Measuring and Enhancing Impact from University Research

A report of the U21 Workshop on Research Impact – UNSW Australia, August 2014,
Executive Summary

In August 2014, Universitas 21 (U21) research leaders and Australian Government representatives attended a Workshop at UNSW Australia to discuss Research Impact and related matters. The workshop covered the Context in relation to Research Impact assessment, the current, and potential, Metrics and mechanisms to drive behaviour change.

Key conclusions

- **Research Impact** results from the performance of a number of stakeholders within an Innovation Ecosystem. These include University leadership, University researchers, Industry and Government.

- In the context of a university, the Innovation Ecosystem has three important elements relevant to Impact creation – “Research Outputs”, “Engagement” and “Impact”.

- The Assessment of the quality of Research is well understood around the world and generally considered to be effective.

- Universities don’t create impact directly. It is the research users who primarily create the impact. Universities do, however, contribute to impact through the quality of the engagement they have with the research end users.

- Assessment, understanding and management of engagement is a vital precursor to impact measurement and must form part of any complete “Research Impact” assessment system.

- There are well understood flaws in the Impact assessment approach. However the UK view is that this argument has been lost, will be lost elsewhere too and that Impact Assessment is here to stay. Therefore it is better that we positively engage to optimise the process.

- Maximising Engagement increases the probability of effective Research Impact.

- Feedback from the Academic community has been surprisingly positive regarding the process and outputs of the UK Impact exercise.
Introduction

In August 2014, Universitas 21 (U21) research leaders and Australian Government representatives attended a Workshop at UNSW Australia to discuss Research Impact and related matters. The workshop covered the Context in relation to Research Impact assessment, the current, and potential Metrics and mechanisms to drive behaviour change.

Context

Many governments and research sponsors have expectations that the research they fund will deliver economic, social and/or cultural impacts. In the past, these expectations have been more implicit than explicit. But Universities in many countries have staked their claims for increased funding on their pivotal role in delivering economic growth through research and its impact on innovation, and funders are now expecting the sector to deliver. In the UK the assessment of impact has resulted in a component of the current research assessment exercise (REF2014) being dedicated to the assessment of the impact delivered by past research. One fifth of the final research performance score is based on this impact assessment component, and a recent report to Government has proposed that in the next exercise the weighting for impact be increased to 25%. The UK has tended to lead other countries in their approach to research assessment so there is a strong probability that many U21 members may find themselves subject to impact assessment in future.

A discussion was held as to the “purpose” of an impact measurement system and who the metrics were “for”. Following the debate it was agreed that there were multiple stakeholders, each with their own specific requirements and agendas in regards to Research Impact. The key stakeholders being; University leadership, University researchers, Industry and Government.
Innovation Ecosystem – University context

The workshop concluded that the Innovation Ecosystem has three important elements relevant to Impact creation (see Figure 1);

1. **Research Outputs**
   - The creation of new knowledge through research and the production of a wide range of research outputs.

2. **Engagement**
   - The flow of knowledge, via Knowledge Exchange Channels, to research end users. This is driven by the engagement between the research base & the end users.

3. **Impact**
   - Results from innovation which has been delivered by the research end users.

Each element of the innovation ecosystem is important, but none is sufficient to realise impact on its own. However, taken together, as a whole, impact results from research and engagement. This is positive for society, the economy, the university and innovation partners.
Elements of an effective “impact” measurement system

The Chief Scientist of South Australia, Dr Leanna Read, presented the workshop with a range of features that would be necessary for an effective impact measurement system. She proposed that such a system should;

- Address a broad range of community benefits
- Drive the right change in industry engagement
- Have a clear benefit to end users
- Be relevant to the current research effort of a university
- Provide a comprehensive and quantitative assessments of a university’s impact performance, broadly applicable to all disciplines
- Does not penalise the university for end user failure (if industry stuffs up taking it to market)
- Showcase the impact of research
- Avoid excessive university administration
- Maintain a healthy balance between discovery and translational research

There was broad agreement, from participants, that this list captured the major components required for an effective system. Dr Read concluded her presentation with a table comparing the various Measures of Impact with the criteria requirements for an effective system see Figure 2.

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Figure 2 Comparative Value as Measures of Impact (Source: Leanna Read)
Conclusions

- There are three distinct elements in any innovation ecosystem – Research outputs, Engagement and Impact.
- Effective metrics should measure, and drive improved performance, for all of the three elements.

Current measurement frameworks
Countries were at different stages with regard to the measurement, and promotion, of Research Impact. In the UK all three elements of the innovation ecosystem are already measured and rewarded. In Australia, Research Outputs are measured and rewarded, and there has been a recent trial of Impact metrics. In most other countries, while the outputs of Research are actively measured, countries are still trying to appropriately determine how to measure and reward activities related to engagement and the Impact being created by research end users.

