



Are we capable enough to innovate?

Dr Terry Cutler
Chair, Review of National Innovation System
NICTA Seminar, 29 April 2008

Our greatest danger

“The greater danger for most of us
is not that our aim is too high and we miss it,
but that it is too low and we reach it.”

Michelangelo (1475 - 1564)

Traditional Mindsets:

“Too risky”

“Suppose it fails?”

“Impossible. Never done before”

“Somebody has tried it already”

“Let me play devil’s advocate”

Dr Mashelkar



SIR HUMPHREY'S FOUR STEPS FOR KILLING A REPORT OR POLICY REVIEW

1. The public interest

- Hint at security considerations.
- Could put unwelcome pressure on the Government because it might be misinterpreted.
- Better to wait for a wider and more detailed appraisal over time.
- If there is no such appraisal being carried out, better still, commission one.

2. Discredit the evidence by leaking to the press that the report:

- Leaves important questions unanswered.
- Contains data that is inconclusive.
- Contains figures that are open to other interpretations.
- Contains findings that are contradictory.

3. Undermine the recommendations through an assortment of government phrases

- 'Not really a basis for long term decisions'
- 'Not sufficient information on which to base a valid assessment'
- 'No reason to undertake a fundamental rethink of existing policy'
- 'Broadly speaking, it endorses current practice'

4. If Stage 3 still leaves doubts, discredit the author of the report (*off the record*) by explaining

- He harbours a grudge against the Government.
- He is a publicity seeker.
- He is trying to get his Knighthood.
- He used to be a consultant to a multinational company.
- He wants to be a consultant to a multinational company.

Innovation leaders:

- Find opportunities where others see nothing
- Grow a small idea into a fantastic opportunity
- Convert problems into an opportunity
- Use hindsight, foresight, insight
- Set quantum goals
- Invest considerable mindshare in future growth & next big change
- Drive discontinuity- encourage risk

Dr Mashelkar



IT'S WORKED IN INDIA ...



PRICE: C.\$2,500

BusinessWeek

17 April 2008

World's Top 50 Innovative Companies

USA 31

Britain 4

Germany 4

Japan 4

India 2

Canada 1

Finland 1

Netherlands 1

Singapore 1

South Korea 1

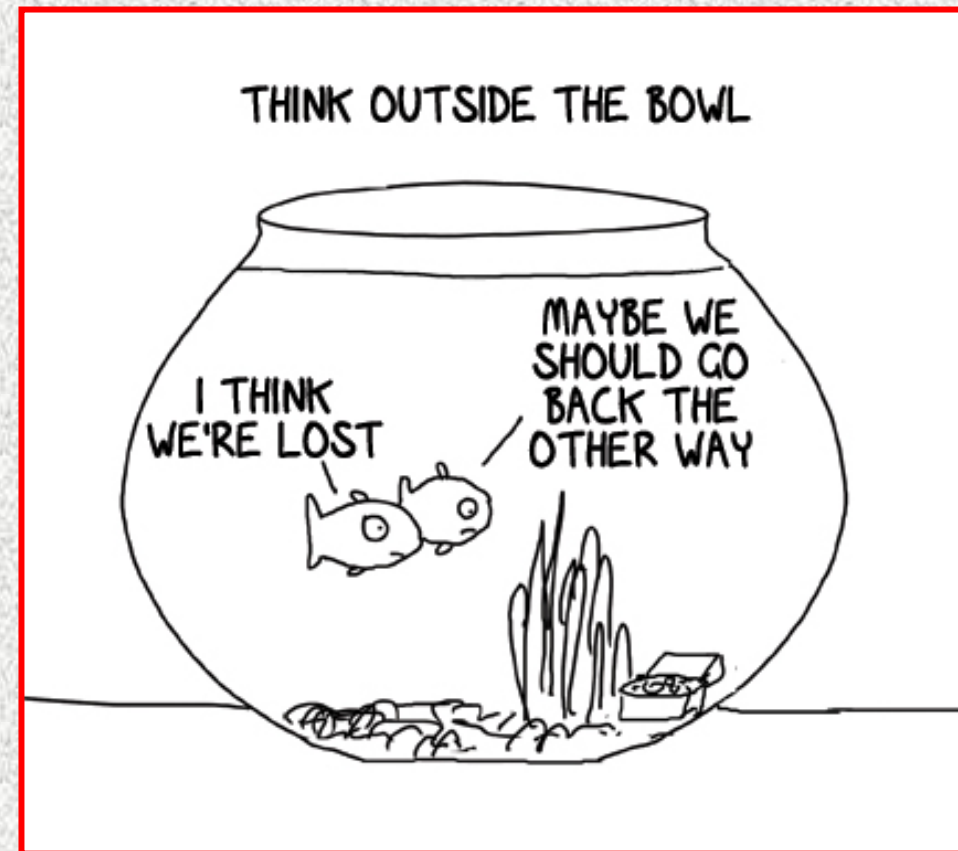
The world of innovation policy has three very different models:

(i) Crisis and shock driven

(‘The gathering storm’ (US); ‘the last to leave turn out the lights’, Ireland ; ‘what’s life after the Soviet Union?’, Finland....

(ii) A culture of pursuing opportunity

*(‘It’s a race to the top’, UK;
‘We can be as good as the best’,
China, Chile, India ...)*

