Careful Argument Can Improve Impact Assessment Processes[1]

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Abstract

Impact Assessment (IA) processes and documents have been criticized for being overly long, complex, unclear and expensive. Recently, additional challenges have been raised about such processes delaying renewable energy projects. Various efforts for 'streamlining' have been offered. Tools of argument have been developed over many years and in many disciplines. They are not a method of 'what' to do to improve IA processes, but they are tools for 'how' to make any chosen approach work better. Argument's many available tools, which can be used alone or together, offer steps to improve clarity, focus, brevity and communication. Thus, carefully using many tools of argument can improve the quality and reduce the size of both IA processes and related documents.

Introduction

There have long been complaints about the time and complexity involved in IA processes, from field work, to public participation, to review, to report writing and ultimately to policy-making. Efforts to shorten such processes have been made over the years, but special concern has been raised recently about delays for renewable energy projects. This presentation makes the case that adding well-tested but not well-known tools of argument, even without changes in rules or methods, can clarify and improve assessment and policy-making processes.

The text below first introduces key features of argument, then offers some examples of applications. It is important to note that the tools of argument address 'how' projects can be organized and communicated effectively. They are not about 'what' should be done. Thus, in the context of 'streamlining,' tools of argument can apply to almost any suggested procedure, to make it better. But even established practices can be improved with the tools of argument. Hence the title's message: Careful argument can improve Impact Assessment processes.

What is argument?

An argument is a set of reasons assembled to support a conclusion. Another meaning is equivalent to quarrel, implying hostility or confrontation. The first meaning is used here.

An argument is made to address some uncertain or unsettled matter. The IA process is about unsettled matters: What are the natural features or existing social circumstances? What will a project or policy do? The research and interpretations offered in response are arguments.

There are three kinds of argument, and each is found in the assessment process. They are named by the result of the final conclusion. There are different steps required to build each kind.

Fact arguments end with a conclusion about a factual matter. In assessments, baseline studies and effects determinations are fact arguments.

Evaluation arguments offer as a conclusion a claim about merit, value, or importance. Significance determinations are evaluation arguments.

Recommendation arguments provide conclusions that some form of action should be taken. Scoping, mitigation and monitoring sections contain recommendation arguments.

Assessments, like other complex documents, build extended arguments from smaller ones in a step-by-step sequential process. For example, conclusions of a study identifying birds in a project's area can be input to a further argument about what the project's effects will be on those birds. A subsequent argument could identify whether the impact is significant or not. From there further arguments about mitigation or monitoring might follow.

Assembling tools of argument as "Organized Reasoning™"

Many practitioners may not realize that arguments are actually pervasive in assessments. How can we provide them access to tools to build stronger arguments? Ideas about argument have been discussed at least since the time of the ancient Greeks, where they were documented by Aristotle. Philosophers have adjusted those initial principles, some of which still apply, and added new perspectives, to build the contemporary field of Informal Logic. In the last half century cognitive psychologists have figured out many features of how people reason and reach decisions and how to help them do so. There are sound ideas from the fields of law, formal debate and composition about how to bring clear argument to an audience. However, the philosophers rarely follow psychology, the psychologists and composition experts rarely explore philosophy, nor know much about debate or law. As a result, there are good ideas about argument in many fields, but they are not all known to each other and are not all available in one place.

Therefore, I created a simplified compendium of ideas about argument from different sources, suitable for professional practice of research or analysis, which is called *Organized Reasoning™*. The ideas are assembled into two toolboxes. One is called *Strong Argument* and contains ideas and procedures to build arguments. The second, called *Effective Presentation*, addresses ideas and procedures to refine arguments and present them in writing. Although there are many different tools, they can be summarized as various different kinds. From the more abstract to the more concrete, they include:

> Concepts
> Guidelines
> Procedures
> Strategies
> Tactics
> Diagrams
> Tables
> Checklists

Most of them can be called procedures—steps to build or communicate arguments—and of those some are broader strategies and others are more specific tactics. Each of those tools can be used individually to assist different tasks of thinking or communications. However, they can also be combined in a more or less sequential process for larger projects, diagrammed in Figure 1.

