

The 'Impact Analysis System'

Project Report and guide to the underpinning conceptual framework

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The 'Impact Analysis System'

1. Introduction

The 'Impact Analysis System' has been developed as part of the Oxford Brookes University JISC funded project *Embedding Impact Analysis: Learning from Law*. This project was part of a sector-wide initiative intended to build capacity in the higher education sector for better research impact analysis. Funded by the JISC and the National Coordinating Centre for Public Engagement (NCCPE), the initiative began in 2011 and supported a number of projects in a range of universities. The Oxford Brookes *Embedding Impact Analysis* project was one of the selected initiative projects, running from June 2012 – November 2012.

The Impact analysis initiative is set in the context of an increasing demand from funders and others for researchers to become more aware of the impact of their work, and for institutions to be able to show evidence of impact on wider society from research undertaken. In particular the 2014 Research Excellence Framework requires submission of a number of case study examples of research impact as part of the assessment process; however requirement for evidence of impact is likely to continue to be important after the 2014 REF. Hence developing a way to embed capacity of impact analysis into regular research practice is important for institutions and for researchers in both the short and longer term.

2. The Project

The Oxford Brookes project involved a cross-disciplinary team, bringing academic researchers together with university research and information management professionals and an external impact analyst. The aim of the project was to develop and pilot a toolkit for recording and analysing research impact, building capacity and support for researchers across the university. The lessons learned would be shared with the higher education sector at large.

In order to develop the *Impact Analysis System*, the Brookes project team first took an overview of the existing literature on impact analysis and assessed a number of approaches that have been trialled by the UK research councils and others. We also reviewed extant recording tools such as the Research Councils UK (RCUK) 'Outputs and Outcomes' tool. (This is intended for use by research council award holders to report instances of impact.) The overview of extant approaches confirmed that development of 'impact analysis techniques' was still at an early stage and there was no appropriate 'off-the-peg' system available to help impact recording and analysis. Therefore, drawing where relevant on extant thinking and literature about impact analysis, we developed a practical framework for systematic analysis of impact generation. The current *Impact Analysis System* was then designed, using the newly developed conceptual framework to provide its underpinning logic. The system was created using Excel and developed through an iterative process of testing and trialling, using the work of Law School researchers to pilot the system.

There is a separate practical guide to completing the Impact System Workbook. This report explains the background to the project, some of the key issues involved in impact analysis and the theoretical underpinnings of the purpose-designed *Impact Analysis System*. In summary, the conceptual framework for the System is based on the application of a 'theory of change' or 'logic' model (W K Kellogg Foundation, 2004) to create the System logic. The *Impact Analysis System* then uses 'tracking back' and 'tracking forward' approaches (Nutley & Walter, 2005a)(Williams, Elisa, Eric, M., & RAND, 2009) to populating the system with information relevant to tracing impact.

3. Challenges involved in impact analysis

'Impact' can sometimes seem to be a nebulous concept, and it can mean different things to different people. There can be 'academic' impact and 'non-academic' societal impact with wider social, cultural or economic dimensions. The multiplicity of meanings and interpretations of 'impact' inevitably leads to some serious

challenges for analysing research impact.. (ESRC, 2009; Nutley & Walter, 2005a)

These include the '*what, where, how and how long*' of impact:

- the **definition** of 'impact' (*what* constitutes impact...?);
- the **identification** of impact (*where* do we find evidence of impact ?);
- the question of **processes** or '**impact pathways**'(*how* was the research disseminated and the routes through which influence flowed);
- the issue of **time lags** (*how long* it might take to for impact to occur);
- the **attribution** of impact to particular research (Did the research create the impact or were other factors more important?)

4. The Impact Analysis System: Definition of Impact used and addressing the attribution problem

For the Impact Analysis System we have taken the definition of impact being used in REF14.