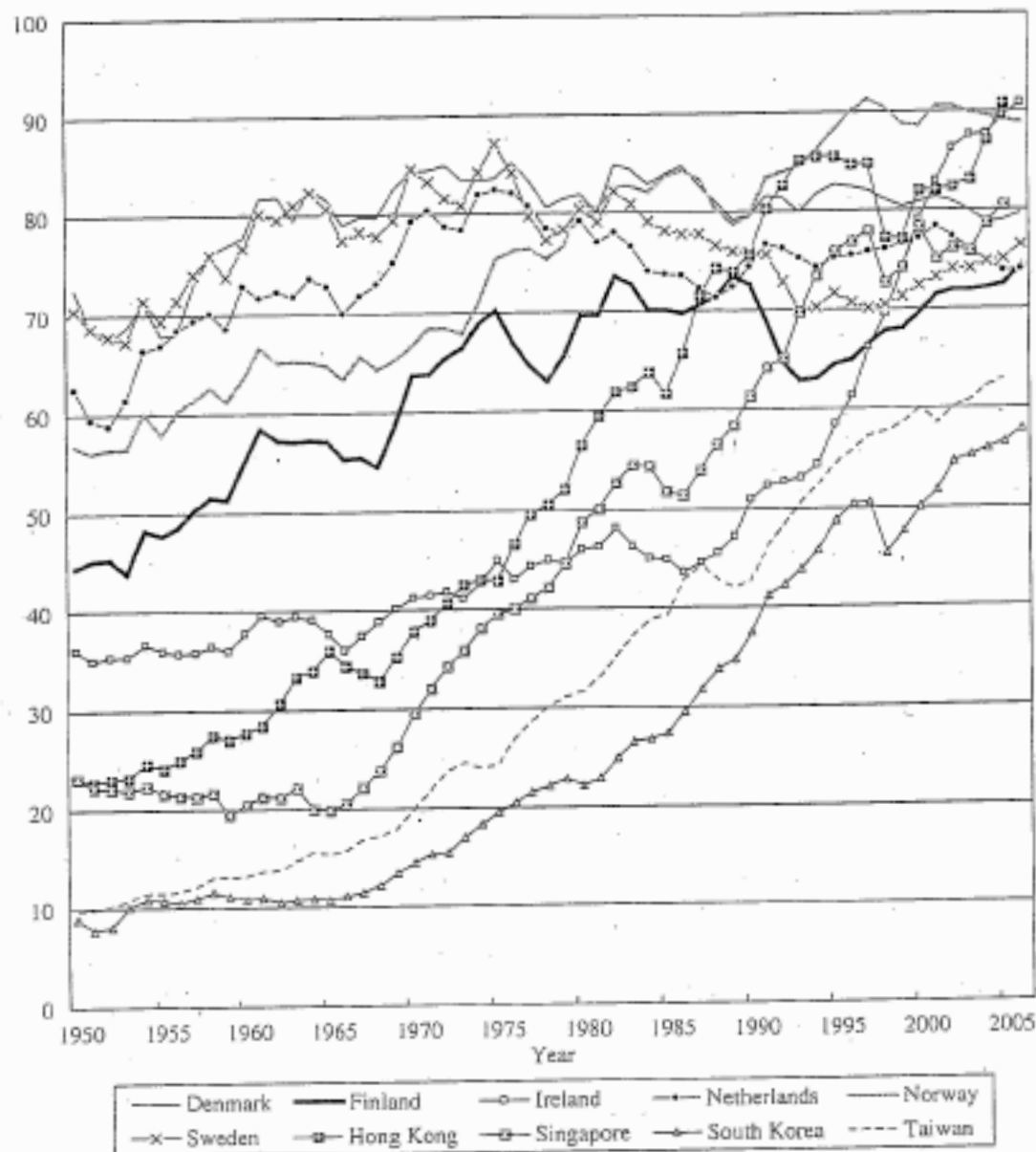


(iii) She'll be right

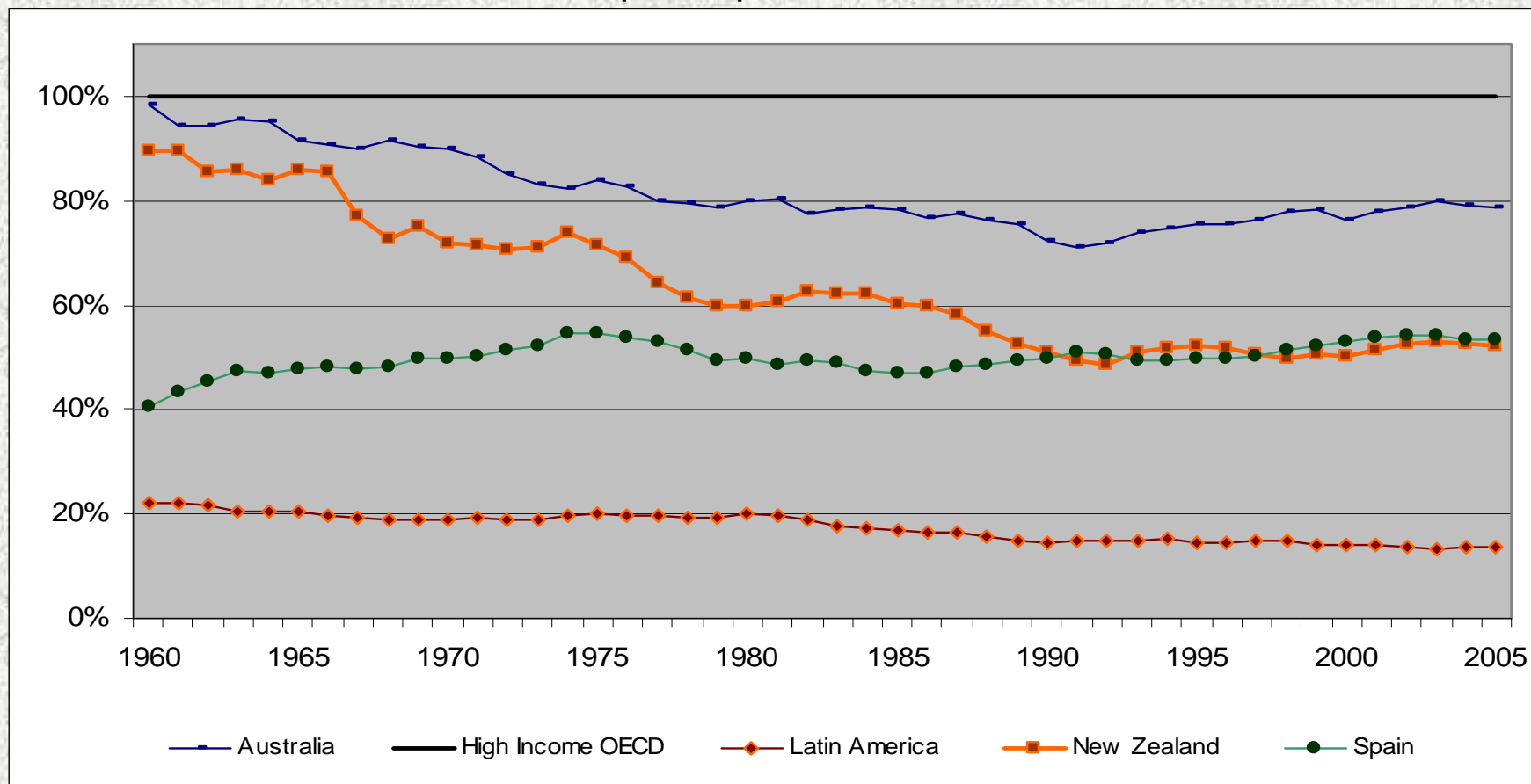
INNOVATION - WHAT GOOD IS IT IF YOU CAN'T EAT IT?



