Comparative approaches to measuring the impact of research

EARMA Annual Conference April 2017
Why capture research impact?

1. **Value for money**
   - Policymakers want to prove the value of university research

2. **Funding**
   - Research funding agencies need evidence of impact

3. **Strategy**
   - Integral part of the University’s research culture and strategy
What is research impact?

Anna Augustyniak
University College Dublin
What is research impact?
Research impact as a journey

INPUTS
- Research funding
- Researcher existing knowledge
- Facilities & equipment

ACTIVITIES
- Research & development
- New methods
- Collaboration
- Learning
- Experimentation
- Theorising

OUTPUTS
- Publications
- Prototypes, artefacts, research datasets, software
- Patents, innovations, products & services
- Methods & processes
- New companies
- Exhibition, performance

OUTCOMES
- Postgraduates
- Cited outputs
- Licence income
- Follow-on income
- Uptake of device or therapies
- Uptake of tools & instruments
- Media Coverage

IMPACTS
- Cultural
- Economic
- Environmental
- Health
- Political
- Scientific
- Social
- Technological
- Training
Can Measure Academic Impact

67%

Above world average in 2011-2015

Source: Elsevier SciVal
How to capture Economic & Societal Impact?

Creating cars that drive themselves

An engineering project at the University of Oxford offers the possibility of autonomous personal transport, which could save people time and make roads safer. With over 30 million vehicles on the roads and numbers rising, it's easy to feel that traffic and related issues are inevitable. The Intelligent Mobility Group (IMG) at the University of Oxford focuses on research in autonomous vehicles, with the aim of improving traffic efficiency and reducing emissions.

Submittion

If you know of some impact from Oxford research, please contact the Knowledge Exchange Impact Team.

Search the index

Submit the index by searching the references for keywords, such as 'NH'. Learn about advanced search options and read the Terms of Use.

Putting out 'Digital Wildfires' before they take hold

Should social media be controlled, and if so how? Researchers in the Department of Computer Science are working to find the best ways to prevent provocative online content spreading out of control.
**Plan**

**Activity:**
Guidance on developing impact plans and statements for proposals.

**Tools:**
- UCD Impact Planning Canvas
- UCD Impact Canvas Video
- UCD Impact Canvas Worked Examples
- UCD Impact Planning Guide

**Examples:**
- SFI Centres Proposal
- SFI Professorship Proposal

**Capture**

**Activity:**
Capture inputs, activities and datasets. Prepare for publication. Promote and disseminate.

**Tools:**
- UCD Impact Case Study Template

**Communicate & Monitor**

**Activity:**
Communicate and monitor impact.

**Tools:**
- Sample UCD Case Studies
- UK REF Case Studies
- SciVal Reports
- Altmetric for Institutions
- UCD Promote Your Research Website and Guide
- Google Analytics
Canvas Worked Examples
# Case Study Template

## Types of impact

- **Academic**
- **Cultural**
- **Economic**
- **Environmental**
- **Health**
- **Political**
- **Scientific**
- **Social**
- **Technological**
- **Training**

## Title of Case Study

Strong, easy to understand title expressed in layman’s terms that draws in the reader.

## Images

4 - 5 high quality images.

- Please provide 1 – 3 images to depict how their research is making a difference to society, the economy or other research.
- Please ensure that the relevant permissions have been sought, copyright is not infringed and that any necessary release forms have been signed.

## Research Description (maximum 500 words)

This section provides details of what research was undertaken, in what timeframe and by whom (include collaborators). It should outline the key research insights or findings that underpinned the impact achieved (as described in next section below).

## Summary of the impact (maximum 500 words)

This section should provide a narrative, with supporting evidence, to explain:

1. How the research underpinned made a distinct and material contribution to the impact.
2. The nature and extent of the impact.

Be as close as possible about exactly **WHAT** the impact was. Adding some sort of precise quantification wherever possible. Numeric data and indicators need to be meaningful and contextualised to clearly support the case being made (not used as a substitute for a clear narrative). Avoid generalised or exaggerated statements about impact.

Clearly identify specifically **WHO** has benefited from the work or which groups/organisations have changed something as a result of it (bear in mind that this may include ‘intermediary’ organisations as well as your intended ‘end users’ or audiences). It can be useful to indicate the numbers of people impacted and **WHEN** those impacts occurred. Also relevant is **WHERE** the impact has occurred, particularly whether the impact is local, national and/or international in scope.