Measuring Research Outputs.
Currently Research Assessment exercises such as ERA and REF are effective in assessing and rewarding, and therefore driving, research quality. Most countries have implemented such systems. Research performance has continued to improve, both in terms of quality and also in regards to the quantity of research outputs being created.

Engagement Metrics
Engagement metrics concentrate on the university activities that connect the research base with the user base. Examples are included in the green highlighted rectangle in Figure 1.

An engagement metrics paper, prepared by UNSW for the Federal Government in 2013 and based on a similar metrics-based approach in the UK was presented to the workshop. The suggested approach uses the revenues received, associated with those engagement activities as a proxy for engagement. The five categories are; Outreach, Technology And Research Development, Externally Funded Contract Activity, Licensing and Company Formation.

The workshop agreed that the broader view of university/industry engagement, including, for example, consultancy and collaborative research, was a better measure than the traditional measures of patents/licences/royalties. These have been used as proxies of commercialisation/technology transfer in the past, but the workshop agreed that these represent only a very small proportion of the flow of knowledge into industry and the economy.

Measuring Impact.
Our ability to measure Impact is the ultimate assessment of the innovation ecosystem performance. However, there is a “flaw” with regard to the University role in impact generation from research in that
Universities do not have direct control over the final impact creation. For example, the best technology can be licenced to a company, but if the CEO falls out with his or her investors, impact won’t happen. Likewise, the best policy advice can be provided to a politician, but if the politics aren’t right, then no policy impact results.

It was noted that, in the UK, this argument had been lost and that there was a real expectation that universities could demonstrate the impact of research. The workshop discussed whether this same argument would be lost elsewhere and concluded that it probably would.

The workshop discussed the fact that, because significant funding had been ploughed into engagement/translation for over a decade in the UK, the Government had a more legitimate reason to ask for results. It was agreed that, despite the contextual differences, Governments would increasingly look for socio-economic outputs from tax-payer funded research.

Case studies have been used in the UK, and in the Australian trials, to demonstrate impact though they do entail a relatively high administrative burden. Case studies have proven to be useful, and are generally supported by the University leadership and researchers. The case study approach, however, can be problematic, since (i) it is often difficult to properly allocate attribution; (ii) the impact often takes many years to happen; (iii) possible difficulty in ranking case studies against one another especially in cases where there is a lack of quality evidence and (iv) it is often difficult to establish a verifiable (auditable) trail which can establish without doubt that impact was derived from an identifiable piece of research.

**Conclusions**

- Effective metrics exist to measure and drive performance in the areas of Research Outputs and Impact assessment.
- Metrics to measure engagement have been proposed and tested, by UNSW and partner organisations.
- Measurement of all three elements of the innovation ecosystem (quality research outputs, engagement and impact) is required to completely understand the whole system and to drive better overall performance of the system.

**Driving Change**

The approach taken in the UK, for the previous ten years, has been to fund and reward Engagement activities with 20% of future block funding to be driven by REF the resulting “Impact” assessment. The funding incentive has driven a behaviour change towards engagement with industry. This ultimately has led to more research being put to use and more “Impact” occurring. It is the research end users who are creating the Impact. In fact, in the UK’s leading Academic institutions, researchers are now being rewarded and recognised for their engagement activities as well as their research and teaching performance.

The Australian Government has established a range of programs to encourage partnering between industry and academic institutions. These range from the, relatively low funded, state-level Tech Voucher schemes through to more substantial national level programs related to funding of research such as the ARC Linkage program. However, these programs are seen to drive the research side of the innovation ecosystem rather than the impact side. Innovation is multidimensional and isn’t simply linked to university research. Indeed
innovation based on new knowledge is regarded as risky and long term. Therefore incentives for innovation in industry will not necessarily lead to more exploitation of academic research unless they are specifically targeted to do so.

Conclusions

- Understanding, incentivising and rewarding engagement increases the potential of the system for all parties.
- Universities control the engagement channels and should be encouraged to optimise and improve them.
- Impact is a legitimate measure if the universities can demonstrate how they engage with and help users to deliver impact.
Summary and Conclusions

The workshop concluded that there are three key elements to the role of universities in any innovation ecosystem. These relate to the university role in driving “Research Outputs”, “Engagement” and “Impact”. An effective, overall, “Research Impact” measurement system needs to take into account all three elements. An effective system should assess, reward and drive quality & excellence in the creation of research outputs. Most countries are doing this well.

Engagement, via Knowledge Exchange Channels, is the flow of knowledge between research base and research users. Engagement is necessary, but not sufficient to create impact. Maximising engagement increases probability of impact. The stronger and closer the engagement relationships, the more potential for impact. Understanding, incentivising and rewarding engagement increases the potential of the system for all parties. Universities control the engagement channels and should be encouraged to optimise and improve them.