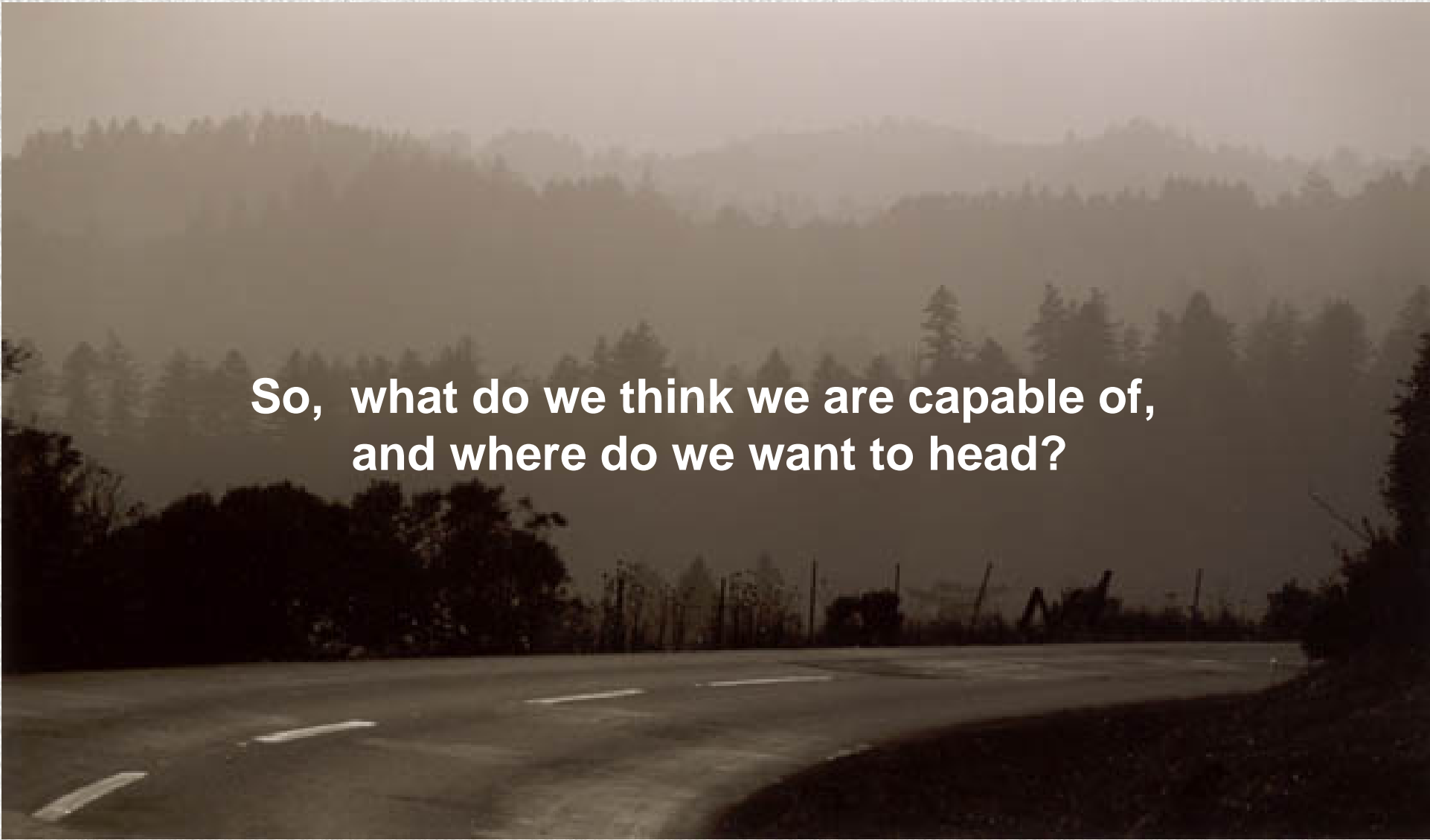
GDP per capita (cf US)



(Income per capita)



Source: ECLAC (2008)



**So, what do we think we are capable of,
and where do we want to head?**

Putting Australia into context - the innovation challenges of an advanced but small economy (the 2%:98% challenge)

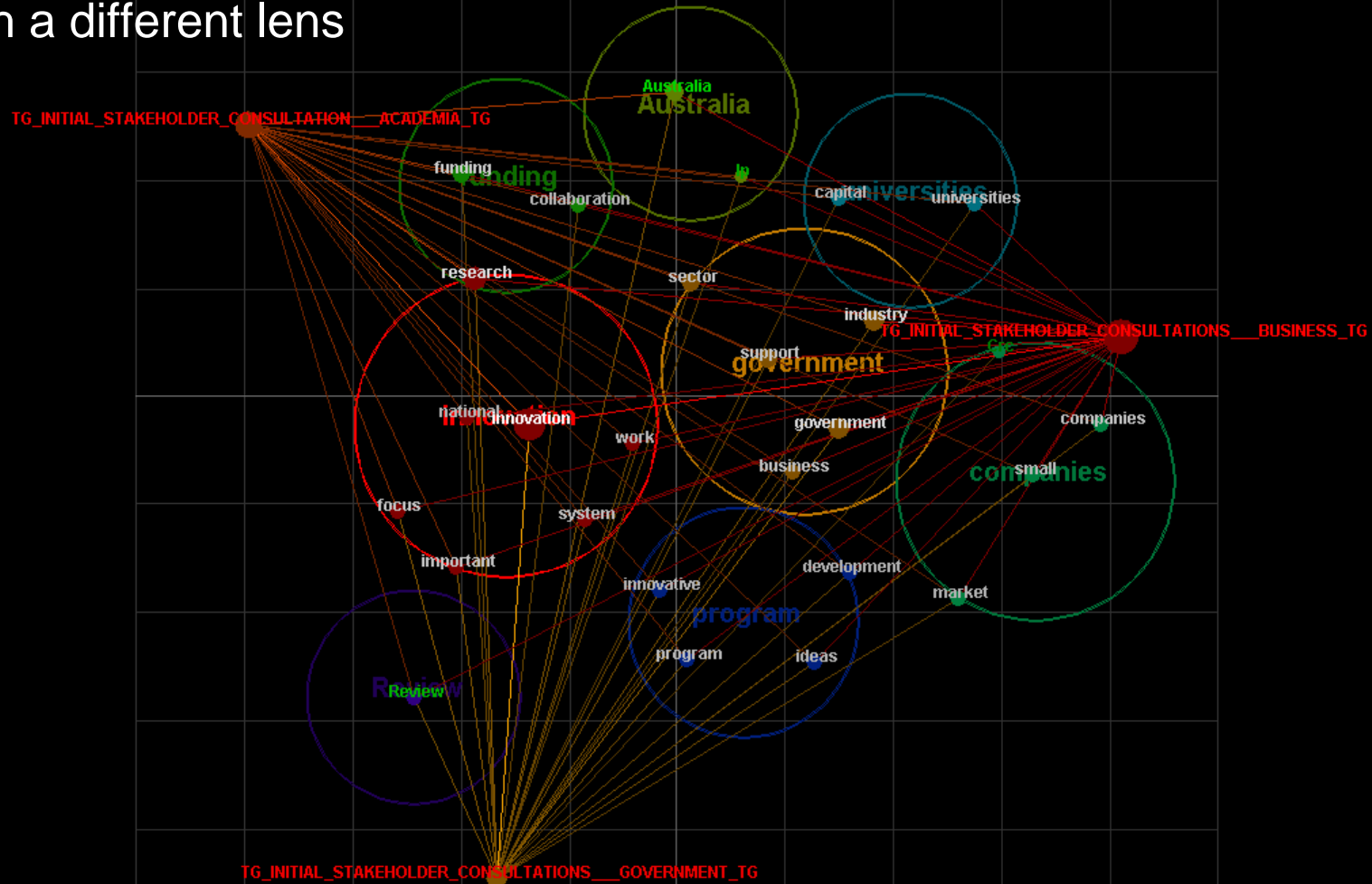


- ¶ The tyranny of distance
- ¶ The tyranny of low density (sparsity)
- ¶ The impact of trade gravity

- ¶ The opportunities from natural endowments
(seas, space, land, resources, biodiversity, isolation)
- ¶ The challenges of federated, distributed systems