ORGANIZED REASONING™

A Process to Create & Share Complex Technical Arguments

Build Initial Argument Structure   **Revise Arguments & Build Effective Presentation**

Create project overview

Identify key terms

Gather initial information

Identify goals

Create Argument Outline

Build headings and clarify problems

Revise and shorten text

Continue research & start writing
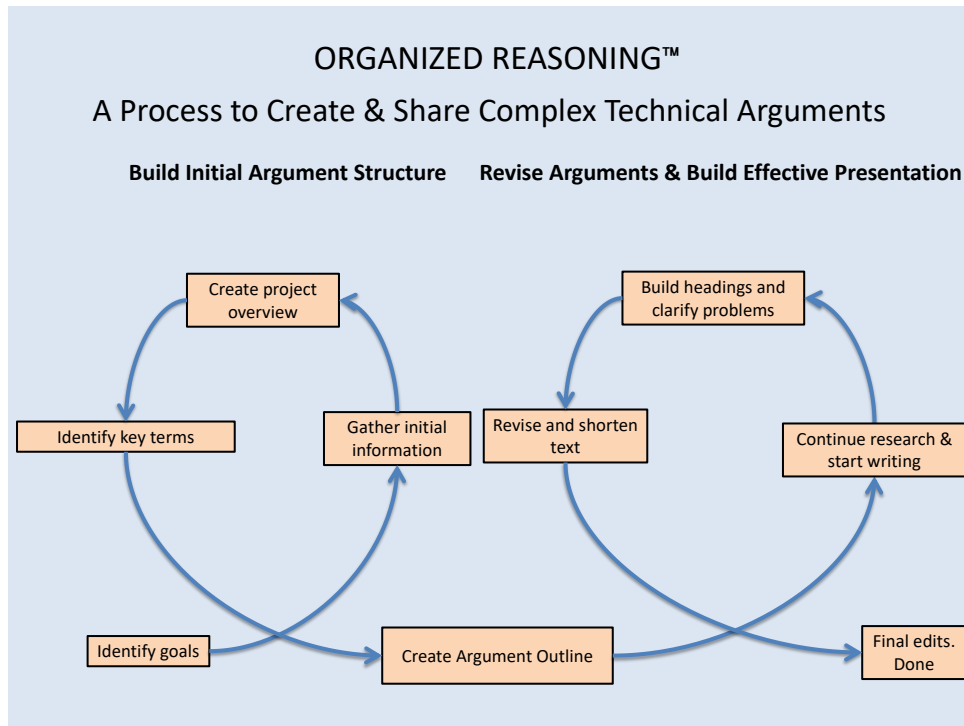
Final edits. Done

Figure 1. A simplified diagram showing main steps of the process of Organized Reasoning™ as applied in a research project or IA. The initial process of identifying the argument is on the left and the communication process of refining and writing the argument is on the right.

The details of how to accomplish those things are not the focus here. The results that follow are from people who have acquired the tools and skills from courses or workshops about *Organized Reasoning™.*

Using tools of argument to benefit assessment practice

Tools of argument can be used to generate clarity and focus in various forms of planning and preparation as well as the composition of technical documents. People often start using their new skills with single tools and simpler efforts, and only later assemble them into a process for a whole project. People have reported successfully benefiting in different ways, including:

> Composing succinct emails
> Sharing understanding across teams
> Planning document content
> Writing clearer documents small and large
> Organizing counterargument and rebuttal
> Building more effective information requests

It is important to note that preparing strong, focused arguments and sharing them clearly also results in shorter documents. Focused arguments not only get their point across, but they permit practitioners to identify material which is 'true but not relevant' to the argument at hand. Much factually correct material, which might address the general topic of a required template title, is actually not relevant to the narrower and more focused reasoning and conclusions about that topic that result from careful argument. Such off-argument material makes documents

unnecessarily large and unwieldy. It can be left out (or shortened with clearer focus) when it is realized that it is not relevant to the arguments offered. That improved focus also contributes to more effective and expedient processes.

Example of one tool which can be used for both composition and analysis: Using hierarchy

One tool of argument is identifying and naming a hierarchy of roles that information can play in an argument. Distinguishing those features helps organize data into an argument and thus aids composition. The same lens can also help analyze the work of others. Examples of each follow.