Definition of impact for the REF

For the purposes of the REF, impact is defined as an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia (REF 2014, 2012)

Figure One: REF Definition of Impact (REF 2014, 2012)

The Impact Analysis System also adopts the broad classification of types and examples of impact as described in the REF guidance. (REF, 2012) These are grouped under 6 broad headings:

- **Impacts on Creativity, Culture and Society (CCS)**
- **Economic, commercial, organisational impacts (ECO)**
- **Impacts on the environment (ENV)**
- **Health and welfare Impacts (HW)**
- **Impacts on practitioners and professional services(PPS)**
- **Impacts on public policy, law and services (PPLS)**

The REF Guidance material gives some good examples of things that could be classed as impact. For instance, Impacts on creativity, culture and society (CCS) could include

- *Influential contributions to campaigns for social, economic, political and/or legal change*
- *Enhanced cultural understanding of issues and phenomena shaping or informing public attitudes and values*

Impacts on practitioners and professional services (PPS) can include:

- *Practitioner debate has been informed or stimulated by research findings*
- *Development of resources to enhance professional practice*

See (REF, 2012) and also Worksheet One in the Impact Analysis System Workbook for a fuller list. The range of examples is very wide and the guidance also indicates that the REF example list, while wide, is neither exhaustive nor prescriptive. Indeed the coverage is sufficiently broad that most, if not all, researchers will be able to identify areas where their research is likely to be making an impact, conceptually if not instrumentally.

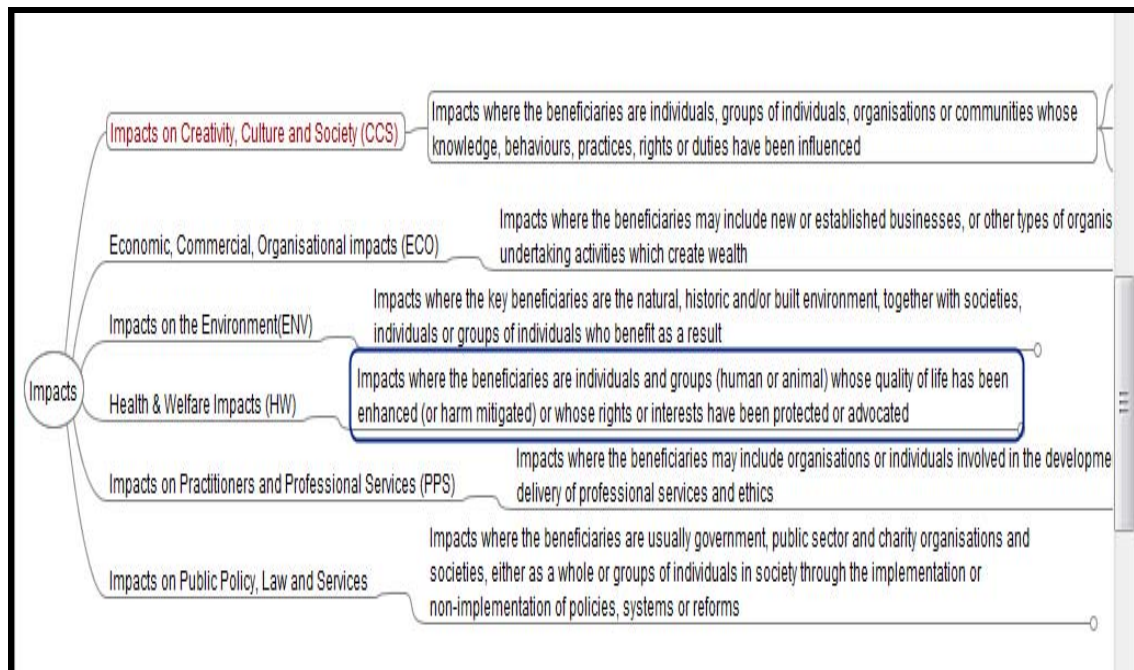


Figure Two: REF 2014 Categories of impact and headline descriptors. (Adapted from *Assessment Criteria: Impact* (REF, 2012)

