i2S News

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Australian National University

WELCOME

Welcome to the July/August i2S News. It provides information about additions and updates made to the resources (tools, journals, professional associations and networks, and conferences) on the i2S website (http://i2s.anu.edu.au/resources). i2S News also provides a list of the latest blog posts on the Integration and Implementation Insights (i2Insights) blog (https://i2insights.org). We aim to provide these updates every two months.

With best wishes for your physical, mental and financial well-being.

Gabriele Bammer and Peter Deane

CONTENTS

FEATURED TOOLS

Stakeholder engagement: Methods for opening out, exploring, deciding, and more

Purpose: To provide a range of methods useful for stakeholder engagement.

Description: Lists are provided, sometimes with brief descriptions, of various methods for stakeholder engagement, grouped into methods for opening out, exploring and deciding, as well as techniques that promote direct or pro-active interactions, involve stakeholders in the research process, increase awareness of the project and its results, and generate products useful for stakeholders.

Choosing methods for engagement should take into account:

- objectives of the engagement
- required levels of engagement
- timing of engagement activities in the research process
- expected roles of the stakeholders
- needs, capacity and expectations of the stakeholders.

All engagement methods have particular strengths and weaknesses and each is therefore more suitable for some situations than others. It is often helpful to use combinations of methods. For more formal methods, facilitators trained in those methods may be needed.

One way of considering engagement methods is in the following three categories (quotations from Durham *et al.*, 2014, p. 62-63):

- Opening out. These are "techniques for opening up dialogue and gathering information with stakeholders about issues linked to research," especially "during the initial phases of a research project, either during the development of initial research questions prior to writing a funding proposal, or in the early phases of a funded project, where the research goals and programme of work are being adapted to fit the needs and interests of stakeholders better."
- Exploring. These are "techniques that can help evaluate and analyse preliminary findings with stakeholders. Given the length of most research projects, getting early feedback on preliminary findings can help keep stakeholders interested in the process and give them greater ownership over the eventual research outcomes. Feedback can also provide researchers with ideas about how to further refine their work, such as where assumptions are not clear or are questioned by stakeholders."
- Deciding. These are techniques to engage "stakeholders in decisions based on research findings, for example prioritizing particularly interesting or relevant findings for further research or action.

Opening out techniques

Five opening out techniques are described (quotations from Durham *et al.*, 2014, p. 63):

- Brainstorming to rapidly identify ideas, without the usual filters. The most interesting new and creative ideas can be further developed later.

- Metaplans to identify key issues. Participants are given between 2 and 5 note papers and asked to write one idea per piece of paper. Participants then place their note papers on a wall "grouping identical, similar or linked ideas together. The facilitator then summarises each group, checks the participants are happy with the grouping (making changes where necessary) and finally circles and names each of the groups. Within ten minutes, it is usually possible for everyone to express their views and this provides a summary of the key issues that can be used to structure subsequent group activities."
- Venn diagrams as an alternative to metaplans for identifying "key issues and overlaps or connections between the issues."
- Lists to capture ideas or information. There are multiple ways of developing lists such as remotely via online discussion boards or by creating 'stations' around a room where participants embellish themes arising from brainstorming, metaplans or Venn diagrams.
- Carousels to share and build on ideas. This technique can also be used to build on themes arising from brainstorming, metaplans or Venn diagrams. Participants are assigned to groups with one group per station in the room and each group is given a different coloured pen. "When a group reaches a new station, they are given time to read the contributions of the previous group(s). They can then query or build upon previous contributions, listing their own ideas beneath the ideas expressed by previous groups. As the activity continues, it becomes increasingly difficult for groups to add new points, so the time per station can be decreased."

Exploring techniques

Five exploring techniques are described (quotations from Durham *et al.*, 2014, p. 63-64):

- Categorisation "to sort or group ideas into themes" based on pre-set criteria or similarity. An example is the grouping stage of a metaplan, described above, or simply sorting notes into piles.
- Timelines to "structure discussion in relation to historical, planned or hoped for future events," especially for problems with a strong temporal dimension. An example is drawing a horizontal line on paper "marking specific years and/ or historic or known future events, to help participants orientate themselves along the timeline. Participants may then write comments at various points in the past or future.