Case studies can be brought to life with greater resonance by including quotes that illustrate the impact. Significant credibility is added if these quotes are from people with high profile and relevant job titles.

## References to research & impact

Include references, web links, grant information, awards, reviews, peer review or other quality assurance processes. If referencing publications, please include the link to the publication and the Digital Object Identifier (DOI).
# Types of Impact

<table>
<thead>
<tr>
<th>CULTURAL</th>
<th>ECONOMIC</th>
<th>ENVIRONMENTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contribution to understanding of ideas and reality, values and beliefs.</td>
<td>Contribution to the sale price of products, a firm's costs and revenues (micro level), and economic returns either through economic growth or productivity growth (macro level).</td>
<td>Contribution to the management of the environment, for example, natural resources, environmental pollution, climate and meteorology.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>POLITICAL</th>
<th>SCIENTIFIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contribution to public health, life expectancy, prevention of illnesses and quality of life.</td>
<td>Contribution to how policy makers act and how policies are constructed and to political stability.</td>
<td>Contribution to the subsequent progress of knowledge, the formation of disciplines, training and capacity building.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOCIAL</th>
<th>TECHNOLOGICAL</th>
<th>TRAINING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contribution to community welfare, quality of life, behaviour, practices and activities of people and groups.</td>
<td>Contribution to the creation of product, process and service innovations.</td>
<td>Contribution to curricula, pedagogical tools, qualifications</td>
</tr>
</tbody>
</table>
Case Study Examples

Gathered and optimised impact case studies with academics from all UCD colleges
An example form
Arts & Humanities

Communicate & Monitor

Adobe Acrobat Document
Embedding a University-wide Culture of Research Impact – Key Initiatives

Liam Cleere
University College Dublin
Impact work programme

1. Excellence Framework

2. Enhance Academic Impact

3. Capture & Communicate Economic & Societal Impact

4. Evaluate Impact
1. Excellence Framework

**University KPIs**

**Note:** Proposed Measures (Column 1) are taken directly from the UCD Strategic Plan 2015-2020.

- Composite group of World Top 200 universities to be identified for benchmarking where data are available to do so.
- Percentage of student feedback data available.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Metric</th>
<th>Unit</th>
<th>Source</th>
<th>Available</th>
<th>Backdrop</th>
<th>Note</th>
<th>KPI</th>
<th>Metric</th>
<th>Measured on</th>
<th>Data Ranges</th>
<th>Updated</th>
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</thead>
<tbody>
<tr>
<td>Research objectives</td>
<td>Publications Volume</td>
<td></td>
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<tr>
<td>Research Impact</td>
<td>H-index Citation Impact</td>
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<tr>
<td>Projected high quality output with high citation impact</td>
<td>Article metrics (article level)</td>
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<tr>
<td>Innovation</td>
<td>Number of new Spin-Outs</td>
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</tr>
</tbody>
</table>

**UCD Key Performance Indicators (Jan 2016)**

- UCD Strategic Plan 2015-2020
- Composite group of World Top 200 universities identified for benchmarking where data are available.
- Percentage of student feedback data available.

**KPIs by Institute:**
- College, School
- Quarterly
- Annually
- Bi-annual

**KPIs by Institution:**
- College, School
- Bi-annual
- Annually

**KPIs by Department:**
- College, School
- Yearly
- Bi-annual
- Annually
1. Excellence Framework

Faculty

- Update profile

Publication records
- Match publications to lists

RMS

- Calculate points based on publication type and channel

‘Normal’ list

- List of publication channels

‘Prestigious’ list

- Calculate points based on number of students supervised

PhD Supervision records

- Match publications to lists

Banner

- Calculate points based on number of students supervised

Register Students

Output-Based Research Support Scheme (Oct 2016)
2. Enhance Academic Impact

Promote Your Research
Tips to promote your research for greatest impact

I'M NEW TO THIS – I NEED TO BE CONVINCED

As global scientific output doubles every nine years, it is more important than ever to ensure your research stands out.

READ MORE

I'M READY TO GET STARTED

Optimising the discoverability of your research on the Internet is a great way to enhance its visibility, citation rate and impact. Read the UCD Guide on Promoting your Research for greatest impact.

READ MORE

UCD Promote your research website (Mar 2016)
Optimising the discoverability of your research on the internet is a great way to enhance its visibility, citation rate and impact.