Hierarchy of information organized to prepare a potential argument.

The table below explains the four categories of the hierarchy of roles that information can play in an argument. Below it is a real example of using those roles for building an argument.

Role	Example
Conclusion (Derived from reasons)	Soil fertility is declining.
Reason (Summary claim from evidence)	Regional samples show a decline in soil nitrogen over ten years.
Evidence (Numerous data)	Annual samples of soil nitrogen from 17 farms over ten years show nitrogen levels declining.
Support (Merit of evidence)	Samples were taken from the same locations by qualified technicians and analyzed by a specialist soil lab.

Example from JBS&G Consultants' team planning a chapter in an IA report about construction during an energy project

To plan their efforts the consulting team reviewed data from specialist sub-consultants. They separated the information into hierarchical categories in a team meeting, as shown in the table below. The table provided the logical outline for the chapter that was subsequently written.

Impact event	Impact event conclusion	Reasons	Source of evidence
Excavation of soil during construction resulting in erosion of soils outside the construction area	Soil erosion is not expected to occur outside the construction area	Small construction footprint Topography is generally undulating to flat Soils have low inherent erosion risk Proposed erosion control measures are well established for a range of construction activities and are considered standard practice.	Project description Topographical mapping Land systems mapping Soil sampling and testing Examples of use on other sites

Table summarizing planned approach to chapter writing

Hierarchy perspective used by a review team to interpret an IA submission

The South Australia Department for Energy and Mining had difficulty figuring out what the proponent's assessment report actually said about groundwater, one of the key issues for a potential gold mine. In response, the agency's team, with external experts, held a special review meeting at which they interpreted the report's content as shown in the photo below. The labels were: C-conclusion, R-reason, E-evidence, S-support and G-perceived gap in logic that they had to assume. The gaps formed the basis of requests for further information. Note that the final conclusion, no adverse impact to groundwater quantity, was well supported, once the review team had extracted and organized the information from the report. If the authors of the gold mine report had done advance planning like the JBS&G team did, using argument hierarchy, their report might have been clear enough understand without special analysis.
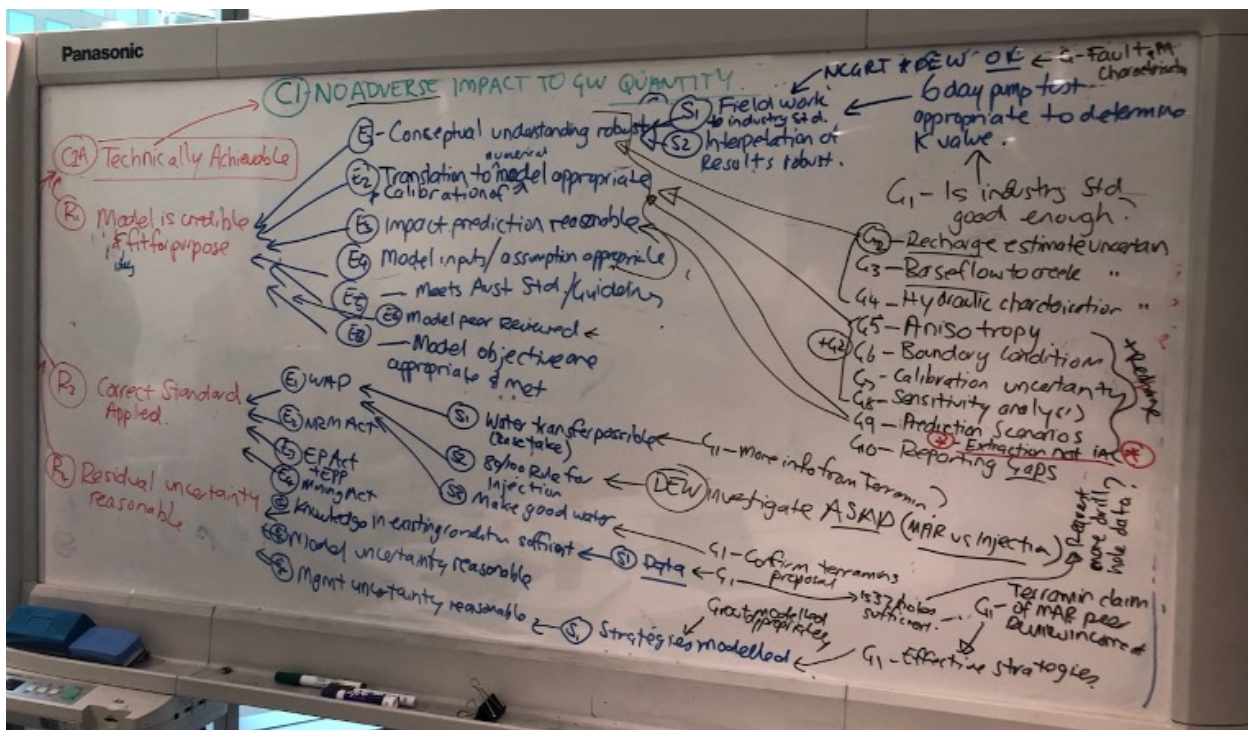
Whiteboard summarizing the analysis of groundwater information from a gold mine assessment