Plus three more formal methods that are not described fully.

- Mind-mapping to capture and link ideas. These are also known as "concept mapping, spray diagrams, and spider diagrams."
- Problem tree analysis "to visualize links between root causes and solutions to a problem."
- SWOT analysis to systematically consider "the strengths, weaknesses, opportunities and threats as they relate to the issues being researched."

Deciding techniques

Four deciding techniques are described:

- Voting.
- Ranking.
- Prioritisation to allow the strength of feeling towards particular options to be expressed (which is not possible in ranking). Participants are given a fixed number of stickers or some other form of 'counter' to assign to different options.

- Multicriteria evaluation also known as Multi-Criteria Analysis or Multi-Criteria Decision Modelling is a formal method that "allows economic, social and environmental criteria, including competing priorities, to be systematically evaluated." (Durham *et al.*, 2014, p. 64)

Other engagement methods

Engagement techniques can also be considered in terms of promoting direct or pro-active interactions, involving stakeholders in the research process, increasing awareness of the project and its results, and generating products useful for stakeholders.

Techniques to promote direct or pro-active interactions between researchers and stakeholders include:

- One-on-one meetings and interviews
- Questionnaires and surveys
- "Knowledge exchange groups" (Durham *et al.*, 2014, p. 65) such as steering groups, advisory panels and multi-stakeholder forums
- Informal contact
- Workshops, focus groups and other types of meeting, including social events, stakeholder-led workshops or conferences
- Talks or lectures
- Practical demonstrations, including field or laboratory visits and participatory events, such as training or games.

Techniques to involve stakeholders in the research process include*:*

- Citizen science
- Participatory mapping
- Participatory photography or photo surveying.

Techniques to increase awareness of the project and its results include:

- "Websites (including blogs, online consultations, online games).
- Social media (including online discussion groups and forums).
- Posters (including brochures, leaflets or fact-sheets). Videos. Newsletters and bulletins.
- Press releases (including Frequently Asked Questions)." (Durham *et al.*, 2014, p. 65)

Techniques to generate products useful for stakeholders include:

- "Guidelines for stakeholders.
- Databases.
- Popular publications.
- Stakeholder-specific publications (eg., policy briefs).
- Use of professional storytellers and musicians to make research findings more accessible to all audiences and enable all stakeholders to understand issues engage in discussions." (Durham *et al.*, 2014, p. 65).

- **Reference**:
  - Durham E., Baker H., Smith M., Moore E. and Morgan V. (2014). *BiodivERsA Stakeholder Engagement Handbook*. ERA-NET BiodivERsA: Paris, France.
  - Webpage with detail on the resource: http://www.biodiversa.org/702
  - Low resolution PDF of the BiodivERsA Stakeholder Engagement Handbook: http://www.biodiversa.org/706/download (2.7MB PDF)

Location of this resource on the i2S website:
https://i2s.anu.edu.au/resources/stakeholder-engagement-methods

Stakeholder engagement: When in the research

Purpose: To provide guidance on the contributions that stakeholders can make before, during and after the research.

Description: Stakeholders have different contributions to make before, during and after the research. Most stakeholders will be involved at particular times for particular tasks, rather than throughout the whole research process.

It can be helpful to specifically consider when stakeholders can most appropriately contribute and how. A table taken from Durham *et al*. (2014, p. 56) provides useful guidance - see 'Image 1' in the appendix to this newsletter; or see https://i2s.anu.edu.au/resources/stakeholder-engagement-when. The roles identified in the table should be seen as indicative only, as different projects will have different requirements. In addition, some roles will be undertaken by several stakeholders and some stakeholders will have multiple roles during the research.

For any research project this can be developed into a matrix, with identified tasks and stakeholders, as in the example presented in Durham *et al*. (2014, p. 74) - see 'Image 2' in the appendix to this newsletter; or see https://i2s.anu.edu.au/resources/stakeholder-engagement-when.

Durham *et al*. (2014, p.75) provide the following list of questions to help consider the practicalities of proceeding with the tasks identified in such a matrix:

- Are the timeframes for each activity realistic, including preparation and reviewing and analysis?
- Who will be responsible for the engagement – are different people to be responsible for different parts of it?
- How much staff time will be required? Is this time available? What will it cost?
- What are the costs of using external expertise (if desired/required)? What are the administrative costs, including hiring venues, making phone calls, provision of documents, *etc*.?
- Are stakeholders to be reimbursed for their time? Are their expenses to be covered? Are there other costs associated with communication and publishing information, including recording and providing feedback to stakeholders?