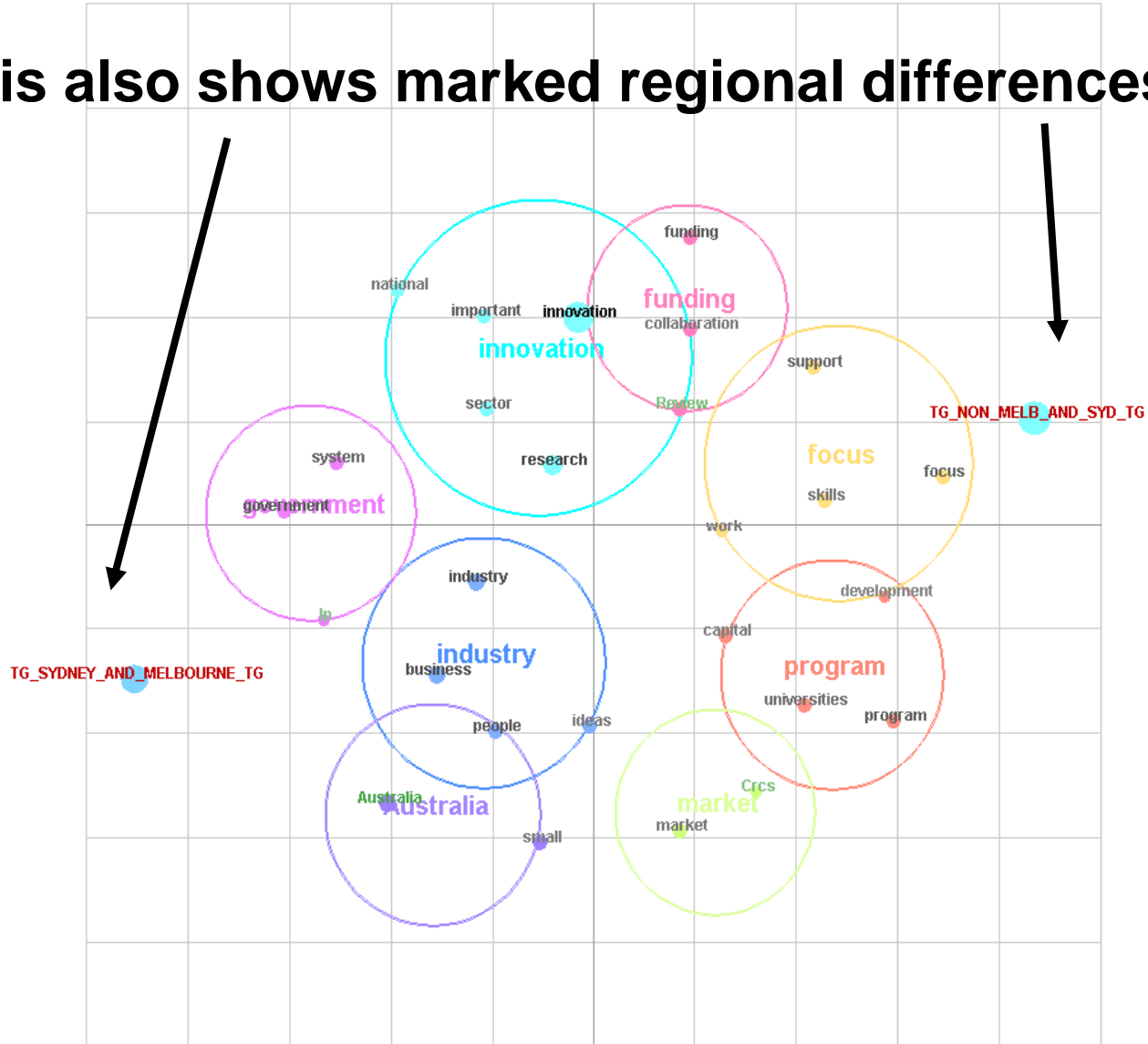
Iterations = 1000

Analysis of our initial consultations shows agenda of different stakeholder groups are highly disconnected and divergent - each sees innovation through a different lens



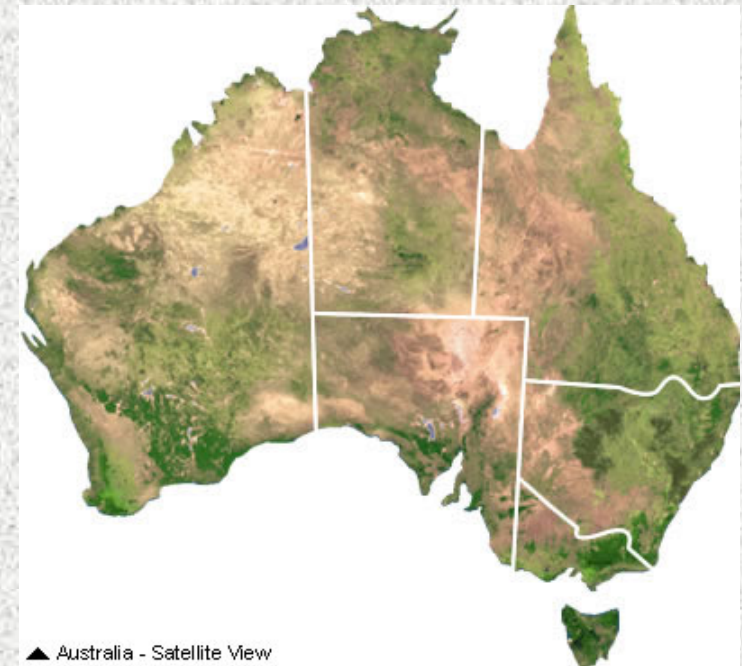
Iterations = 1000

Analysis also shows marked regional differences



Australia: currently a federated, decentralised model of innovation (cycles of centralisation and fragmentation over time)