Throughout the three stages of this guide, PREPARE, PROMOTE and MONITOR, we will show how social media and online dissemination tools can be used to boost the profile of your research.
Automated Twitter Feed

1. Collection
2. RSS
3. Automated Feed to Twitter via Dlvr.it
4. Measurement

- Research Management System – latest publication records added by researchers to RMS
- RSS publication feed - generated by RMS for each School and Institute
- School / Institute Twitter Account - automatically sends out Tweet each time a new publication is added to RMS
- Measure effects – via UCD’s institutional account with Altmetric
3. Capture & Communicate
Economic & Societal Impact

UCD Impact Portal website (Jun 2016)
Activity:
Guidance on developing impact plans and statements for proposals.

Tools:
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Examples:
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Activity:
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- UCD Promote Your Research Website and Guide
- Google Analytics
4. Evaluate Impact

Delivering Impact - The Economic, Social and Cultural Impact of UCD (Apr 2015)
€1.3bn

Annual economic output generated by UCD and its students in Ireland
Focus for 2017

• Implement New Research Management Information System
• Research Impact Case Study Competition
• Impact Seminar Series
• Output-Based Research Support Scheme II
• Support Colleges and Schools on impact:
  • Impact for proposals
  • Localised metrics to aid strategies
  • Impact Planning Canvas Workshops
MEASURING SOCIETAL IMPACT

HELEN LEWIS – UNIVERSITY OF EAST ANGLIA
SIGRIDUR BECK – UNIVERSITY OF GOTHENBURG
AURORA NETWORK UNIVERSITIES
ABOUT THE AURORA NETWORK

We are a community of European Universities, who share a mission to advance social good and solve global challenges - and so do our students.

Through the Aurora Network, we will:

• Share our collective best practice in being relevant, socially inclusive and diverse institutions. Access to education is at the core of our institutional missions and we will demonstrate our commitment to inclusion and diversity.
• Ensure we learn from each other in how we respond to an increasingly digitised world. Through our research, education and engagement, we will combine our expertise in how to remain relevant and resilient in the digital landscape.
• Commit to delivering research which provides solutions to societal issues - locally, nationally and internationally.
• Make our university experience a lasting and meaningful one for our students. While we provide an education which other universities aspire to, we will also encourage our alumni to make a real impact in the world as truly global citizens.
THE CHALLENGE OF MEASURING
SOCIAL IMPACT

- The view from AURORA Network members
- The view from session attendees
Looking at utilization possibilities through four logics

Make research available through contractual networks

Make research available through innovation processes

Make research applicable for specific stakeholders

Make research as publicly available as possible
What are the options – a realistic view of goals

- Open platforms; X-organizational programs
- Social innovation
- Expert groups/consultant; Partnership programs
- Make research as publicly available as possible
- Make research applicable for specific stakeholders
- Make research available through innovation processes
- Make research available through contractual networks
- Additional resources and effort required to achieve necessary level of sustainability and value-creating outcomes

- Ad-hoc trainings (personal)
- Publish non academic; Media presence, debates, online presence
- Publish academic; Academic education
- Contract research; Collaborative research; Student involvement
- Contract education; Guidelines; Manuals
Utilization options
Example of utilization activities and outcomes that can be generated from research efforts

Types of Activities
- Network of partners for certifications and quality control
- Wide spread educational/training programs
- Organizational development, evaluation and follow up
- Practical Tools and Processes
  - Team development exercises
  - Practical workshops and case building
- Contract education/research
  - Basic recurring training
  - Guidelines, manuals; On-demand training
- Ad-hoc trainings (individual dependent)
  - Publishing (non-academic)
  - Further Research and academic publishing

Type of Effect
- Facilitate organizational change
- Facilitate knowledge application
- Increase knowledge
- Increase awareness
The Swedish Innovation Agency Model

**Evaluation by an expert panel**

**SELF-ASSESSMENT**
- Pilot 1
  - Societal interaction strategy and implementation
- Pilot 2
  - Collaboration activities and results

