TOGETHER: WE ACHIEVE IMPACT
A SYMPOSIUM ON RESEARCH AND INNOVATION IMPACT

University of Regina • February 7, 2019

Dr. Kathryn Graham, Performance Management and Evaluation
UNDERSTANDING RESEARCH AND INNOVATION IMPACT: THE WHAT
ALBERTA INNOVATES AT A GLANCE

600 EMPLOYEES
10 LOCATIONS

Annual investment of $286 million, another $80 million in technical support for greenhouse gas emissions reduction projects.

$47.2M in external contract revenue generated by InnoTech Alberta.

76 PhDs
Highly qualified and skilled personnel at InnoTech Alberta worked with industry, government and small to medium-sized enterprises to enhance company competitiveness and bring new technologies to market.

2 applied research subsidiaries
- InnoTech Alberta
- C-FER Technologies

72 PROGRAMS in 14 investment portfolios and four business lines
International School on Research Impact Assessment (ISRIA)
Global Perspective to Address Local Needs
Values

- Support and contribute to the advancement of global knowledge, evidence and practice in RIA
- Address real contextual needs to deliver practical, feasible and cost-effective solutions
- Practical, feasible and cost-effective solutions
- Social value beyond a technocratic exercise
- Deliver social value to stakeholders beyond a purely technocratic exercise
- Advancement of global knowledge and practice
- Neutral approach to frameworks and tools
- Transparency, openness and accessibility
- Mutual learning in the community of practice
- Promote mutual learning, shared expertise, and collaboration in the community of practice
- Strive for transparent global learning. ISRIA materials are registered in Creative Commons and accessible on the webpage
Six Block Protocol - Fit For Purpose
Used to: Plan – Assess – Implement – Manage - Improve

1. Understand the context
2. Identify the assessment purpose
3. Define indicators of success
4. Develop the design, methods & data collection
5. Communicate and use findings
6. Manage the assessment
Session Objectives

• Understand the context and drivers for impact
• Gain a shared understanding of impact
• Be aware of national and international impact frameworks

Acknowledgement: The material and resources used in this presentation is primarily based on the materials from the International School on Research Impact Assessment

https://www.theinternationalschoolonria.com/resources.php
ICE BREAKER: THE GREATEST IMPACT

What is one research study or area that has made a significant impact?
CURRENT CONTEXT FOR IMPACT
INTEREST IS NOT NEW
IN THE IMPACT OF RESEARCH

1945

As long as [universities] are vigorous and healthy and their scientists are free to pursue the truth wherever it may lead, there will be a flow of new scientific knowledge to those who can apply it to practical problems in Government, in industry, or elsewhere."

Vannevar Bush
Science the Endless Frontier, 1945

1620

“There is another powerful and great cause of the little advancement of the sciences, which is this: it is impossible to advance properly in the course when the goal is not properly fixed. But the real and legitimate goal of the sciences is the endowment of human life with new inventions and riches.”

Francis Bacon
Novum Organum, 1620

1993

“The understanding and application of science are fundamental to the fortunes of modern nations. Science, technology and engineering are intimately linked with progress across the whole range of human endeavour: educational, intellectual, medical, environmental, social, economic and cultural.”

Chancellor of the Duchy of Lancaster
Realising our potential White Paper, 1993
Interdisciplinary Approaches to Impact

Emergence of the science of science (and innovation) policy

Scientifically rigorous quantitative basis for science policy

Growing body of evidence on ways to monitor, measure & evaluate impacts

Group of evaluators, researchers, policy makers, funders & consultants engaged in improving our understanding of research impact
Impact Defined

Most Widely Used Definition

“...Positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended.” (OECD, 2002)

Generally Beyond Academic

“... An effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia.” (Research Excellence Framework, UK)
Key Impact Concepts

**ACADEMIA**
- Inputs
- Process
- Outputs

**WIDER SOCIETY**
- Outcomes
- Impacts

**ALBERTA INNOVATES**
INTERNATIONAL AND NATIONAL IMPACT FRAMEWORKS
Why Use a Framework?

• Develops a common language and understanding
• Creates a unified perspective across disciplines
• Defines impacts and can guide selection of indicators/metrics
• Provide a useful communication tool

A frame for organizing information and concepts
Stakeholder's Purpose(s) for Impact

**ANALYSIS**
What works in research funding?

**ADVOCACY**
'Makes the case' for research funding

**ACCOUNTABILITY**
To taxpayer, donors, etc.

**ALLOCATION**
What to fund (institution, field, people ...)

Talking to Your Stakeholders
Understand their Purpose(s) and Information Needs

• What impact(s) are you looking for?
• What impact do you want to measure?
• What for?
• What are your information needs short and/or long term?
• What change(s) do you want to achieve?
Canada’s Policy Commitment

“
I expect that our work will be informed by performance measurement, evidence, and feedback from Canadians. We will direct our resources to those initiatives that are having the greatest, positive impact on the lives of Canadians. I expect you to report regularly on your progress toward fulfilling our commitments and to help develop effective measures that assess the impact of the organizations for which you are answerable.”