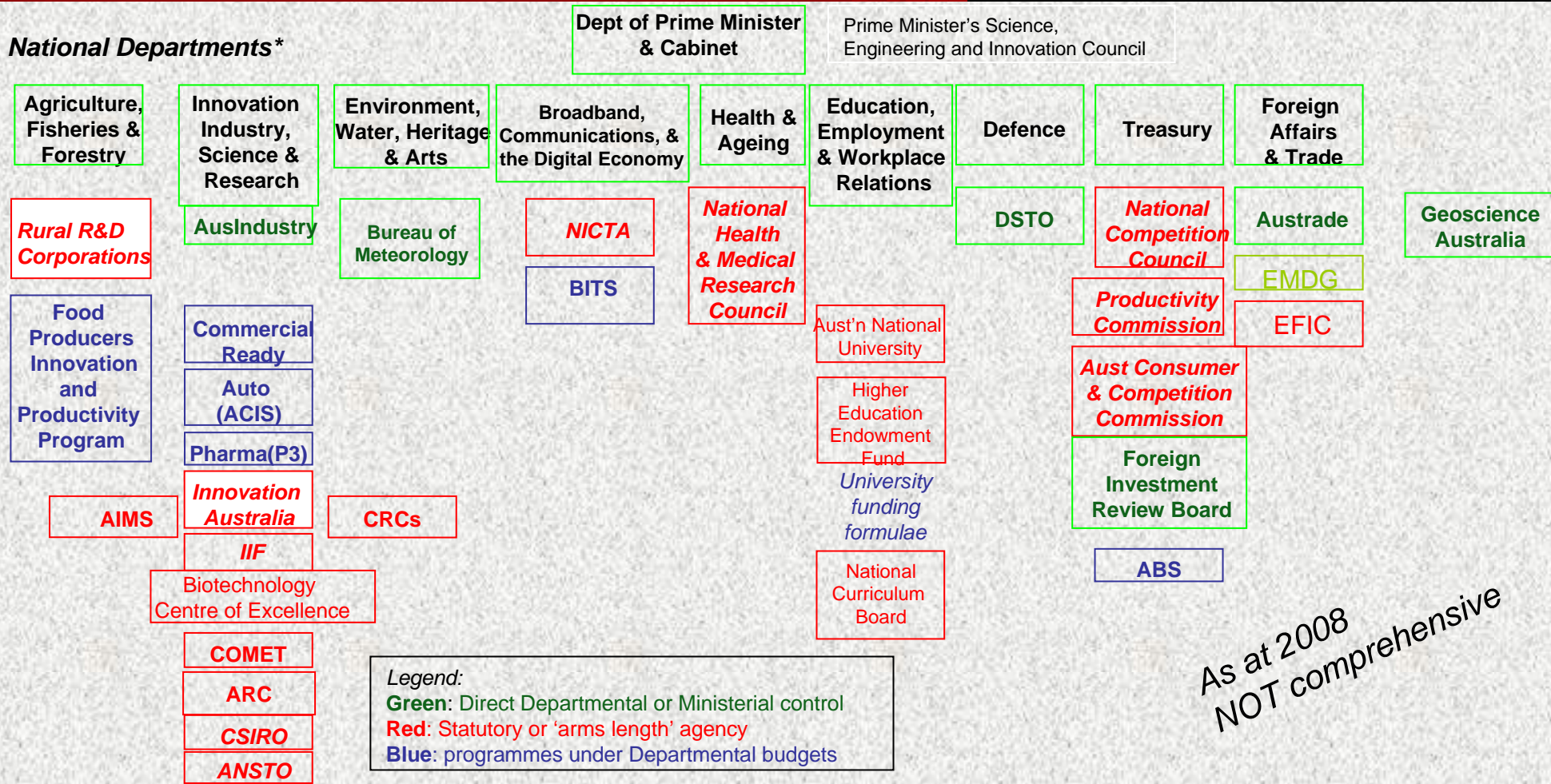
- ¶ Both Federal and State governments play key roles in Australia's innovation system;
- ¶ At each level, activities are spread widely across different Ministries
- ¶ This means that a lot of co-ordination occurs at the inter-agency level, rather than from a top-down policy framework
- ¶ The mapping of innovation-related activities and functions on the following page can be variously interpreted as:
 - un-cordinated, de-centralised and fragmented, or
 - as representing a microcosm of the global challenge of managing complex systems.
- ¶ Australia's structural characteristics - small and sparse - put a premium on collaboration and partnerships (which equips Australia well for learning about "open innovation" within a global economy).



REVIEW OF THE NATIONAL INNOVATION SYSTEM

innovation.gov.au/innovationreview

National Departments*



Legend:
Green: Direct Departmental or Ministerial control
Red: Statutory or 'arms length' agency
Blue: programmes under Departmental budgets

Council of Australian Governments: Federal and State co-ordination

As at 2008
NOT comprehensive

State Administrations



* This does not purport to be a comprehensive mapping

Innovation is a classic 'whole of government' issue...

Specialised bodies of thinking and practice

| | | | | | |
|---|--|---|--|---|--|
| Economy <ul style="list-style-type: none"> - Employment - Monetary settings - Fiscal settings - Savings - Tax - Commerce | Social infrastructure <ul style="list-style-type: none"> - Education - Health - Housing - Transport - Communications - Energy - Demography | International relations <ul style="list-style-type: none"> - Defence - Foreign Affairs - Trade - Aid | Environment <ul style="list-style-type: none"> - Water - Air - Climate - Urban planning - Biodiversity | Laws <ul style="list-style-type: none"> - Constitution - Justice - Family law - Commercial law - Criminal law - Human & legal rights | Identity and belief <ul style="list-style-type: none"> - Religion and morality - Culture- sports, arts & entertainment - Indigenous peoples - Multiculturalism - Nationalism |
|---|--|---|--|---|--|