Impact results from research, or has a contribution from research, and importantly can only be delivered by research users. It is important to note that universities don’t control impact directly. There is a danger that assessing universities based on impact alone is measuring someone else’s performance. Impact could be a legitimate measure if universities could demonstrate how their engagement led to the Impact.

Most countries have developed effective measurement systems for the “Research outputs” end of the innovation ecosystem and for the “Impact” end of the system. Most, however, have not been effective in measuring “Engagement”.

In the past 10 years, the UK has been measuring and rewarding “Engagement” activities. This has led to a culture change in universities to further drive more engagement and thus more Impact.

The workshop participants concluded that;

- Research Impact results from the performance of a number of actors within an Innovation Ecosystem. These include University leadership, University researchers, Industry and Government.
- In the context of a university, the Innovation Ecosystem has three important elements relevant to Impact creation – “Research Outputs”, “Engagement” and “Impact”.
- The Assessment of the quality of Research is well understood around the world and generally considered to be effective.
- Universities don’t create impact directly. It is the research users who primarily create the impact. Universities do, however, contribute to impact through the quality of the engagement they have with the research end users.
- Assessment, understanding and management of engagement is a vital precursor to impact measurement and must form part of any complete “Research Impact” assessment system.
There are well understood flaws in the Impact assessment approach. However the UK view is that this argument has been lost, will be lost elsewhere too and that Impact Assessment is here to stay. Therefore it is better that we positively engage to optimise the process.

Maximising Engagement increases the probability of effective Research Impact.

Feedback from the Academic community has been surprisingly positive regarding the process and outputs of the Impact exercise.
Appendix 1 – Workshop Presentations
What is Research Impact?

Research impact is the demonstrable contribution that research makes to the economy, society, culture, national security, public policy or services, health, the environment, or or quality of life, beyond contributions to academia.

... Australian Research Council

Australia's leading exports (goods & services) 2011


Innovative, collaborative businesses have better performance

- 23% more likely to report increased productivity;
- 24% more likely to report increased profitability;
- Over 3 times more likely to increase export markets;
- 48% more likely to increase the range of goods or services;
- 24% more likely to increase employment; and
- 34% more likely to increase training for employees.

But Australian Industry's performance against these criteria is not stellar!


Australian researchers are largely in the public sector

![Graph showing the percentage of researchers in different sectors for Australia and OECD countries.](https://www.dfat.gov.au/publications/trade/at-a-glance-2012.html)
You would think, therefore, that Australian businesses would collaborate extensively with the public sector research institutions....

Source: OECD 2013

You're not going to give a university funding because 15 years ago someone had an idea that turned out to be profitable”  Ian Chubé

A good model of company-university engagement

- Not a spin-out, but collaborated from very early on
- Company is virtual with only a CEO employed
- CSO (a professor) and all other staff employed by the University
- The company has paid the University >$1.5M over last 3 years, plus they have secured several joint grants, share equity

University benefits
- Financial support: both contract funding and long-term equity
- Research is more informed by industry needs
- CSO gets industry training
- University better understands industry needs, strategies
- Trust will generate additional future collaborations

Company benefits
- Access to a CSO it could not attract as an employee
- Understands R&D better
- Scientific credibility
- Facilities, low overheads
- Access to grants
- Publications useful in marketing

So what is the best measure of impact?

- Address a broad range of community benefits: solve end-user problems, increase business innovation, improve translation of public sector R&D
- Drive the right change in industry engagement: ongoing relationship
- Have clear benefit to Australian end-users
- Relevant to the current research effort of a university
  “You're not going to give a university funding because 15 years ago someone had an idea that turned out to be profitable”  Ian Chubé
- Provide a comprehensive and quantitative assessment of a university’s impact performance, applicable to all disciplines
- Does not penalise the university for end-user failure
- Showcase the impact of Australia’s research
- Avoid excessive university administration
- Maintain a healthy balance between discovery vs translational research

So... the imperative is...

Policies and incentives for:
- More engagement between industry and the research sector to solve industry problems and increase business innovation; and
- Improved translation of public sector R&D to produce new goods and services

To the benefit of the Australian economy

AND

An appropriate balance with discovery research
Case Studies
ATN endorses use of case studies with engagement metrics as ‘background role’

So what are alternatives to case studies?

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Case Studies (as in the EIA trial)

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So what are alternatives to case studies?

- Alan Finkel: Citation Equivalents:
  - STEM fields: for issued patents, commercial contracts, licences, successful spin-outs etc
  - More broadly: for writing books, opinion pieces, government submissions, PhD supervision, development of new approaches to teaching practices or novel training courses

- UNSW/Macquarie Univ: Engagement Metrics
  - Funding secured for a range of community impact-related R&D:
    - Outreach (public good)
    - Technology and Research Development
    - Contract R&D (Research)
    - Licences
    - Company spin-offs

Engagement Metrics

- University of New South Wales Engagement Metric Return 2012
- Macquarie University Engagement Metric Return 2012

So what are alternatives to case studies?