How Different Frameworks Describe Impact

- Canadian Academy of Health Science (CAHS), Canada
- Research Excellence Framework (REF), UK
- Excellence in Research for Australia (ERA), AU
- National Science Foundation, US
- Horizon 2020, EU
CAHS Impact Framework

**Origin:** Based on the Payback framework. Aims to improve consistency and comparability across health research system while retaining flexibility for accountability (ROI)

**Scope:** Five impact categories

**Measurement:** Total of 66 indicators. Identifies, CIHR pillars, levels of aggregation, potential data sources

**Use:** CIHR, NAPHRO, AI and AHS

**Wider Applicability:** Developed in health, but can have broader applications
Pathways from Research to Impact

Initiation and Diffusion of Health Research Impacts

- Global Research
- Canadian Health Research
  - Biomedical
  - Clinical
  - Health Services
  - Population and Public Health
  - Cross-Pillar Research
- Research Capacity

Knowledge Pool

- Health Industry
- Other Industries
- Government
- Research Agenda
- Public Information Groups

Interactions/Feedback

- Health care Appropriateness, Access, etc.
- Prevention and Treatment
- Determinants of Health

Improvements in Health and Well-being

Economic and Social Prosperity

Research Results

Impacts feed back into inputs for future research
CAHS Impact Categories

**Advancing Knowledge**
Traditionally more academic focused, can provide useful starting point & mechanisms to trace impact forward
*Indicators: citation impacts, shared publications*

**Capacity Building**
Elements which build future research capacity, aids absorption of knowledge by the system
*Indicators: research resources, leveraged funding*

**Informing Decision Making**
Looks at impact in policy, practice processes, products & services, across five stakeholder groups. Policies & practice might change at multiple levels
*Indicators: use of research guidelines*

**Health Impacts**
Breaks down health into health status & determinants of health which are further broken down into 14 categories
*Indicators: health gains*

**Broad Economic & Social Impacts**
Benefits from economic activities & commercialization, benefits from a healthier or more enriched society
*Indicators: gains in socio-economic status, increased well-being*
ACTIVITY

How would you categorize your “greatest impact” with respect to the CAHS impact categories?
Research Excellence Framework

Origin: Evolved from the Research Assessment Exercise and includes wider societal impact. Intended to be low burden

Scope: Assessment at subject level on 3 elements: quality of research outputs, impact of research (not academic), vitality of environment

Measurement: Assessment by subject peer review panel of list of outputs, impact statement, case studies and statement on research environment

Use: Piloted in 2009, first round 2014, next round 2021

Wider Applicability: Suitable for similar cross institutional assessment of performance
REF Uses Case Studies to Assess Impact

*Impact defined as* "any effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia."

**REF 2021 Evidence of Impact:**

Who or what has benefited or been impacted on?
How have they benefited or been impacted on?
What kind of evidence can demonstrate this?
ELEPHANT AND THE BEES EXAMPLE

While increasing African elephant numbers in the last 20 years has been a success for conservation efforts, it creates problems for farmers when the elephants raid their crops.

Building on local anecdotal evidence, zoologists from the University of Oxford published a study in 2002 reporting that elephants avoided feeding on acacia trees hung with beehives. Partnering with a bio acoustician from Disney’s Animal Kingdom, the team went on to show that the buzz of aggressive bees caused elephants to emit a low frequency rumble, causing other nearby elephants to retreat.

They went on to develop and test a novel elephant-deterring beehive fence, built using low-tech, easy to maintain materials. The fences reduced raids on farmers’ crops, improving their food security. In tandem, sales of ‘elephant friendly’ honey from the beehives offset the costs of building the fence.

UNESCO and the World Bank have since backed the use of beehive fences as a means to reduce human-elephant conflict. Projects are now running in farms across Kenya, Botswana, Tanzania, Mozambique and Uganda.

Using honey bees as an effective deterrent for crop-raiding elephants,
REF 2014 Impact Case Study
http://impact.ref.ac.uk/CaseStudies/CaseStudy.aspx?Id=17588
Lessons Learned From Scoring of Case Studies

Panel overview reports from 2014:

<table>
<thead>
<tr>
<th>High-scoring</th>
<th>Low-scoring</th>
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<tbody>
<tr>
<td>• Clear and compelling narrative</td>
<td>• Lack of objective evidence</td>
</tr>
<tr>
<td>• Clearly identified beneficiaries</td>
<td>• Superficial impacts</td>
</tr>
<tr>
<td>• Explicit links between research and claimed impact</td>
<td>• Vague description of impacts and/or their relationships to the research</td>
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<tr>
<td>• Self-contained</td>
<td>• Focus on dissemination without explaining outcomes (“so what?”)</td>
</tr>
<tr>
<td>• Verifiable evidence of research and significance</td>
<td></td>
</tr>
<tr>
<td>• Evidence of unit’s contribution to research</td>
<td></td>
</tr>
<tr>
<td>• Distinguishes between dissemination and impact</td>
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http://impact.ref.ac.uk
Excellence in Research for Australia (ERA)