**COLLABORATION PARTNER EVALUATION**
- Pilot 2
  - Inclusion of & results for cooperating partners to HEIs

**Contextual information**
## Figure 8: Overview of process for pilot calls

<table>
<thead>
<tr>
<th>HEIs’ Input</th>
<th>International Expert Panel Evaluation</th>
<th>Allocation of Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pilot 1 (27)</strong></td>
<td>Quality and performance of...</td>
<td>Budget of 60 MSEK for each pilot call allocated to HEIs...</td>
</tr>
<tr>
<td>Written documentation</td>
<td>• Strategy</td>
<td>• Fixed amount of 500,000 SEK for each participating HEI</td>
</tr>
<tr>
<td>• Background information on HEI’s context</td>
<td>• Implementation</td>
<td>• Remaining amount divided among HEIs based on their evaluation rating (pro-rated based on size of the HEI)</td>
</tr>
<tr>
<td>• Self assessment of strategy and implementation</td>
<td>Assigning rating...</td>
<td></td>
</tr>
<tr>
<td>• Documentation (or other) to validate self-assessments</td>
<td>• Emerging</td>
<td></td>
</tr>
<tr>
<td><strong>Pilot 2 (26)</strong></td>
<td>Quality and performance of...</td>
<td>Budget of 60 MSEK for each pilot call allocated to HEIs...</td>
</tr>
<tr>
<td>Written documentation</td>
<td>Assigning rating...</td>
<td></td>
</tr>
<tr>
<td>• Description of 10 societal collaboration activities</td>
<td>• Good</td>
<td>• Minimum 1.500.000 SEK for each HEI</td>
</tr>
<tr>
<td>• Self assessment of activities and results</td>
<td>• Very good</td>
<td>• Remaining amount divided among HEIs based on their evaluation rating (pro-rated based on size of the HEI)</td>
</tr>
<tr>
<td>• Documentation (or other) to validate self-assessments</td>
<td>• Excellent</td>
<td></td>
</tr>
<tr>
<td>Survey of collaboration partners</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interviews of teams from each HEI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incentive</td>
<td>Intended effect</td>
<td>Actual effect</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>&quot;Researchers rewarded for increased number of publications.&quot;</td>
<td>&quot;Improve research productivity,&quot; provide a means of evaluating performance.</td>
<td>&quot;Avalanche of&quot; substandard, &quot;incremental papers&quot;; poor methods and increase in false discovery rates leading to a &quot;natural selection of bad science&quot; (Smaldino and McElreath, 2016); reduced quality of peer review</td>
</tr>
<tr>
<td>&quot;Researchers rewarded for increased number of citations.&quot;</td>
<td>Reward quality work that influences others.</td>
<td>Extended reference lists to inflate citations; reviewers request citation of their work through peer review</td>
</tr>
<tr>
<td>&quot;Researchers rewarded for increased grant funding.&quot;</td>
<td>&quot;Ensure that research programs are funded, promote growth, generate overhead.&quot;</td>
<td>Increased time writing proposals and less time gathering and thinking about data. Overselling positive results and downplay of negative results.</td>
</tr>
<tr>
<td>Increase PhD student productivity</td>
<td>Higher school ranking and more prestige of program.</td>
<td>Lower standards and create oversupply of PhDs. Postdocs often required for entry-level academic positions, and PhDs hired for work MS students used to do.</td>
</tr>
<tr>
<td>Reduced teaching load for research-active faculty</td>
<td>Necessary to pursue additional competitive grants.</td>
<td>Increased demand for untenured, adjunct faculty to teach classes.</td>
</tr>
<tr>
<td>&quot;Teachers rewarded for increased student evaluation scores.&quot;</td>
<td>&quot;Improved accountability; ensure customer satisfaction.&quot;</td>
<td>Reduced course work, grade inflation.</td>
</tr>
<tr>
<td>&quot;Teachers rewarded for increased student test scores.&quot;</td>
<td>&quot;Improve teacher effectiveness.&quot;</td>
<td>&quot;Teaching to the tests: emphasis on short-term learning.&quot;</td>
</tr>
<tr>
<td>&quot;Departments rewarded for increasing U.S. News ranking.&quot;</td>
<td>&quot;Stronger departments.&quot;</td>
<td>Extensive efforts to reverse engineer, game, and cheat rankings.</td>
</tr>
<tr>
<td>&quot;Departments rewarded for increasing numbers of BS, MS, and PhD degrees granted.&quot;</td>
<td>&quot;Promote efficiency; stop students from being trapped in degree programs; impress the state legislature.&quot;</td>
<td>&quot;Class sizes increase; entrance requirements&quot; decrease; reduce graduation requirements.</td>
</tr>
<tr>
<td>&quot;Departments rewarded for increasing student credit/contact hours (SCH).&quot;</td>
<td>&quot;The university's teaching mission is fulfilled.&quot;</td>
<td>&quot;SCH-maximization games are played&quot;: duplication of classes, competition for service courses.</td>
</tr>
</tbody>
</table>

Modified from Regehr (pers. comm., 2015) with permission.
Thank you for listening.