- How might the local culture or customs affect or restrict the engagement process? What contingencies need to be included in case engagement needs to change during the process, and what might different options mean to overall time-scales and costs?

A final consideration is that timing in response to external events can be critical, both in influencing the extent to which research is seen as relevant to different stakeholders and in affecting how research findings are used in decision making processes. Opportunities to be influential often arise at times that are unexpected, such as feeding into election manifestos and helping addresses crises. Although it may be difficult, the research process should try to be responsive to unexpected opportunities.

- **Reference**:
  - Durham E., Baker H., Smith M., Moore E. and Morgan V. (2014). *BiodivERsA Stakeholder Engagement Handbook*. ERA-NET BiodivERsA: Paris, France.
  - Webpage with detail on the resource: http://www.biodiversa.org/702
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Location of this resource on the i2S website:
https://i2s.anu.edu.au/resources/stakeholder-engagement-when

Design methods: Design Exchange repository (updated tool)

Purpose: theDesignExchange website is an open-source archive which provides information about design methods, along with how to use them, as well as case studies illustrating their use.

Description: 99 methods are described on the website in the following categories:

- *Research*, including focus group, card sorting, POSTA (Person, Objects, Situations, Time and Activity framework) and participant observation
- *Analyze*, including SWOT analysis, mind map, stakeholder maps, concept map, context mapping, why-how laddering and reframing
- *Ideate*, including dot voting, various forms of brainstorming and brainwriting, forced analogy and participatory co-design workshop
- *Build*, including design roadmapping, tomorrow's headlines, role playing, and various kinds of prototyping
- *Communicate*, including storyboarding, personas and 7 P's framework (for planning a meeting).

Each method is categorised on a number of variables. For example, for 'analyze' these are: inputs, outputs, reflection time, time perspective, purpose and audience. Each variable is further subcategorised. For example, for 'outputs', there are 11 subcategories, including charts, themes, ratings, matrices and timelines/trends. These categories and subcategories can be used to search for methods tailored to specific requirements.

theDesignExchange is joint project led by the University of California, Berkeley and MIT (Massachusetts Institute of Technology) "working with the international community of design academics and practitioners."

- **Website**: https://www.thedesignexchange.org/

Location of this resource on the i2S website:
https://i2s.anu.edu.au/resources/design-methods-design-exchange-repository

Systems and cybernetics encyclopedia (updated tool)

Purpose: To provide a comprehensive overview of the systems and cybernetics fields, by defining concepts and bringing together key, but currently scattered, references about them.

Description: The International Encyclopedia of Systems and Cybernetics is both a hard copy book (the second edition was published by De Gruyter Saur in 2004) and a searchable online database. There are more than 3,800 entries. Topics include abstraction, complexity, decision hierarchy, emergence, feedback, gap analysis, hierarchy, interdependence, non-linear dynamics, path dependence, root definition, stakeholder analysis, and worldview. Each concept is explained using key references and entries are linked to each other.

In the second edition each entry is categorised using one or more of:
- General information
- Methodology or model
- Epistemology, ontology and semantics
- Human sciences
- Discipline oriented

The online encyclopedia is in its third edition. It was compiled by the late Charles Francois. In 2018 the Bertalanffy Center for the Study of Systems Science took over its administration. It is currently not available online, but the second edition is available on a staging server at http://systemspedia.bcsss.org.

