationally.
- [The World Class New Zealand programme](#) engagement of world-class experts in areas critical to the growth of New Zealand's priority sectors.
- [Events Funding Support](#) assists the Events Industry in New Zealand bringing people to experience New Zealand culture
- [Economic Transformation](#) revitalizing regions and sustainable development

Trinidad and Tobago

National Foresight - not done- 2020 Project is Horizon 1-2

National Innovation Strategy and Investment Priorities- not done - only a total 'wishlist' of H1/2 issues across all sectors

Growth and Innovation Framework 2002
partial framework, but lacking high value priorities, and R&D investment funds

Ministry of Planning sector priorities:

Yachting

Fishing and fish processing

Merchant marine

Music and entertainment

Film

Food and beverage

Printing and packaging

(Biotechnology, biodiversity, pharma)

National Innovation survey - not done

New Zealand

National Foresight- 1997-8 NZ Foresight project- identified H 3 potential

National Innovation Strategy and Sector Investment Priorities 2002- Biotech, Design, Creative Industries, ICT- industry targeted, industry taskforces write 10 year strategies

Growth and Innovation Framework 2002

- Structure - Ministry of Econ Development - National strategy and whole of government policy goals
- Implementation - TRADENZ
- National, Regional, Sector Plans

GIF Five Pillars

- Motivation
- Capability
- Market Penetration
- Financial
- Research

National Innovation survey 2003

New Zealand food and beverage innovation example

NZ Manuka Honey

- Prof Peter Molan, Waikato University, found the 'unique manuka factor' (UMF) additional to the peroxidase factor in manuka honey.
- The content varies depending upon local manuka genotypes upon which bees feed
- UMF is heat stable and has a powerful antibacterial effect – proven in UK clinical trials
- Molan developed an activity scale 1 – 20 that defined the levels of UMF in different lines of manuka honey.
- 10 years ago manuka honey was worth about US\$1.50 /kg FOB
- Today 15+ Active is worth US\$20 – 30 /kg FOB and retails as high as US\$ 160/kg
- Comvita is developing healthcare products based on high active manuka honey