- Citation Equivalents
  - Addresses broad benefits: Yes
  - On-going engagement: Yes
  - Benefits Australian end-users: Yes
  - Relevant to current R&D: Yes
  - Comprehensive, quantitative: Yes
  - Avoid penalty for end-user failure: Yes
  - Showcase research impact: No
  - Reasonable admin load: Yes
  - Discovery-translation balance: Yes
**Comparative Value as Measures of Impact**

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**Conclusions**

- Case studies are useful for showcasing Australian research achievements, but not as the primary measure of impact for funding allocation.
- A combination of Engagement Metrics and Citation Equivalents could provide the best broad-based measure.
- A priority should be benefit to the Australian economy.
- Need to ensure a healthy balance between discovery and translational research.
- BUT, measuring impact alone will not be sufficient to drive strong engagement of the research and industry sectors.

**Some questions**

- What types of behavioural change are we trying to drive with the introduction of impact measures?
- Do you agree with my comparative analysis of impact measures?
- Are there additional measures to consider, particularly for sectors outside science and industry?
- How to get the balance right between funding of discovery vs translational research?
- How to ensure there is Australian industry benefit?
- How to get meaningful measures of impact without excessive administrative burden?
- What strategies are needed in addition to an impact measure to ensure better engagement between research and industry?
Impact assessment timeline

2011 - Focusing Australia’s Publicly Funded Research Review
2011-12 – ATN/Go8 EIA trial
2012 - Feasibility study
2013 - Discussion paper

Requirement Mechanism

Incentives   Metrics
Storytelling  Case studies
Incentives

“There is no incentive for me to engage with industry because I don’t receive any remuneration or recognition for it.”
Research Interviewee

Universities themselves use publications in high ranking journals as a key metric to determine promotions of researchers, as it helps to drive government funding and rankings. But high-ranking journals tend to publish work of a theoretical nature that is of limited value to companies.

• Face validity
• Simple
• Already audited
• Already collected
• Relatively un-gameable
• More is genuinely better

Recommendation 24

The non-government members of the Taskforce recommend that a formal and ongoing dialogue should be established between Industry and the research and education sector.

In order to address deficiencies in current industry-research links and the lack of incentive in the research sector for collaborating with the manufacturing industry, a research impact measure tied to funding should be introduced. In doing this con-

Priority 6.2: Investigation of metrics for measuring excellence in applied research and innovation.

The Government is cognisant that a key factor which may discourage researcher transitions between the public and private sectors of employment is the lack of research structures between academic research and innovation contributions.

Research-related income as a desirable metric

• Face validity
• Simple
• Already audited
• Already collected
• Relatively un-gameable
• More is genuinely better
The net benefit from NHMRC R&D over 2000 to 2010 was estimated as approximately:

- $4.39 billion for CVD;
- $1.96 billion for cancer;
- $0.77 billion for HD;
- $25.4 million for asthma; and
- a net loss of $8.45 million for MD.

**Useful links**

- **Excellence In Innovation for Australia (EIA)**
  - EIA documents
- **Feasibility study projects**
  - Qualitative Research Practice – Professor Lisa Given – 2014
  - Research Performance of University Patenting in Australia – IP Australia – 2013
  - Australian Science, Technology and Research Assessment – Melbourne Institute – 2013
- **Department of Industry**
  - Review of the National Survey of Research Commercialisation
  - Science, Research and Innovation Budget Tables
- **Department of Education**
  - Research Impact Assessment
- **Higher Education Funding Council of England (HEFCE)**
  - Decisions on assessing research impact

**Questions?**
# Research Impact - Origins

## UK perspective

### Drivers: Political
- Late '90s - UK Government & University pact to delivering economic impact in return for substantial investment (leading to full economic costing and impact assessment)
- Economic restructuring post crash
- Economic catchup and independence objectives - the case of Scotland & UK regions
- Echoes worldwide

### Drivers: Funders
- Make the case to government
  - Pathways to impact (academic & non-academic)
  - Gathering evidence of impact
  - Interests of patients & donors - charities
  - EU - H2020
  - Politics of protecting science budget ring fence

### Drivers: users
- Open innovation
- Improved competitiveness
- Policies and interventions informed by research
- Desire to capitalise on strength of research base
- But limited capacity & some cynicism