However while the REF definition refers to “ an effect on, change or benefit” to the world outside academia , it is often difficult and frequently impossible to pin down evidence of ‘an actual ‘effect, change or benefit’ or *prove* that a particular change in policy, for example, was solely or even partially attributable to a piece of research. This is the ‘*attribution problem.*’ The LSE Handbook on *Maximising the Impacts of Your Research* – which is one of the most recent (and helpful) documents on research impact around at the moment - (LSE Public Policy Group, n.d.) tries to deal with this by narrowing the definition of ‘impact’ from an actual change or ‘benefit’ to an ‘occasion of influence’. The LSE handbook definition of a non-academic research impact is:

“ *a recorded or otherwise auditable occasion of influence from academic research on another actor or organisation.* ” (LSE Public Policy Group, n.d.)

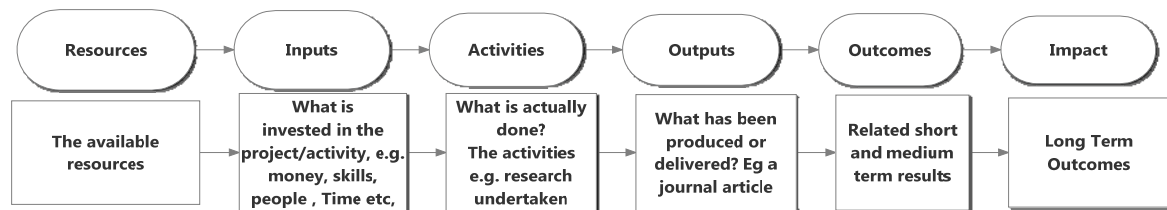
Our Impact Analysis System addresses the problem pragmatically by adopting the REF definition of impact and REF classifications of impact and classifying ‘recorded occasions of influence’ as the *Pathways to Impact*. Taking all of these together we believe that an evidence base can be compiled to support the ‘plausible attribution of impact.’

5. The Impact Analysis System: Our Conceptual Framework

The conceptual framework for the Impact Analysis system draws on extant literature and current thinking regarding impact analysis. The framework used is that of a purpose-designed ‘impact map’, which is itself based on the development of a ‘logic model’ or ‘theory of change’ model (W K Kellogg Foundation, 2004; Williams et al., 2009) together with a ‘tracking back’ and ‘tracking forward’ approach to gather information to populate the impact map.

The Impact Map is constructed using the basic logic chain of **Resources-Inputs-Activities-Outputs-Outcomes** .(RIAOO) . At its most straightforward it is essentially a way of organising and sorting relevant material to allow the pathways and linkages to be more clearly seen.

An 'Impact Mapping' process or 'Logic Mapping' process



While the current project is focussed on tracing and embedding analysis of *research* impact, this process is also applicable to the impact of other university activities, e.g. teaching, community engagement etc. The framework under development – the ‘Impact Analysis System’ - has been designed to include scope for the future inclusion of other impacts as and when wished.

6. Plausible Attribution: Making a link between Outputs and Outcomes

A crucial element of the purpose designed framework is the tracing of linkages and ‘impact pathways’ which can be contributory factors linking evidence of impact to the research undertaken – thereby providing some underpinning for *the plausible attribution of some types of impact to particular pieces of research*. These pathways are diverse and could include evidence of a range of research dissemination activities (press releases, conference papers, meetings with policymakers, government agencies, charities or activists, media interviews etc).

Some of the core transmission pathways for Research Impact have been identified by Molas-Gallart as including: Consultancy and Advisory Work; Social Networks (formal and informal); Researcher mobility; Publications and Media appearances. (Molas-gallart, 2007). Molas-Gallart also identified research impact as arising most often from *interactions* with others. In our Impact Analysis System we have classified the ‘Pathways’ into 3 main types :

- Pathways: Presentations (e.g conference and other external presentations to both academic and non-academic audiences, meetings , policy briefings etc) .