Innovation as a cross-domain issue and challenge

Investment

- focus
- incentives

Markets

- competition policy
- regulation

Industry programmes

Tax, levies & subventions

Education & research

Cities

- "creative cities"
- industry clusters

Geography

- tyranny of (low) density
- distributional politics of federalism

Infrastructure

Demography

- population and immigration
- aging

Security

International treaties and agreements

Trade and export

Planning codes; standards etc

Legal codes

- intellectual property
- competition law
- workplace law

Culture

- the arts and creative industries

Values & norms

- risk taking
- elite performance
- egalitarianism
- pluralism

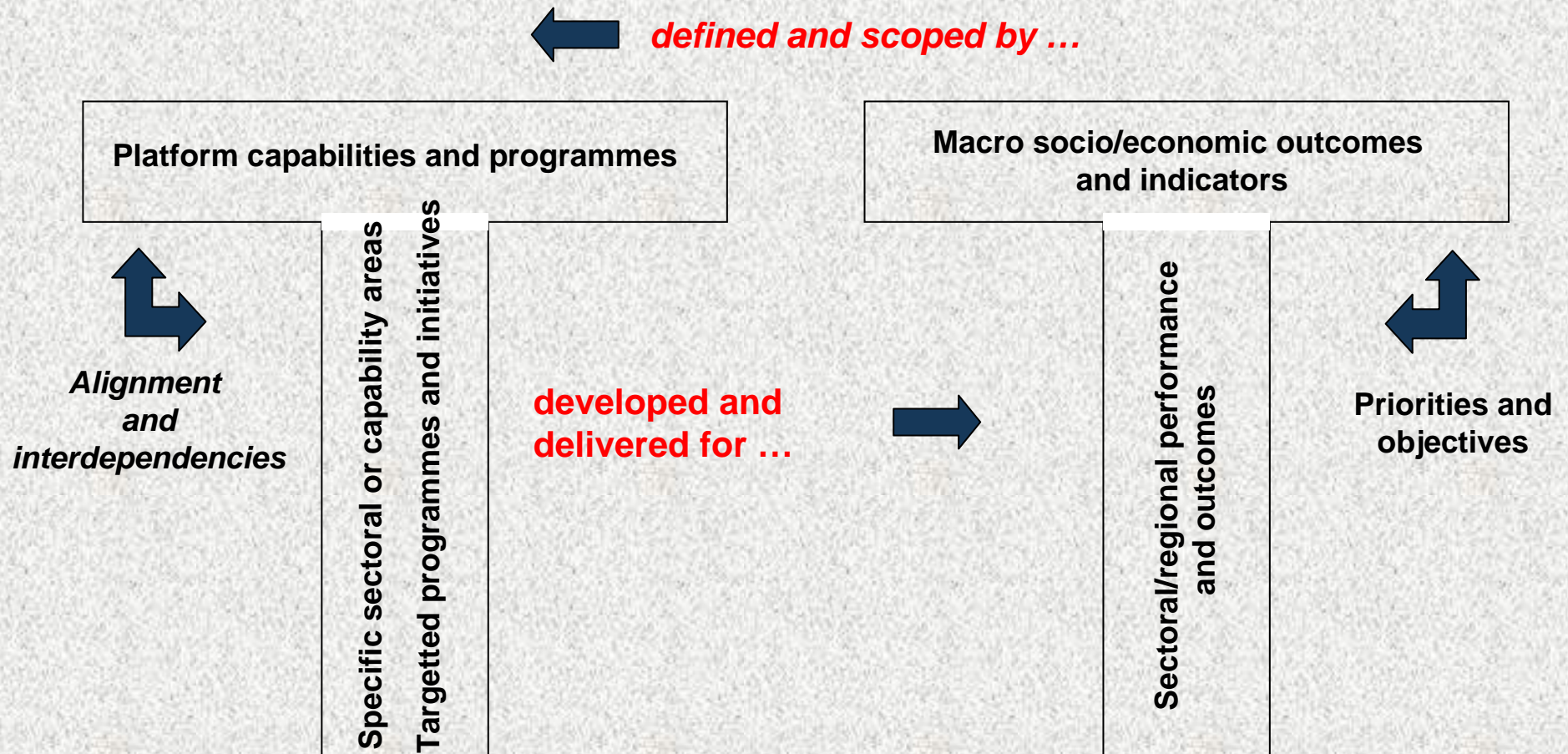
Rules

- regulation of biotech and research

INDICATIVE



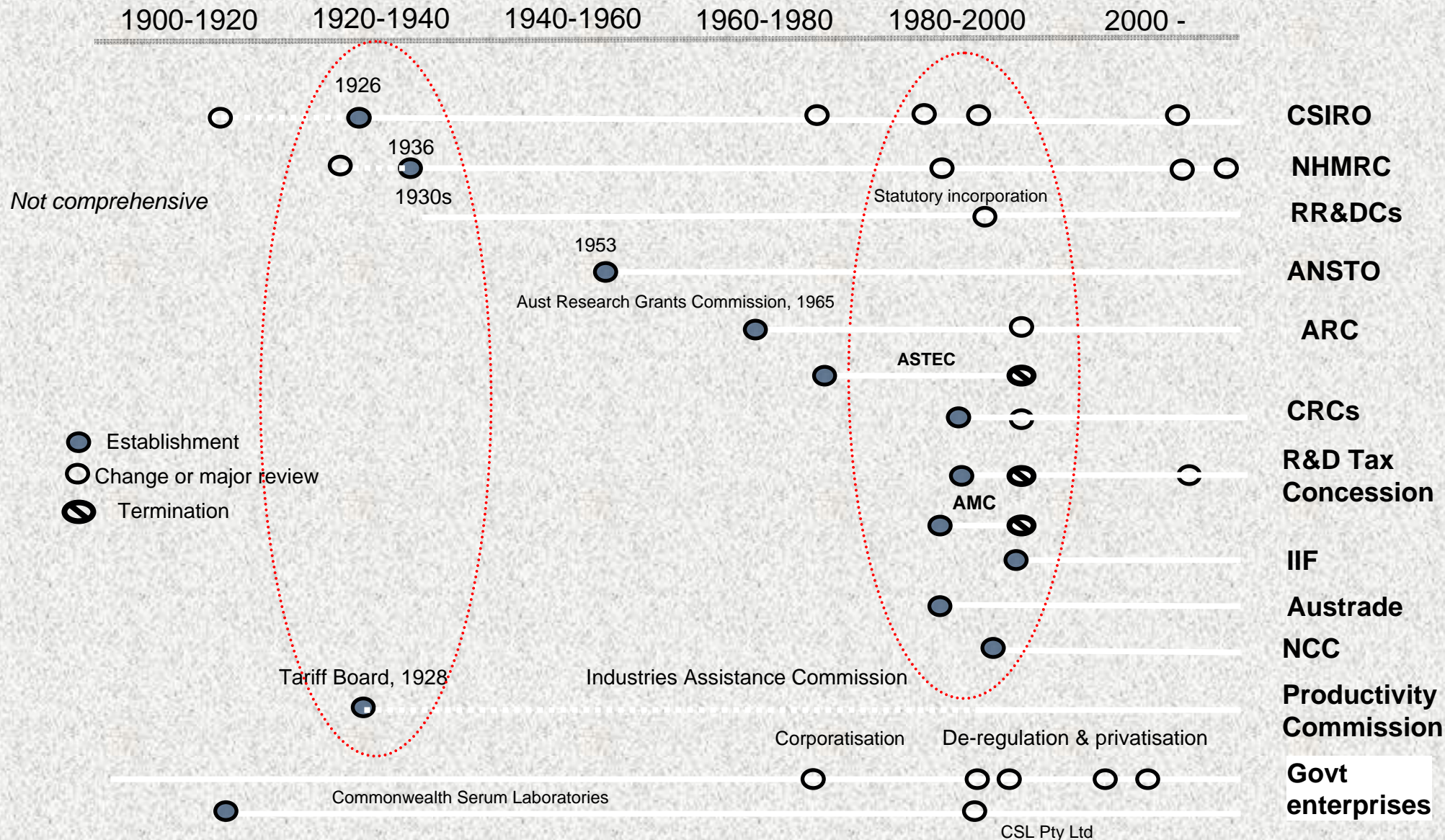
The Aussie BBQ approach to innovation: A “T-Bone” policy model





**The baggage of
legacy assumptions !**

THE INSTITUTIONAL EVOLUTION OF AUSTRALIAN DEVELOPMENT AGENCIES



What do we need innovation capabilities for?

The triple helix of innovation:

- (i) market-based innovation to increase productivity and improve competitiveness;
- (ii) innovations and changes in public policies and service delivery around the production of public goods;
- and*
- (iii) innovations and changes to address societal and environmental aspirations and challenges, and the mobilisation of private and public sector capabilities around these challenges.

INDUSTRY

GOVERNMENT

COMMUNITY



Innovation system = the stocks and flows around innovation

- The elements of innovation involve both ‘stock’ and ‘flows’: **stocks** of knowledge and capability, and the **information flows** of the innovation capital around these.
- We need to invest in the capabilities required around each element of the innovation system, as well as investing in the linkages and flows between them.
- Resources applied to innovation should be regarded as ***investment in the future***, not as expenditure.

Five core functions within an innovation *system* are

- identification of opportunities and choices
- creating capabilities
- managing risk and uncertainty
- building and maintaining supporting infrastructures
- mobilising resources

Capability destroyers: Systemic challenges within an innovation system (areas for potential system failure, over and above market failure)

- 1. Inadequate infrastructure provision**
- 2. Inadequate institutional development and evolution.**
- 3. Lack of skills, and learning problems (eg absorptive capacity).**
- 4. Structural adjustment issues and transitional problems in economic change (eg technology lock-in).**
- 5. Networking and collaboration problems (loose *versus* tight).**
- 6. Heterogeneity and diversification versus specialisation.**
- 7. Imbalances within and across the innovation system (ie. *forgoing leverage - in Australia, are the parts better than the whole?*)**

Desirable outcomes from Review include:

- 2020 + perspective
- greater awareness of scope of innovation agenda
- clarification of roles within the system
- principles to guide action
- framework to support prioritisation of effort
- proposals for greater strategic capability in system
- governance for better execution and delivery
- addressing gaps in system and imbalances

The forward-looking challenges and issues being raised include:

- For business - re-gearing for a changed and changing industry environment (eg, globalisation, impact of “Web 2.0” and innovation in services). Innovation for business is about commercialisation and business models.
- For the research sector - clarifying core roles; full funding, eResearch ... The core business of universities is about building knowledge and human capital.
- For government - what different roles; whole of government cohesion; governance; innovation in public services; innovation dividends through government procurement (smart user)
- Internationalisation of the innovation system (integration within the global innovation ecosystem) - issues for government, business and industry, and academia
- Funding models and resource allocations (stocks and flows)
- Prioritisation of effort and available resources - innovation priorities

In addition to consideration of submissions and the input from our three Working Groups, we are initiating special roundtables in the following areas:

1. Funding models
2. Government procurement (government as a demanding and innovative customer)
3. Information policy and intellectual property approaches
4. On the job skills development and training, and management education
5. Innovation metrics and target setting
6. National facilities and collections
7. Innovation in the public sector
8. Rural innovation
9. Tropical research and industries

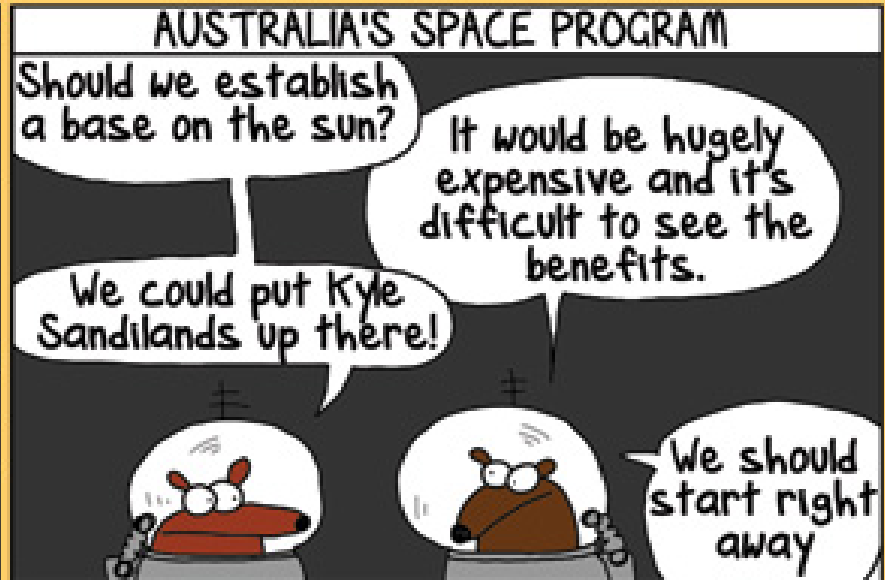
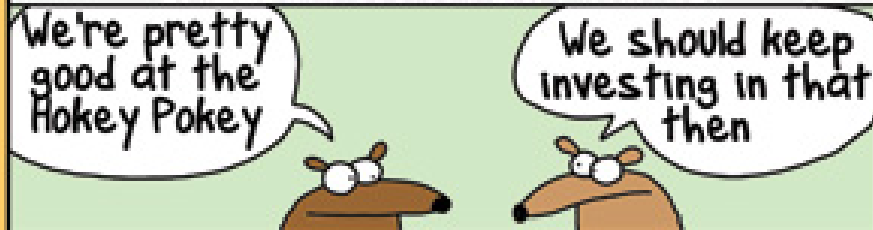
Considering national priorities for innovation: *we can't be good at everything*

Some starting points

1. *Start* from leveraging Australia's natural endowments or built strengths
2. Look to areas where there might be a distinctively Australian advantage in developing solutions to globally relevant challenges or markets
3. Identify opportunities through innovation to transform and reinvent existing industries and service delivery for competitiveness
4. Address the small country challenge in internationalising innovation
5. Maximising impact and national benefit from the supporting investments in national capabilities, facilities and innovation infrastructure

WILL YOUR RESEARCH PROGRAM GET THE CHOP AT THE 2020 SUMMIT? PANIC NOW!!!

AUSTRALIA IS A SMALL COUNTRY (ONLY 1.6% OF THE WORLD'S GDP), WE CAN'T DO EVERYTHING! WE'VE GOT TO MAKE SOME TOUGH DECISIONS ABOUT INTELLECTUAL CAPITAL. WHAT WILL WE INVEST IN AND WHAT WILL WE LEAVE BEHIND? SHOULD WE BE MEDIOCRE AT EVERYTHING OR TOTALLY BRILLIANT AT A FEW THINGS?



Nano technology vs Nanna technology



Become an international sporting powerhouse!

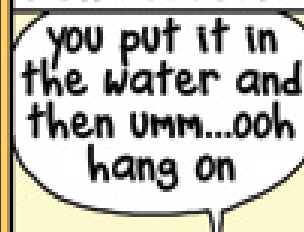
YES ✓

Become a powerhouse in gracious defeat and humility!