### UK Initiatives '99-'08
- 'Third Leg' funding
  - Formula-driven funding to HEIs to support knowledge exchange: expansion of TTOs (some joint)
  - EU regional development funding
  - UK regional development agencies (esp. Scottish Enterprise)
  - University Challenge fund to invest in spinouts
  - Expansion of existing schemes eg Knowledge Transfer Partnerships
- Related changes to industrial support including foundation of Technology Strategy Board
• Since ‘crash’ government has sought to ‘rebalance’ the economy
• Investments by Research Councils in impact acceleration (through institutions and research grants)
• UK National Initiatives to promote impact from academic research
  – Catapult Centres funded by industry, government and competition (Based on Fraunhofer model)
  – Innovation Centres (Scotland’s equivalent of CCs)
  – £200M investment in Quantum Technologies to translate basic research to applications and commercialisation – unprecedented controls on management and IPR

Leading to…..
• Government: measure what’s been achieved
  – Demonstrate RoI in research
• Institutions:
  – Justify claims and demonstrate success
  – Better manage the creation of impact from research

Hence the current UK obsession with impact assessment in REF and concern to do better next time
Impact is here to stay – how do we do a better job of delivering it in reach, significance and timescale?

Measuring & Assessing Impact
Reflections on preparing for REF2014

Pilot study was undertaken to gauge acceptability and refine process.
Pilot findings:
• The process makes explicit the benefits that research in each discipline brings to society
• It is possible to assess the impact of research, through expert review of case studies
• A number of refinements needed for full implementation
• A generic approach is workable, with scope for REF panels to tailor the criteria as appropriate to their disciplines
• The weighting should be significant to be taken seriously by all stakeholders, and needs careful consideration

REF 2014
• Methodology
  – Impact Statement
    • Context
    • Approach to impact
    • Strategy & plans
    • Relationship to case studies
  – Case studies
    • Summary
    • Underpinning research
    • References to research
    • Details of impact
    • Evidence to support impact
  – GU submitted 33 Impact Statements and 137 Case Studies

GU process & experience
– Mixed mode: central writing team, College support staff, academics, external consultants, ‘critical friends’ to feed back comments as users
– Major finding: Academics who spend their lives teaching students how to write perfect prose are completely incapable of doing it themselves.
– Identifying impact (as defined by REF) and evidencing it were problematic
Cost of Impact Assessment

- Estimated direct financial cost: £347,000
  - Temporary posts to enable drafting of case studies (central and college): £320,000
  - Hire of external agents for polishing drafts (central and college): £27,000
  - Estimated academic time: 811 days, approximately £213,304
  - Lead academics for case studies: providing information and evidence / contacts and reviewing case studies as required. On average 2 days for each of the 200 drafts investigated.
  - Senior academics (including REFWG and CAP / CMG): identification of potential case studies, reviewing drafts during finalisation. On average 3 days for each of the 137 case studies submitted. Redirection of existing staff away from core business: approximately £216,153.
  - Business Development Teams in COSE and MVLS for 18 months and 6 months respectively.
- Total estimated cost: £776,457 (plus)

REF impact: outcome

- Results in December 2014
- Meantime:
  - Analysis of GU case studies – better information about types of impact we create
  - Planning better methods of capturing impact and supporting evidence
  - Funding to accelerate impact
  - Strategy in place to drive KE and impact

Assessing Impact
Experience of some panel members

Opinions of GU Panelists

- Positive overall view of impact assessment
  - Pride in the impact that academic research can generate
- Case studies effective
- General agreement between full panel members & impact assessors – latter not distorting balance of judgement
- Guidance followed exhaustively
- Definition of impact has been enforced
- Quality of underpinning research hurdle upheld
- Evidence is critical and biggest challenge for future

Why drive impact?

- Funder demands increasingly persistent
  - Research & Funding Councils – justification to government
  - Charities – justification to donors
  - Industry – value proposition (will REF help?)
- REF has introduced an obligation to identify impact across all disciplines
- We can’t afford a ‘fire & forget’ approach to impact in future
- Therefore we need a deeper understanding of the mechanisms leading to impact if the outcome of impact assessment is to be managed

Driving Impact
Institutional Strategic Approach & exemplar initiatives
Broadening the impact base
Pathways to Impact

Engage

Influence

Best approaches to creating & driving impact?

- KE - dialogue with users - is not enough. How do we drive research outputs to maximise impact?
- GU strategy
  - Deeper and more strategic partnerships with users
  - Leadership
  - Commercialisation
  - Public engagement

Priority Themes

Partnerships

- Public, commercial, social and cultural organisations
- A deeper knowledge of partner needs
- Larger organisations provide one-to-many relationships
- Presents a network of opportunities for impact
- Increased opportunities for co-creation of “user inspired” research
- Clear route to adoption or use of knowledge is embedded in associated research projects
- Need high-level support from the university to facilitate and engage larger organisations

Leadership

- Trend of consolidated funding (IKCs, KICs, SICs) for centres spanning basic research to application and use
- Strong leadership required to manage such initiatives and ensure partner commitments to delivering impact
- Strong Leadership also enhances the university reputation for KE and Impact creation
- Need resources to support and develop leaders