**Origin:** Identifies and promotes excellence against international benchmarks. Incentives to improve research quality

**Scope:** Full spectrum of research activity in Australia’s higher education institutions. Assesses quality, volume, application of research (impact) and measures of engagement at disciplinary level

**Measurement:** Engagement is assessed using indicators and narrative statements. Impact is assessed using case studies

**Use:** 2010, 2012, 2015, 2018

**Wider Applicability:** Should be widely applicable
Impact defined as the contribution that research makes to the economy, society, environment and culture beyond the contribution to academic research.
2018 – Engagement and Impact Framework

Impact Rating

High
• The impact has made a **highly significant contribution** beyond academia
• A clear link between the associated research and the impact was demonstrated

Medium
• The impact has made a **significant contribution** beyond academia
• A clear link between the associated research and the impact was demonstrated

Low
• The impact has made **little or no contribution** beyond academia

Engagement Indicators Examples
• Cash support from research end-users
• Research income per Full Time Equivalent
• Research commercialization income
• Engagement indicator explanatory statement
APPLICATIONS IN PRACTICE
International Impact Assessment in Mental Health

In 2011-12, AIHS invested over $11 million and supported projects in mental health...

AIHS was part of a three-year international study to improve the translation of mental health research from bench to bedside using 25 years worth of data.

“Research that work across boundaries had wider impact and social benefits”
ACTIVITY

What should the University of Regina and the community keep in mind about impact as we move forward together?
Key Messages

• Understand stakeholders purpose(s) for research impact
• Choose conceptual frameworks critically and use appropriate
  - when Impact frameworks can be helpful for organizing concepts and information
• Need practical evidence base for science policy decisions
• Impact is here to stay
• There is no silver bullet

When talking about impact we tend to talk about “contribution”
Further Reading


- UK Research and Innovation (UKRI). *Research Excellence Framework (REF) 2021*. [https://www.ref.ac.uk/](https://www.ref.ac.uk/)

UNDERSTANDING RESEARCH AND INNOVATION IMPACT: THE WHO

Kathryn Graham, Alberta Innovates
Session Objectives

• Identify research and innovation stakeholders
• Understand stakeholders’ perspectives and needs
• Consider competing interests and expectations
STAKEHOLDERS AND THEIR NEEDS
Who is asking about impact?

Who we need to engage to achieve impact?

Who is being impacted?
Types of Stakeholders

**Funders:** the public; government; research funding bodies; universities/institutes; donors

**Doers:** Universities/institutes; departments; teams; researchers

**Participants:** volunteers; industry

**Beneficiaries:** target populations (e.g. patients), policy makers; decision makers; other researchers; industry; professional associations; the wider public
Engage Stakeholders to Understand Perspectives

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<td>Beneficiaries</td>
<td>• Patients; professional organizations; policy analysts; citizens</td>
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How to Identify Stakeholders

- Organization’s mission/value
- Organization’s strategic plan
- Executive and board members for the organization
- Potential groups to be impacted
- Others?

Some Tools:

Interviews, surveys, focus groups, citizen panels, strategic documents, evaluations, stakeholder analysis
ACTIVITY

With respect to research and innovation, are you: a funder? doer? beneficiary?

Given your perspective, What do you need to know about impact? Why?
PURPOSES FOR IMPACT
Engaging Stakeholders According to Purpose

ANALYSIS
What works in research funding?

ADVOCACY
‘Makes the case’ for research funding

ACCOUNTABILITY
To taxpayer, donors, etc.

ALLOCATION
What to fund (institution, field, people ...)

Understand Stakeholder Expectations

- Identify key stakeholders
  - Early identification of stakeholder expectations through an engaged & participative approach
- Identify what stakeholders value and the impacts of interest to them
  - Different tools available to analyze your stakeholders
- Ask stakeholders about their impact questions and information needs
- Prioritize their questions

Source: CAHS, 2009
Creating an Impact Culture

• To bridge traditional “tribes” of academics and non-academics, trust and informal knowledge sharing are key enablers

• Knowledge flourishes in trust-based communities (ask questions, understand partner organisations, etc.)

• Trust is hard to establish but easy to erode

• Different cultures across stakeholder groups (language, norms, speed, what is credible evidence etc.)
• Which stakeholders should the UorR further engage in moving the research impact pillar forward?
APPLICATIONS IN PRACTICE
Example From Health Quality and Assessment of Catalonia (AQuAS) Spain

Source: Paula Adam (ISRIA)
REF Beneficiaries Cited in Case Studies

Source: Graeme Rosenberg AESIS 2018
• Moving forwards, how do you want to be engaged by the University of Regina around the research impact pillar?
Key Messages

• Engage with stakeholders early on in the process
• Stakeholders are key to achieving impact
• There can be a wide range of stakeholders and their perspectives can differ
• Stakeholder needs may need to be prioritized

‘Success’ for public organizations – and certainly survival – depends on satisfying key stakeholders according to their definition of what is valuable (Bryson, 2004)
Recommended Reading