- Pathways: Networks (The network' channels and pathways through which the influence of particular research, or of a particular researcher, could flow. This includes more 'traditional' academic ones e.g. Membership of Learned Societies and other, less traditional, ones, such as social networks like LinkedIn)
- Pathways: Media & Other (Other media routes , media interviews, social media such as Youtube etc)

In terms of identifying *how* research can make an impact some of the more prominent methods used in recent times are those of 'tracking back' or 'tracking forward' (Meagher, Lyall, & Nutley, 2008)(Nutley, Walter, & Davies, 2007) (ESRC, 2011). This is also known as an 'historical tracing method' (Williams et al., 2009)

Nutley et al have also placed considerable emphasis on the complex non-linear nature of research impact pathways – in some cases research could directly influence public policy. But more often the research influence could take a more circuitous route, influencing people's attitudes, awareness and knowledge which could eventually contribute to a change in policy (Nutley & Walter, 2005b)

In our Impact Analysis System we are trying to both 'track back' - tracing possible links between an example of observed 'impact' and a particular body of research - and 'track forward' - looking through the different 'pathways' to trace evidence of 'impact' that may have flowed that way.

The Impact Analysis System also uses three broad classifications of impact (Nutley & Walter, 2005b):

- ***instrumental*** impacts (e.g. directly influencing a policy or practice),
- ***conceptual*** impacts (influencing ways of thinking, informing debate.)
- ***capacity-building*** impacts (e.g. skills development, developing new cadre of researchers))

These classifications are useful in thinking about the different ways research can make an impact and furthermore are highlighted in the REF2014 guidance (REF 2014, 2012) and so recording impact according to these classifications will help the preparation of impact case studies.

As a retrospective exercise ('tracking back') , the more evidence that can be gathered of communications, dissemination and engagement activity the easier it will be to plausibly make a link between the research undertaken and any observed impact.

In terms of embedding impact analysis for the future('tracking forward'), observing and recording the existence of different kinds of 'impact pathways' will also enable new thinking on to different modes of dissemination and engagement (sometimes described as 'impact-generating activities') that can be established to promote or encourage impact.

7. Further Reading and Resources

Appendix One of this report gives a basic set of steps as a 'starter for 10' when thinking about how to trace impact generated or identify evidence of impact, while Appendix Two suggests a range of ways for maximising research impact, particularly for researchers starting out.. The importance of the 'impact agenda' and for academic researchers to be able to raise the profile of their work and give evidence of influence has led to a wide range of handbooks, articles, blogs , presentations and other material becoming available . These are frequently and most helpfully by academics for academics. One of most useful resources identified in the course of this project has been the London School of Economics Handbook: *Maximising the Impacts of Your Research: A Handbook for Social Scientists* (LSE Public Policy Group, n.d.). This handbook gives advice and guidance on how to maximise and trace both academic and non-academic impact. Its recommendations for expanding research impact include the *creation* of a type of 'impacts file' for recording impact - a function which our *Impact Analysis System* is designed to serve. There are also a

range of other shorter articles and guidance notes on engaging with government and policy makers as well as very useful presentations and slideshare resources. These include a Czierniewicz presentation highlighting the importance of having an academic online presence and other information from the Alliance for Useful Evidence (Puttick & NESTA, 2011), and advice on interacting with policymakers and politicians. (Doig, 2011; Flinders, 2012)) The Publish or Perish software is also very useful. (Harzing, 2011) These are included in the Bibliography below.

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Appendix One: Where to start? Tips for evidencing impact

The suggestions below assume that you have already published a range of material or undertaken some kind of dissemination of your work. If you are 'starting out' or are an early career researcher with limited publications so far you may find the 'tips for maximising impact' more helpful.. The tips for evidencing impact below are intended to help build a 'retrospective' file to evidence impact.