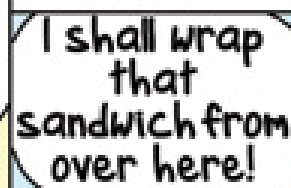
NO ✗

OTHER THINGS WE MIGHT LET GO OF

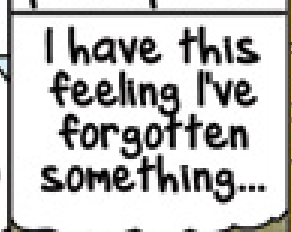
Water soluble fish detector



Remote controlled tin foil

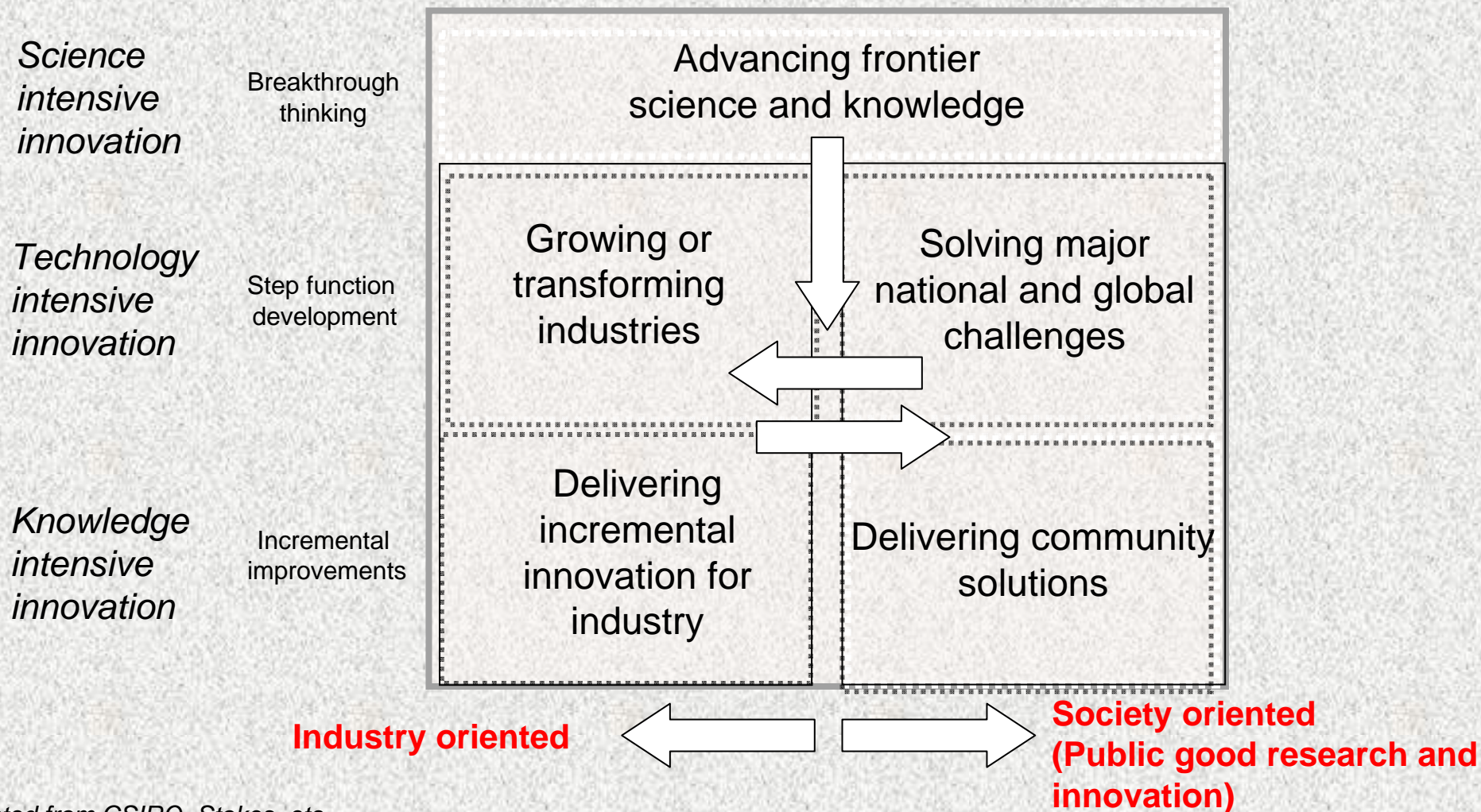


Hippopotamus proof pants

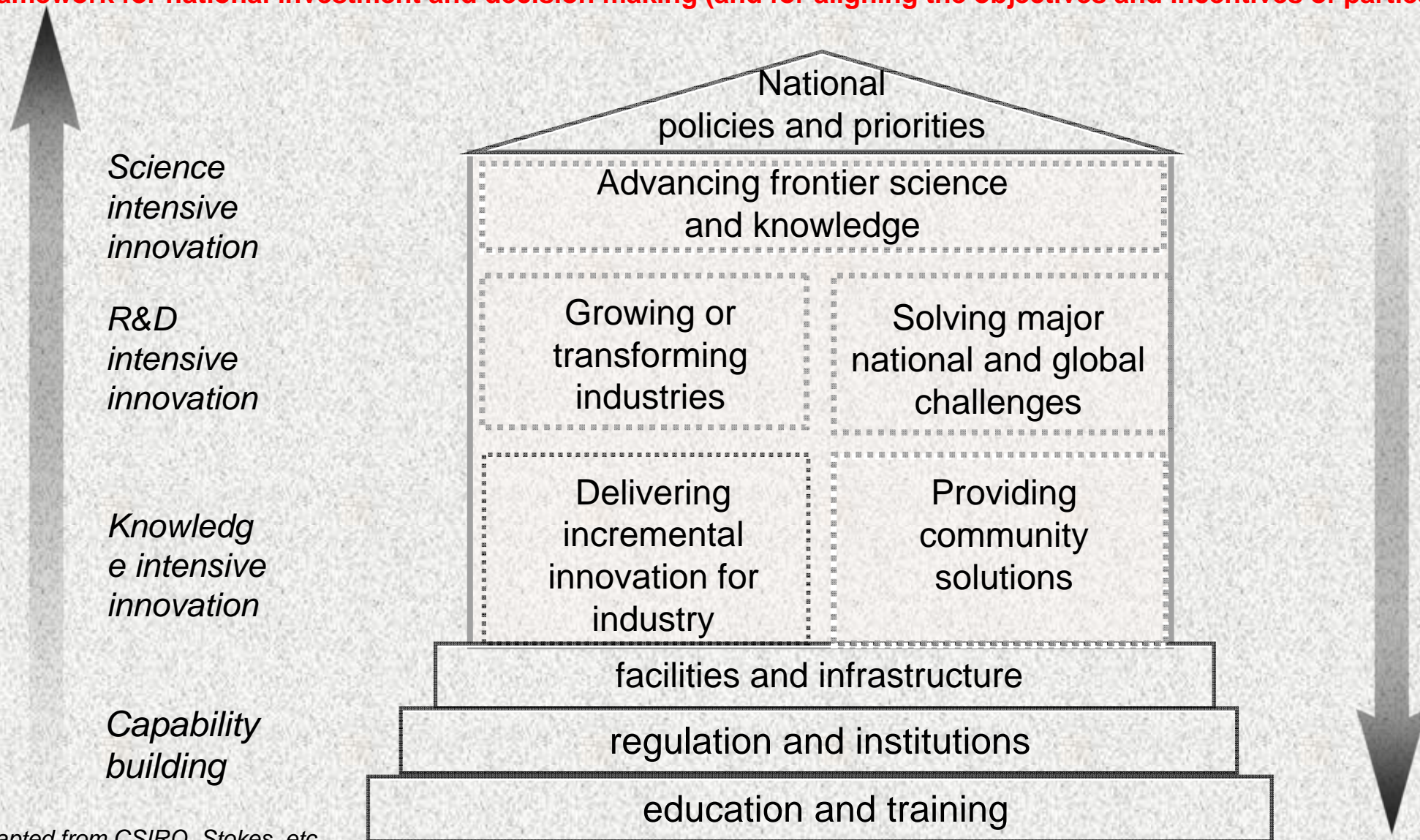


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Examining five discrete roles within a national innovation system:



Addressing the challenge of managing an innovation portfolio - Promoting a clear framework for national investment and decision making (and for aligning the objectives and incentives of parties)



Investing in missions and capabilities to address national priorities ... *Matrix management* - matching the right capabilities against priority activities

CAPABILITIES

- 'enduring' - but evolving
- structural
 - long time scales
 - **'irreversible' decisions**
 - capabilities for future demands

PRIORITY actions

- delivery path to impact
- reversible decisions

impact

goals

'enduring' - but evolving

- externality
- focus for impact

DESIRED NATIONAL OUTCOMES

Innovation capability revolves around seven deceptively simple questions ...



- 1. Can we imagine a better and different world?**
Are we generating fresh ideas and pushing the boundaries of our thinking?
- 2. How do we solve the big challenges Australia faces?**
Breakthrough changes in capability
- 3. Can we do everyday things better?**
Creative problem solving everywhere, and incremental innovation.
- 4. How do we make better use of available tools and technologies?**
Adoption.
- 5. How do we make it easy for people to adapt tools or ideas in novel ways?**
Adaptation
- 6. To do all this, how do we better build and nurture human capital?**
- 7. How might Australia, as a small country, prioritise its innovation efforts?**

Managing entrenched positions: innovation is all about incumbency and challenge

LET'S TALK ABOUT INNOVATION