Public Engagement

- There is a lot of public engagement across the university, but not necessarily driven by Impact
- Need to develop more initiatives that help to increase the relevance of research to, and impact on, civil society
- Effective use of social media channels is critical
- Need to establish clear impact driven frameworks for PE
- Establish best practice in evaluation of PE impacts
- Ensure that research is effectively supported and rewarded for PE
Enterprise and Commercialisation

- Sometimes company formations are the only route to impact for disruptive technologies.
- External access to facilities provide a good opportunity to apply research outcomes into new products or services.
- Student and researcher enterprise often result in local businesses creating impact in the region.
- Opportunities for international activities by adopting innovative approaches to commercialisation of world-class research.

Environment and Infrastructure

- Culture change is critical if we want to embed Knowledge Exchange and Impact across the university.
- Successful impact depends on the skills, enthusiasm, and creativity of researchers.
- Need to ensure appropriate support that enables KE to thrive alongside research and teaching.
- Social media and web strategies need to be a key element of local KE and outreach programmes.

Key initiatives

- Having a national assessment scheme that counts is transformational (Impact counts £10Mpa for Glasgow)
  - Academic Leaders
  - Academic staff
  - Support staff
  - Break down ‘them & us’ culture between academic community and TTO/BusDev
  - REF helps; the academic community knows it can’t do this alone
  - Devolving support improves engagement with academic community and develops relevant initiatives – but not if leadership is lacking in devolved unit

Environmental Developments

- Incentives
  - KE and Impact are embedded in promotion criteria for all academic staff
  - A factor in appointment criteria
  - More to be done to get balance right
  - Workload models still to be adapted
- Training
  - Internal impact conference open to all staff
  - Programme of courses for ECRs
- Infrastructure
  - Incubators and spin-in capacity

Culture Change

- Non-STEM initiatives: GRAMNET
  - Addresses the challenges faced by asylum seekers, refugees & migrants and those seeking to help them
  - Advice to government & NGOs, evidence of influence on policy
  - ~300 academic and non-academic members
  - Sister networks in Australia & New Zealand
  - Significant social media following
  - Generated £14M research awards since foundation in 2011
Kelvin Hall Collaboration

- Joint venture between Glasgow Life (responsible for sport & culture in city), National Library of Scotland and UoG
- Merge front- and back- collections into publicly-accessible research & teaching centre
- Worldwide interest anticipated from cultural industry and cultural tourists
- Resource for research-led media productions
- Phase 1 in progress

Return to the East End

- University will open a research & public engagement centre in the East End of the city later this year
- Aim is to engage research on health and wellbeing with those people worst affected by the ‘Glasgow Effect’
- Our contribution to the Commonwealth Games legacy
- Engagement across wide spectrum of medical and social sciences, especially education

Summary

- REF impact assessment is a game changer
- Positive reaction from academic leaders
- Driving cultural change within institutions
- Investment across board to increase rate of impact generation
Assessing University Engagement and Impact

Dr Kevin Cullen
CEO
NewSouth Innovations Pty Limited
University of New South Wales

Objective

To understand, assess and increase university engagement with industry, the economy, society and community.

We must first understand the system that we are dealing with….

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Knowledge Exchange Model

RESEARCH OUTPUTS

New Knowledge
Research
Innovation
Technology
Skills
Publications
Processes
Materials
Knowledge Flow

USERS

教学
Networking/Events
Consulting
Professional Development
Collaborative Research
Contact Research
Licensing
Employment Creation

IMPACT

Jobs
New Products
New Services
Turnover
Profit
R&D expenditure
% turnover from new products/services

Key Points

The ecosystem diagram shows the inter-relationship between research and impact. In particular, it shows the channels through which knowledge flows happen and shows the critical importance of research-users in creating impacts.

- The ERA has focussed on the left-hand side of the system, looking at research outputs – created by researchers with no need to involve research-users.
- The Impact Pilot is focussed on the right-hand end of the system, looking at the impacts – created by research-users with no need to involve researchers.

…..neither of these really address the area where university tech transfer happens…..so let’s look at tech transfer activities.

There are a range of university/industry engagement activities…..

- Are they all tech transfer/commercialisation?
- Which are most important to the University?
- Which are most important for Australia?
- Do they all make money?

…..looking at the objectives for certain activities:

The range of objectives

<table>
<thead>
<tr>
<th>Public Goods</th>
<th>Academic Impact</th>
<th>Economic Impact</th>
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</thead>
<tbody>
<tr>
<td>Student enterprise</td>
<td>yes</td>
<td>?</td>
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<tr>
<td>SME networks</td>
<td>yes</td>
<td>?</td>
</tr>
<tr>
<td>Consultancy</td>
<td>?</td>
<td>yes</td>
</tr>
<tr>
<td>Collaborative Research</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Licenses</td>
<td>no</td>
<td>no</td>
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<tr>
<td>Spin-offs</td>
<td>no</td>
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</tr>
</tbody>
</table>
NewSouth Innovations

The Returns from these Activities

- SMEs/Students
- Research
- Commercialisation

SMEs/Students
Public Good
Knowledge Creation
Making Money

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The area that policy makers around the world care most about is innovation for Public Good.