1. Firstly – take a step back and reflect on the subject and nature of your research.

Who might be interested in this? What are your actual, intended or potential 'spheres of influence?' For example, if your research is on , say, economic impact of higher education your potential audiences could include:

- Universities and sectoral associations (e.g. Universities UK)
- BIS
- Local government
- Regional development organisations
- International organisations (e.g. OECD , international HE bodies , etc)

Your intended 'spheres of influence' may already be clear from where you have chosen to publish – are you publishing in places that your 'target audiences' will know about or be able to access? Academic journal publication is obviously very important for academic researchers . However if you **only** publish in academic journals the scope for evidence of a broader impact is likely to be limited. Very few people outside academe have access to journals, even if they wished to read them. The Library can give advice about also uploading your work (including 'preprints' of your journal articles)to the institutional repository (RADAR at Brookes.) That will make your work accessible on the internet to a wider audience.

2. **Do a series of 'google' searches.** For example, your name and one or two 'key words' related to your research e.g.:

- a. 'Joanna Bloggs higher education impact' or 'Joanna Bloggs higher education economy' etc.

Try different versions or spellings of your name if there are different possible spellings.

3. **Scan the results for possibly useful 'hits.'** Typically the search will throw up things like your university web page and references via your university site. It is also likely to throw up references to work you may have uploaded to the repository (RADAR.) However you may come across items of which you were not aware eg a press report or a media mention. It is definitely worth noting here that if such a search does NOT throw up a university link you should be reviewing your own presence on your university website – what is included on the website about you? At the very least you should make sure you have a departmental listing and your general research interests. (otherwise how will anyone know you have expertise in a particular research area?) Sometimes people think that 'googling' oneself is simply 'vanity'. However if you don't do this, how will you know what is or is not 'out there' about your research (or about you)?

4. **Check how many views /downloads have been made of the publications you have uploaded to the institutional repository RADAR.** When the new research information management system is established, this type of information should be more easily obtainable. Information on the numbers of downloads – and ideally the number from non-academic internet domains – is very real evidence that your research is *in use*.

5. Do a 'Publish or Perish' (PoP) analysis .

Publish or Perish is a software program that retrieves and analyzes academic citations. It uses Google Scholar to obtain the raw citations, then analyses these and presents a range of statistics that can be helpful in analysing impact. A PoP analysis will be of primary interest from an *academic impact*, rather than wider impact, point of view as most of the citations will relate to use of your work by other academics rather than by non-academics. However it is a good starting point. If your work is being cited widely by other academics this is in itself useful

to know. Also, if you have developed an extensive reputation in the academic world, this can 'spillover' outside of academe. LSE research showed :

"Analysis of our pilot sample of 120 academics shows that academics who are cited more in the academic literature in social sciences are cited more in non academic Google references from external actors. " LSE Impact handbook(LSE Public Policy Group, n.d.)

PoP also uses Google Scholar which casts its net wider than some of the other 'citation; indexes and can sometimes pick up citations, for example, policy papers. Google Scholar is also more helpful for non-science disciplines which are not always as well covered by other citation databases (eg Web of Science etc)

PoP gives statistics on:

- Total number of papers
- Total number of citations
- Average number of citations per paper
- Average number of citations per author
- Average number of papers per author
- Average number of citations per year
- Hirsch's h-index and related parameters
- Egghe's g-index
- The contemporary h-index
- The age-weighted citation rate
- Two variations of individual h-indices
- An analysis of the number of authors per paper.

You can scan the citations for each paper to see if any 'jump out' as possibly being related to non-academic or policy usage.

To this you need to download the PoP (free) software. You can obtain this, along with instructions on how to run and interpret and analysis from the Publish or Perish site. Harzing, A.W. (2007) **Publish or Perish**, available from <http://www.harzing.com/pop.htm> Harzing also gives helpful advice on how to use PoP results for academic purposes e.g. when you are applying for promotion etc. The LSE handbook (LSE Public Policy Group, n.d.) gives a range of useful comparators for citation rates in the social sciences. (so you have an idea whether or not your citation counts are typical for your peer group.)