- **Website**: http://systemspedia.org/ (currently unavailable – see above)

Location of this resource on the i2S website:
https://i2s.anu.edu.au/resources/systems-and-cybernetics-encyclopedia

Additional tools can be found at: http://i2s.anu.edu.au/resources/tools

LATEST i2INSIGHTS BLOG POSTS

The i2Insights blog (http://i2insights.org) has recently published the following posts:

How can co-labouring improve transdisciplinary research?
By Robert Pijpers and Sabine Luning
https://i2insights.org/2020/08/04/co-labouring-in-transdisciplinarity/

Considering uncertainty, awareness and ambiguity as a three-dimensional space
By Fabio Boschetti
https://i2insights.org/2020/07/28/uncertainty-awareness-ambiguity/

Evolution of hot topics in team science / 团队科学中热点主题的演变
By Ying Huang, Ruinan Li, Yashan Li and Lin Zhang
https://i2insights.org/2020/07/21/hot-topics-in-team-science/

Acknowledging and responding to criticisms of interdisciplinarity / Reconnaître et répondre aux critiques de l'interdisciplinarité
By Romain Sauzet
https://i2insights.org/2020/07/14/criticisms-of-interdisciplinarity/

Researcher activism: A voice of experience
By Dorothy Broom
https://i2insights.org/2020/07/07/researcher-activism-tips/

HIBAR research: What is it and how can it be reinvigorated?
By Lorne Whitehead, Scott Slovic and Janet Nelson
https://i2insights.org/2020/06/30/hibar-research/

A heuristic framework for reflecting on joint problem framing
By BinBin Pearce and Olivier Ejderyan
https://i2insights.org/2020/06/23/framework-for-problem-framing/

Outbreaks, break-outs and break-times: Creating caring online workshops
By The Care Operative
https://i2insights.org/2020/06/16/caring-online-workshops/

FEATURED JOURNAL AND JOURNAL NEWS

International Journal of Conflict Management

The *International Journal of Conflict Management* (IJCM) "provides scholars and practitioners with insightful analyses and new methods for the successful management of conflicts between people, organizations, and cultures." It publishes research on negotiation and conflict management relevant to various areas including "communication and conflict, conflict at work, conflict management, conflict and technology, cultural influences on conflict management, dispute resolution, [and] fairness and organizational justice…".

Journal impact factor (2018): N/A

- **Website**:
  - https://www.emerald.com/insight/publication/issn/1044-4068

Location of this resource on the i2S website:
https://i2s.anu.edu.au/resources/international-journal-of-conflict-management

Additional journals can be found at: http://i2s.anu.edu.au/resources/journals

Journal impact factors updated on i2S website

Using the 2019 InCites Journal Citation Reports, we have updated the journal impact factor for each journal listed on the i2S website (https://i2s.anu.edu.au/resources/journals/).

Palgrave Communications* name change to *Humanities and Social Sciences Communications

In June 2020, *Palgrave Communications* began operating under a new name, *Humanities and Social Sciences Communications*: https://i2s.anu.edu.au/resources/humanities-and-social-science-communications.

FEATURED PROFESSIONAL ASSOCIATION

Resilience Engineering Association (REA)

The *Resilience Engineering Association* (REA) is "a home for scientists and practitioners … concerned with understanding the many facets, views and understandings of the term 'resilience'."

The Association has evolved over time to support resilience engineering in its fullest sense, as "a trans-disciplinary perspective that focuses on developing theories and practices that are necessary to enable complex-socio technical systems and organizations to continue operations or to deliver essential services when dealing with expected and unexpected situations (prior, during and after). It addresses complexity, non-linearity, inter-dependencies, emergence, formal and informal social structures, threats and opportunities."

REA runs biennial symposia on resilience engineering, produces podcasts, webinars, newsletters and a blog, and provides a range of informative resources on the topic of resilience engineering.

The society was founded in 2011.

- **Website**:
  - https://www.resilience-engineering-association.org/

Location of this resource on the i2S website: https://i2s.anu.edu.au/resources/resilience-engineering-association

Additional professional associations and networks can be found at: http://i2s.anu.edu.au/resources/associations_networks

FEATURED CONFERENCE

4th Annual Systems Modelling Conference 2020

"The Capability Systems Centre runs a one-day conference on the use of a whole-systems approach to design and manage complex problems in socio-technical and socio-ecological systems. The daylong virtual conference ... will feature showcases on the use of systems thinking and systems modelling in a wide range of areas."

"The event provides a platform for researchers and practitioners to communicate about scientific and practical aspects of real-world problems, receive feedback, and share learning lessons. It also provides a unique networking opportunity among people from academia, industry and government for initiating future collaborations."

Due to the global COVID-19 outbreak, the conference will be virtual and free.

The conference will be held in Canberra, Australia, on 27 October 2020.