- SME Engagement
- Innovative start-ups
- Entrepreneurship

$ Profit

NewSouth Innovations

But the policy/support environment is based on the commercial model.

$ Profit
Making Money

NewSouth Innovations

From the University Perspective

- At the left we are agents of economic development, seeking to maximise public good – society and economy are the beneficiaries
- At the right we are venturers, seeking to maximise financial returns to the University – University is the beneficiary
- In the middle, we are co-creators of knowledge – company and university both benefit.
- These are really very different, therefore metrics are a challenge

NewSouth Innovations

So metrics are a challenge...

At the left hand end, success results in losing money, whereas at the right end success results in making money. In the middle breakeven is success. THEREFORE: Profit isn’t a good measure

At the left end success usually looks like a very large number of small engagements, at the right hand end, success is usually from a very small number of big deals.
THEREFORE: numbers of engagements isn’t a good measure

What about revenue?....

NewSouth Innovations

The University Revenue Curve actually looks like...

$ Revenue

NewSouth Innovations
The revenue-based model would suggest that:

- Public good and commercialisation activities are relatively small.
- The place where engagement happens between the research-base and the user-base tends to be in collaboration/contracts.
- This is the biggest area and probably has the greatest potential for growth...it's the area that needs to be supported and incentivised in order to get researchers to engage with users and users to engage with researchers.

Possible approach

- Revenue is a reasonable proxy for engagement across the spectrum and are driven by knowledge flows through a range of channels and mechanisms.
- Revenues also provide an objective, auditable, third party measure of knowledge flows and the value to research-users.

Issues to Discuss

- Engagement metrics are a practical approach to measuring engagement with industry
  - what are the downsides?
  - should all categories be included?
- At the policy level, what particular types of engagement are preferred, if any?
- All of the current support is focussed on the right hand end of the spectrum – is that what we want?
- Should there be modulation of funding to support/incentivise particular activities?
U21 Workshop on Research Impact

12-13 August 2014
UNSW, Australia
**Facilitators and Speakers**

**Professor Frederick Hilmer AO**  
President and Vice-Chancellor, UNSW

**Professor Les Field AM**  
Vice-President and Deputy Vice-Chancellor (Research), UNSW

**Professor Steve Beaumont**  
Vice-Principal for Research and Enterprise at the University of Glasgow

**Dr Kevin Cullen**  
CEO, NewSouth Innovations, UNSW

**Dr Leanna Read**  
Chief Scientist, South Australia; CEO, TGR Biosciences and former Panel Chair for the Excellence in Innovation for Australia (EIA) audit

**Alex Aitkin**  
Assistant Manager, Commercialisation and Knowledge Transfer Section, Portfolio Strategic Policy Division, Department of Industry

**Dr Steve Brodie**  
Open Innovation Manager, NewSouth Innovations, UNSW

**Warwick Dawson**  
Director, Research Partnerships Unit, UNSW
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8.00am</td>
<td>Bus pickup at Intercontinental Hotel</td>
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<tr>
<td>8.30am</td>
<td>Coffee and Networking— Council Chambers, Chancellery, UNSW</td>
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<tr>
<td>9.00am</td>
<td>Welcome and introduction</td>
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<tr>
<td></td>
<td>Professor Les Field, Deputy Vice-Chancellor (Research)</td>
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<tr>
<td>9.10am</td>
<td>Setting the scene</td>
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<tr>
<td></td>
<td>Professor Steve Beaumont and Dr Kevin Cullen</td>
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<tr>
<td>9.30am</td>
<td>Welcome to UNSW Australia</td>
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<tr>
<td></td>
<td>Professor Frederick Hilmer, UNSW Vice-Chancellor and President</td>
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<tr>
<td>9.45am</td>
<td>Session 1: Context, Experience, Drivers of change</td>
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<td>Facilitator: Les Field</td>
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<td>Speakers: Leanna Read</td>
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<tr>
<td></td>
<td>➢ understand the factors driving Impact</td>
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<td>➢ understand the pros and cons of Impact assessment as a methodology</td>
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<td>➢ understand the mechanics of the Impact methodologies used in the UK and Australia</td>
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<td>➢ the political importance of Impact</td>
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<td>11.00am</td>
<td>Morning tea break</td>
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<tr>
<td>11.15am</td>
<td>Session 2: Metrics</td>
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<td>Facilitator: Steve Brodie</td>
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<td>Speakers: Alex Aitkin, Kevin Cullen</td>
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<td>➢ learn what steps you can take to collect evidence of and demonstrate Impact.</td>
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<td>➢ have alternative approaches to assessing engagement and impact to discuss with politicians and funders.</td>
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<td>➢ understand what data are necessary for an impact exercise and what systems and approaches can be used to gather them</td>
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<td>➢ understand what constitutes a strong Impact case study and how to identify these from your portfolio.</td>
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<td>➢ Learn what approaches you can adopt in your projects to maximize their potential as impact examples.</td>
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<td>➢ alternative approaches to measuring and assessing the role that universities play in creating Impact.</td>
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<tr>
<td>12.30pm</td>
<td>Lunch</td>
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</table>
### Session 3: Driving engagement
Facilitator: Warwick Dawson  
Speaker: Steve Beaumont