Tools of argument used together as an integrated process on a large project

The material above considered tools used one at a time. The many ways that the tools of argument can be combined within a process in a large project are too detailed to describe in writing here, although that is their most effective use. Two such projects are discussed on videos which can be found on the website: www.glennbrown.ca. Under 'Information Access,' IAIA Conference Materials' there are two videos. From the 2022 conference, Lachlan Wilkinson describes both the *Organized Reasoning™* training program as well as his company's experience with a large project. In the 2017 conference materials Alan Ehrlich describes his review agency's use of the tools in preparing an assessment of a diamond mine project.

A screen shot of conclusions from Ehrlich's video.

Conclusion

Clearer argument will not, by itself, solve all problems with slow and complex processes and unclear documents. However, the package of argumentation tools called *Organized Reasoning ™* has as its main strength that the individual tools and practices are drawn from established practices, implemented and tested over decades to millennia. They are known to work. But they are not well known to technical professionals. Bringing these ideas into practice can make any process that assembles facts and generates conclusions more focused, more transparent, more efficient and more effective. Careful argument could improve assessment processes and documents. It would also contribute to efforts at streamlining.

Note. During the discussion at the conference after this paper was delivered, two interesting points were raised. Condensed, they were:

Question: There are people who do not trust the current IA processes. Will shorter IAs not make that situation worse?
Response: Not necessarily. Long documents which are not well written or understood, even if correct like the gold mine example, are not inherently supportive of trust. A clear step by step argument, where the reader can see and follow all the steps, supports understanding of and trust in the process even if the reader might not fully agree with the conclusions. Clear argument is not enough for trust though. Other steps, which are often recommended, like early engagement and careful public participation, are also needed and they are all complimentary.

Question. Indigenous issues are often short-changed as it is. How can argument deal with that situation?
Response. The tools of argument help make thinking clearer and understandable on the page. If a topic is not well addressed in the first place, clear argument will not make the situation better. But, if they are taken, efforts to address a topic more carefully and fairly can be improved with clear argument.

Resources / Referencs

These accessibly-published materials contain further information about argument and Organized Reasoning, and identify background references about original sources of central ideas. Additional papers and PowerPoint presentations, described on the website www.glennbrown.ca, are available upon request. The videos mentioned are also available there.

Brown, G. (in press). Writing Impact Assessments with the Goal of Building Strong Arguments. In Fischer, T., Bice, S., Jha-Thakur, U., Montaño, M., Noble, B. & Retief, F. (Eds.) *Impact Assessment Encyclopaedia*. Edward Elgar Publishers, Cheltenham, UK.

Brown, G. (2021). Developing capacity for argument in support of IA goals and decisions. In Proceedings of the International Association for Impact Assessment Conference *IAIA21: Smartening Impact Assessment in Challenging Times, virtual conference.* *https://conferences.iaia.org/2021/edited-papers/1346_BROWN_Developing%20Capacity%20for%20Argument.pdf*

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