- **For further details see**:
  - https://www.unsw.adfa.edu.au/conferences/SMC-2020

Additional conference information can be found at: http://i2s.anu.edu.au/resources/conferences

APPENDIX

Images from 'Stakeholder engagement: When in the research'

Image 1 from Durham et al. (2014, p. 56)

Project stage	Stakeholder role or contribution
Before	✶ Help to define the project concept and project design/research strategy, including identifying useful potential outcomes and common interests ✶ Identify other potential stakeholders and possible roles ✶ Help define the best governance approach for stakeholder engagement ✶ Identify possible scope of their own contributions, including motivation, and associated limitations ✶ Highlight possible risks and potential for conflicts to arise ✶ Advise on knowledge exchange requirements
Before and during	✶ Establish agreements on access to study sites ✶ Provision of resources – for example, equipment, funding, staff time ✶ Defining project plans, including stakeholder engagement planning ✶ Co-design and development of conflict resolution approaches, if relevant ✶ Networking and awareness raising with non-contributory stakeholders
During	✶ Assist with training of other stakeholder to enhance delivery or participation ✶ Data provision, including capturing new data (monitoring) ✶ Prediction and modelling – informing development of scenarios and models, or participation in data analysis ✶ Review project success, including stakeholder engagement approach ✶ Assist in defining and developing tools ✶ Conflict resolution, if relevant
During/ after	✶ Define, develop and help deliver knowledge exchange activities and publications ✶ Implementation of results – testing outputs of the research (e.g. tools, new methodologies, strategies) ✶ Advise on data exchange requirements
After	✶ Publicity, promotion, via channels such as websites, academic materials, research reports, newsletters, books, guidelines, social media and the general media (newspapers, radio and television) ✶ Review project success, including stakeholder engagement approach ✶ Identify future information, tools and research needs ✶ Develop stakeholder-led monitoring and networking beyond life of funded project

Image 2 from Durham et al. (2014, p. 74)

Project Timescale ↑	Roles of Stakeholders/ Areas of and Level of Influence/ How Stakeholders are Engaged ↑	Stakeholders →	Government policy makers or advisers	National/international policy makers/groups (e.g. European institutions, environment agencies)	Non-governmental organisations	Business / Private Sector	General public	Local community	Users (e.g. practitioners, data users)	Students	Interpreters (science communicators, mediators, facilitators)	Media	Landowners	Other
Before	Research strategy/ Research questions/ Project Design													
Before/ During	Networking													
	Advice/ Recommendations/ Project Revision													
During	Prediction/ Modelling													
	Monitoring													
	Resource Provision by Stakeholder (equipment, data, money, contacts) –													
During/After	Training													
	Implementation of Project Finding													
	Data user/Recipient / Beneficiary													
After	Feedback													
	Communication and Dissemination of Results to Stakeholders													
	Identifying Future Research Questions													

ABOUT i2S NEWS

The aim of this newsletter is to provide regular (bi-monthly) updates about new resources added to the Integration and Implementation Sciences website (http://i2s.anu.edu.au/resources). These resources are useful for researchers interested in Integration and Implementation Sciences (i2S), which underpins the investigation and tackling of complex real world problems, by:

- Synthesizing knowledge from different disciplines and stakeholders,
- Understanding and managing diverse unknowns, and
- Providing integrated research support for policy and practice change.

In general, each issue features tools (concepts and methods), case studies and/or approaches relevant to i2S - either a useful compilation or one or more examples of note. We also provide information about

journals, professional associations & networks and conferences where researchers can learn from others, report their findings and interact with like-minded peers. The newsletter also reports on discussions in the LinkedIn group "Global Network for Research Integration and Implementation": https://www.linkedin.com/groups/4888295/ (when these occur) and new entries on the Integration and Implementation Insights blog: http://i2Insights.org.

i2S News is archived at: http://i2s.anu.edu.au/what-i2s/i2s-publications/i2s-news.

Useful links:

- i2S website: http://i2s.anu.edu.au
- i2S on YouTube: https://www.youtube.com/user/i2sTalks
- LinkedIn group "Global Network for Research Integration and Implementation": https://www.linkedin.com/groups/4888295/
- i2Insights blog: http://i2Insights.org

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