- learn the best approaches to drive behaviour change amongst researchers.
- learn the best approaches to communicating Impact and delivering training through the university.

### Session 4: What changes do we want to see?
Facilitator: Les Field

- What are the pros and cons of different approaches to Engagement and Impact?
- Is there a common approach or model we would like to develop?
- How would we shape that?
- How would we seek to influence change?

### Day 1 - Closing comments
Professor Les Field

### 4.45pm - 5.00pm
Bus travel to Intercontinental Hotel

### 7.00pm
Dinner – Aria Restaurant  
1 Macquarie Street, East Circular Quay, Sydney
ARIA Restaurant
1 Macquarie Street, East Circular Quay, Sydney

ARIA currently holds two coveted Chef's Hats and was awarded the 'Diner's Choice' award at the Sydney Morning Herald, Good Food Guide Awards in 2012.
www.ariarestaurant.com/sydney
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<tr>
<td>9.00am</td>
<td>Bus Pickup at Intercontinental Hotel to travel directly to ATP Innovations</td>
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<tr>
<td>9.30am</td>
<td>Study tour</td>
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<td><strong>Australian Technology Park Innovations</strong></td>
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<td>The world’s leading technology incubator 2014 as voted by National Business Incubation Association.</td>
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<tr>
<td>11.30am</td>
<td>Bus to travel back to UNSW</td>
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<tr>
<td>12.00pm</td>
<td>Lunch at UNSW</td>
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<td>Council Chambers, Chancellery, UNSW</td>
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<tr>
<td>1.00pm</td>
<td>UNSW Innovation Walkabout</td>
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<td></td>
<td>- Visit to two leading UNSW research centres</td>
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<td></td>
<td>- Researcher briefings facilitated by Associate Dean Research</td>
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<tr>
<td>4.30pm</td>
<td>Sun Downer Reception</td>
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<td></td>
<td>- NewSouth Innovations</td>
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<td>- Level 2, Rupert Myers Building (South), UNSW</td>
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<tr>
<td>6.30pm</td>
<td><strong>Workshop Close</strong></td>
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<td>Bus back to Intercontinental Hotel</td>
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ATP Innovations is Australia’s leading technology business incubator. ATP Innovations accelerates the growth of technology companies that target global markets, by providing advice and guidance from seasoned entrepreneurs, access to investors, customers and domain specialists, and world-class infrastructure tailored to the needs of startup companies. The ATP Innovations Accelerator HUB is home to Startmate, Ignition Labs and university accelerator programs. ATP Innovations’ portfolio comprises over 65 companies from the software, hardware and life science sectors.

Key Contacts

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NewSouth Innovations is the Technology Transfer and Innovation Office at UNSW

www.nsinnovations.com.au

NewSouth Innovations
Accelerating Innovation ~ Connecting People
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<tr>
<td>Dr</td>
<td>Hector</td>
<td>Ceballos</td>
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<tr>
<td>Professor</td>
<td>Seong-Taek</td>
<td>Yun</td>
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<td>Korea University</td>
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<tr>
<td>Mrs</td>
<td>Rachel</td>
<td>Smith</td>
<td>Senior Advisor (research management)</td>
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<td>Ms</td>
<td>Sharon</td>
<td>Doyle</td>
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<td>University of Auckland</td>
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<td>Mr</td>
<td>Warwick</td>
<td>Dawson</td>
<td>Director, Research Partnerships</td>
<td>University of New South Wales</td>
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<td>Professor</td>
<td>Michael</td>
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<td>Charles</td>
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<td>KENDALL</td>
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<td>SEARLES</td>
<td>HEALTH RESEARCH ECONOMIST</td>
<td>HUNTER MEDICAL RESEARCH INSTITUTE</td>
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<tr>
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<td>Mariann</td>
<td>Fee</td>
<td>CEO</td>
<td>UoM Commercial</td>
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<td>Hunter Medical Research Institute</td>
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<td>Michelle</td>
<td>Vincent</td>
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