



The Cost of Doing Good Research

Australian Council of Deans of Science

Macquarie University
September 2019

Professor Les Field

Supporting good research

- Research is for the long haul
 - Research is not transactional
 - Most investments/initiatives in research will out-live the Dean, the ADR, the DVCR, the VC
 - Always fighting the pressure for short budget cycles
- Research is never fully funded
 - We are constantly cross-subsidising research costs
- Keeping up with changing infrastructure needs

Supporting good research

- The link between research performance and operational funding
- Fighting the pressure for short budget cycles
- Internal funding mechanisms to support research
- Funding for HDR students

- Strategies and Incentives to drive research performance
- Prioritizing research activities – identifying future strengths, Strategies to support major research initiatives

- Supporting major research infrastructure - central or distributed?
- Separating teaching and quasi–autonomous research units vs. a fully integrated teaching/research structure
- Fostering, mentoring and cultivating research leadership

The funding dilemma

- The link between research performance and operational funding
 - Fighting the pressure for short budget cycles
-
- Funding model for Universities has little input from research
 - An Economic rationalist would simply minimise research
 - Almost all Australian Universities must expand student numbers to survive
 - There has been discussion about introducing a “research driver” into the national University funding formula
 - Most Universities cascade the national funding model internally
 - “bold move” to deviate too far from the drivers that earn your income
 - Some Universities quarantine a small fraction of the budget to drive research incentives
 - Most Universities have pressure for tight **annual** budget cycles
 - Some universities have rolling 3-year budgets

Internal support for research

- Internal funding mechanisms to support research
- Absolute focus on priming and matching
- Don't start something you can't finish
 - Whatever you do, do it properly such that it can succeed



Priming

- Support for ECRs
- Support for future leaders
- New areas
 - Proof of concept
- Near misses

Matching

- Co-invest in successful projects
- Aggressively over-invest in matching \$'s for applications
 - only a fraction will succeed

- Diversifying the funding base – industry and philanthropy

HDR Students

- Funding for HDR students.....(\$'s and infrastructure)
- Always good value (return-on-investment)
 - Focus on quality
 - Critical to have good candidature monitoring and review
 - Excellent investment for “new hires” or ECR’s
- Scholarship support
 - Tuition fee remission for really good international students
 - Targeted philanthropy for student support
 - Targeted industry support for scholarships
 - Be aware of inherent constraints and Col’s
 - Be mindful of the commitment required for the whole scholarship
- Post-submission support (“paper writing” fellowships)

Incentives

- Strategies and Incentives to drive research performance

- Continuously striving for improvement
- Absolute focus on excellence
 - Reliable metrics and data analytics are essential
 - tempered by really good judgement
 - UNSW has Boris



- Metrics drive behaviour ✓
 - Not all of it good behaviour ✗
- Bribery, bonuses and rewards
 - Do they work?
 - Are they the right incentives?

- Pressure to perform
- Quantity over quality
- Embellishing outputs
- Rise of predatory journals
- Citation manipulation
-

Prioritizing Research

- Prioritizing research activities – identifying future strengths, picking winners(?)
- Make sure that the physical research infrastructure and the research environment is fit for purpose
 - Every opportunity for creativity and good research to thrive
- Define areas of real strength (or where you want strength)
 - Develop the map and stick to it
 - Be clear and transparent about “no go” areas
 - Build critical mass and cultivate research leaders
 - Focus on quality
- Should you resist letting “a thousand flowers bloom”?

Major Initiatives

- Strategies to support major research initiatives
- New hires, new units, new facilities *etc, etc*
- Don't start something you can't finish
 - Pump resources into careful, credible planning ✓
 - Whatever you do, do it properly such that it can succeed ✓
 - Resource initiatives appropriately and sustainably
 - Have firm review points and a clear wind-down and exit strategy
- Drive University initiatives through the VC or the DVCR
 - Drive the agenda and then be “shovel-ready” with proposals
- Be pro-active with search committees
 - Continuously search out and do good due-diligence on potential recruits

Research infrastructure

- Supporting major research infrastructure - central or distributed?
- Common equipment, major facilities, microscopes, telescopes, off-site research stations, animal houses, repositories *etc*
- There is a tipping point where centralization benefits kick in
 - Guaranteed maintenance and upkeep; dedicated personnel
 - Avoids duplication
 - Consolidates highly serviced building and plant
 - Systematic planning of replacements and upgrades
- **Pushback** - some individual users lose autonomy and control
- How do you fund this?
 - RIBG?
 - Fee for service?

Centres and Institutes

- Separating teaching and quasi–autonomous research units vs. a fully integrated teaching/research structure
- Be clear on the role, purpose and definition of Centres and Institutes
 - Be clear about monitoring and reporting lines
 - Be clear about the long-term viability
 - Clear process of review and a clear wind-down and exit strategy
- Some Universities have used this very well to focus research activity, build critical mass and to boost research performance
 - Can suck resources from other activities

Research Leadership

- Fostering, mentoring and cultivating **research leadership**
- Need to identify research leaders
 - and also potential research leaders (even at an early stage)
 - mentor and develop potential research leaders
- Let the experienced successful researchers pass on their knowledge and experience
 - Applying for research support
 - What constitutes a professional well-written application
 - Running a successful research program
 - Successfully running a group and a team in the discipline
 - Planning and growing critical mass
 - Networking – nationally and internationally
 - Becoming a confident, recognized authority and spokesperson

Issues on the radar

- **Research misconduct**
 - Staff and research students
 - Develop the culture of responsible research practice
- **Women into Science**
 - The need to influence girls in our schools
 - The value of STEM education
- **The voice of scientific reason in the community**
 - Science literacy and science education
- **The balance between “pure” and “applied” research**
- **Evidence-based policy in Government**