6. Search other relevant electronic databases that you may have access to:

E.g. Lexis UK. This can pick up press coverage you may have overlooked

7. Search specific target outlets that are allied to your identified sphere of

influence. EG Has your work been of a topical political nature? Have you submitted evidence to Parliamentary committees? In which case, try searching *Hansard*.

(Submission of evidence to a Parliamentary Committee is relevant evidence of impact for the REF, as it shows conceptual impact – influencing debate. There is a very helpful article by Matthew Flinders, a Sheffield Professor, on both how to work with Parliamentary Committees and how to use this for REF evidence. (Flinders, 2012)

8. Record any relevant evidence for professional use of social media outlets. If you are a regular user of social media outlets you are likely to be familiar with a range of tools such as 'tweet reach' or 'Klout' . These can give you information on the 'reach' of your tweets (how many people saw your tweet – if something was retweeted a few times it can reach thousands) 'Klout' is related to your online presence – how much online 'klout' do you have (how many people retweet you, interact with you etc.) If you do not use social media for professional purposes and only for personal purposes , clearly this information is not relevant . However if, for example, you tweeted about your 'latest report on copyright law' and this was retweeted a number of times you have useful evidence that your work is reaching people.

Building a retrospective 'file' of evidence of impact is obviously going to be more time consuming than keeping it up to date as you go along. It also has to rely heavily on what can be found through online searching. However it remains useful as by – taking the Molas-Gallart proposal that impact is driven by “productive interactions” (Molas-Gallart & Tang, 2011) or indeed the LSE Impact handbook definition of research impact being a recorded ‘occasion of influence’ , locating your digital footprint is a good way of recording interactions and ‘occasions of influence.’

Appendix Two: Where to start? Tips for Maximising Impact.

1. **Reflect on the subject and nature of your research.** Who might be interested in this? What are your actual, intended or potential ‘spheres of influence? In other words who is currently interested in your research, who would you like to be interested in it and can you think of other people or organisations that might find it useful?
2. **Think about how you could reach these audiences.** Where do they source their information? If you have a particular target audience you need to publish in what they read... A short piece in Farmers’ Weekly will reach more farmers than an article in the Journal of Agricultural Economics.
3. Re (2) above. **This is not an either/or. Doing both is of course the ideal.** Get the maximum value from all the work you do by thinking about how you could ‘repurpose it’ for different audiences. Could you do a summary piece for the University newsletter? Could you do a short blog about it? Have a plan for making the most of your research outputs.
4. **Don’t forget the basics.** Make sure you have a presence on your university website – at the very least you need to have an up-to-date Departmental entry with your research and other academic interests, publications etc.
5. **Go as ‘open as possible’.** Upload your work to the institutional repository RADAR. Most people outside academe cannot access journal articles. They are all behind an extremely expensive paywall. Institutional repositories get

round this and make your work freely available (there are ways to do this without infringing copyright.)

6. **Think about professional use of social networks.** Social Media, well used, could be very important in helping to spread influence and information about your work. That includes Twitter, blogs , Youtube etc. There is a very good presentation on Slideshare by Laura Czienierwicz about Academic Online Presence and how to cultivate it.
7. There are also some excellent guides to using Twitter for academic purposes . http://blogs.lse.ac.uk/impactofsocialsciences/files/2011/11/Published-Twitter_Guide_Sept_2011.pdf (Mollett, Moran, & Dunleavy, n.d.)
8. The LSE Impact Blog is a great source of information on how to maximise impact as well as providing a forum for discussion.
<http://blogs.lse.ac.uk/impactofsocialsciences/> (Also on twitter @LSEimpactblog)
9. Think '*Productive Interactions* '. Networking, formal and informal, is never a waste of time.