

Education for Innovation – & for an innovation culture

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What is innovation?

- Creative destruction (Schumpeter)
- The successful exploitation of new ideas (DTI)

Why bother with innovation?

- Innovation is considered vital to productivity growth
- &
- hence to economic growth

Why did we hold a Review of the National Innovation System (NIS)?

Around 2002 Australian productivity went from growing substantially faster to growing substantially slower than the OECD average

The paradox Why bother with innovation in Australia?

We are a wealthy country – 7th highest average income per person – and yet factors associated with innovation are showing some worrying trends including:

- a declining rate of public investment in education over the past decade
- declining rates of educational attainment
- public investment in research had declined since 1995
- patents - It takes 22,000 Australians to generate one patent as opposed to 3000 Americans to generate a patent
- poor entrepreneurship & associated firm-based R&D compared to OECD peers

Factors that seem to be necessary for successful innovation

Review NIS Review (& after) emphasised:

- Human capital [**The Number 1 issue!**]
- A good R&D system
- Thinking of business, education institutions, government etc. as components in *our* innovation *system*
- Stocks and flows

- NIS part of Global Innovation System
- The bulk of innovation is non-technical
- Customer-driven innovation
- Locus of the firm
- Need for absorptive capacity in firms
- Importance of intermediaries
- Open innovation systems

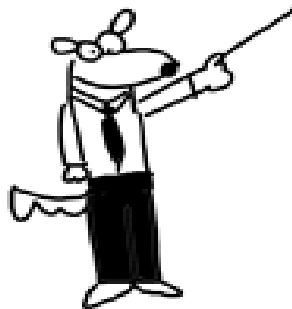
- The importance of access to information
- Collaboration
- Importance of public-sector & community-sector innovation
- Smart regulation
- Need for good metrics and data
- Challenge systems e.g. DARPA
- Entrepreneurship & associated firm-based R&D

Reflections on what innovation is not

AUSTRALIA HAS A PROUD
HISTORY OF INNOVATION!

DID YOU KNOW AUSTRALIANS INVENTED:

- THE HILLS HOIST
- THE VICTA LAWNMOWER
- THE COMBINE HARVESTER
- PENICILLIN
- SEX
- THE SPANISH DOUGHNUT
- ANTS



Five Myths About Innovation

Jonathan West, Australian Innovation Research Centre, University of Tasmania

Myth 1: Australians are good at invention, but bad at commercialisation

Myth 2: Innovation is concentrated in hi-tech

Myth 3: Innovation is primarily the commercialisation of science

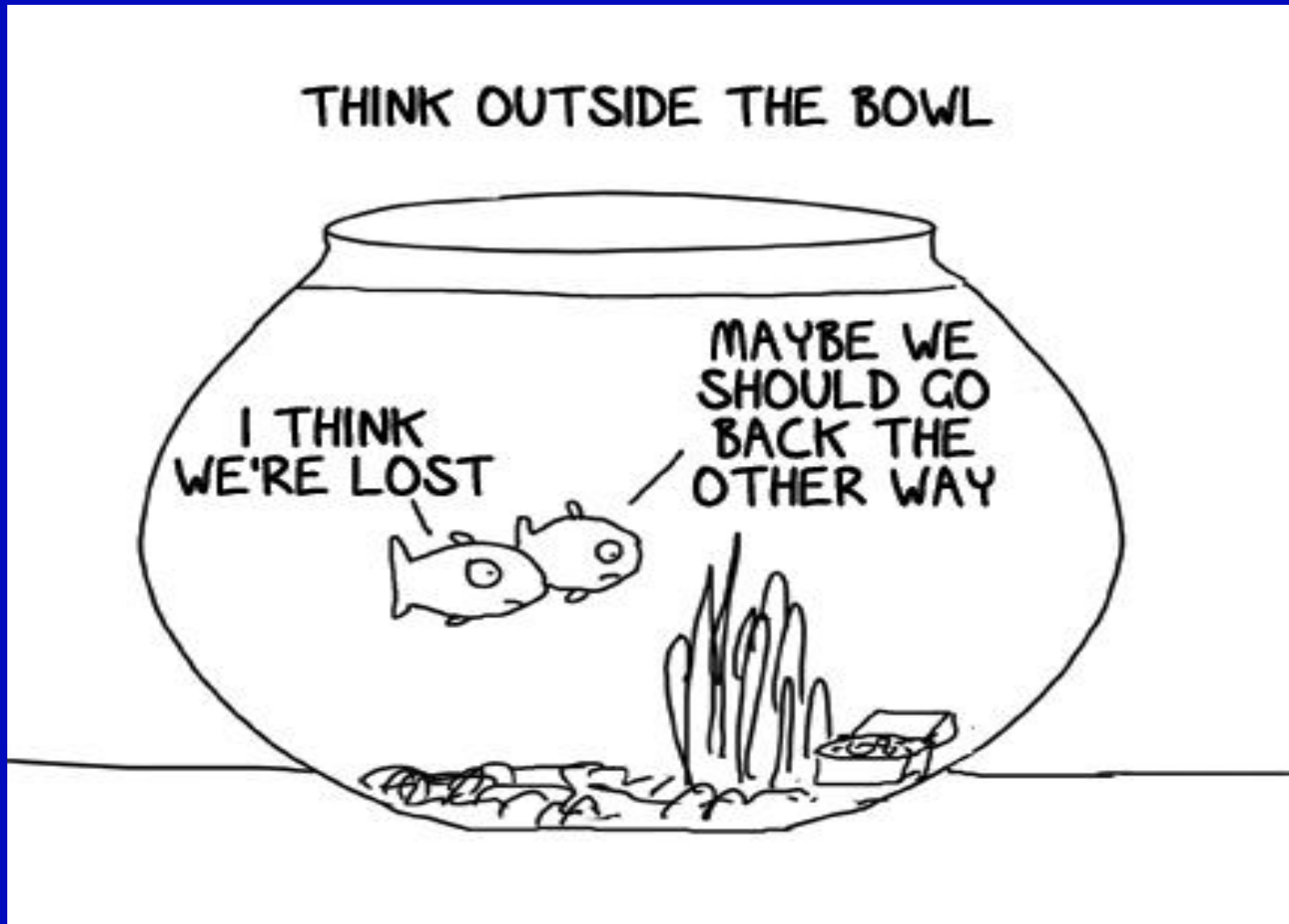
Myth 4: Innovation requires a pervasive 'creative culture', which Australia doesn't have

Myth 5: Role of universities is to be 'invention factory'

Innovation for *our* economy

- Help service firms go global
- Help our firms assess & access global markets
- Help our firms assess & access knowledge sources (Linkage + tax concession/credit)
- Customer-centric innovation
- Energy & climate change innovation [the role of big technical-change innovation]

Generic skills for innovation



Generic skills for innovation

- Competition
- Not afraid of change
- Resilience in the face of change
- Appetite for risk
- Tolerance of failure & fast failure
- Persistence (seems in tension with tolerance of failure)
- Re-framing issues
- Rapid deployment of new technologies

Generic skills for innovation (cont'd)

- Communication/marketing/selling new idea
- Absorptive capacity for new things & ability to spot opportunity of melding old & new; not afraid of the new; willing to dredge back through the old
- A critical sense
- Symbolic reasoning & maths
- Collaboration

‘Good’ collaboration behaviours

- **Shared vision and sense of purpose**
- **Alignment of interests**
- **Resourcing**
- **Empathy for partner interests**
- **Communication**
- **Harvesting benefit**
- **Winding up**
- **Avoiding ‘hollow collaboration’**

So what should Australian educators do?

- Lead by example at all levels of operation
- Re-examine curriculum - provide students with opportunities to learn generic skills for innovation in all courses
- Use innovation case studies
- Invite successful entrepreneurs to give talks
- Are there new courses that could be offered?

- Offer courses jointly with institutions producing entrepreneurs (e.g. Babson)
- Prizes for innovation
- Challenge competitions
- Celebrate entrepreneurial alumni
- Develop innovation culture metrics

Possible innovation culture metrics

- How innovative are we? Are we destructing creatively?
- Are our students more-than-usually innovative?
- Are our graduates succeeding as entrepreneurs?