

# The Sustainability Analysis Framework: An Effective Knowledge Communication Tool in a Whole of Government Context

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## ABSTRACT

This paper focuses on the structural formation of the Sustainability Analysis Framework (SAF), which has proved to be an effective knowledge communication tool in the largest state administration in Australia, the Government of New South Wales. The SAF, devised by the author, has been implemented across thirty-eight state agencies and demonstrates that a whole of government Sustainability perspective is achievable.

The level of the NSW Government's commitment to this process is evidenced by the fact that it was coordinated at the highest levels of the administration and engaged high-level input from a comprehensive portfolio of its agencies. The SAF's successful deployment across this significant bureaucracy shows that the generally applicable mechanism is effective in data collation, information sharing, knowledge organisation and the communication of Sustainability practice and wisdom.

At the heart of the paper is the author's contention that one of the key problems which jeopardises our common future on Earth is the lack of effective tools to communicate Sustainability thinking and practice. In the course of the project, upon which this paper is based, the author identified the need for a visually and conceptually accessible mechanism to accelerate the uptake of Sustainability practice in a whole of organization context. In designing the SAF, which has successfully bridged this knowledge communication gap, the author employed two of humanity's fundamental learning tools – the diagram and the story.

**Keywords:** Visualisation, Story, One Page, Sustainable Development, Governance.

## 1. THE LESSON OF THE LILYPAD

Foreseeing consequences and strategic thinking are especially critical at times of crisis. It is through consideration and planning that disasters can be averted and successful outcomes achieved. The Lesson of the Lily Pad – a French children's riddle – provides a powerful message to anyone considering the implications of exponential human population growth and resource consumption in the context of ecosystem fragility in Earth's limited biosphere.

The Lesson of the Lily Pad asks you to consider a lily pad which starts growing in a pond. The lily pad will double in size each day. The lily pad will cover the

pond in thirty days, exhausting the pond's capacity to sustain the lily's life. On what day will the lily pad cover half the pond? The answer is: on the second last day. This lesson demonstrates a number of important things, the most notable of which is that the consequences of exponential growth "sneak" up on us and can take us by surprise, often when it is too late. For instance, the lily pad as late as the 26<sup>th</sup> day covered only 1/16<sup>th</sup> of the pond. Even more startling is how small the lily pad is for most of the month, as an example on the twentieth day the pad covered only 1/980<sup>th</sup> of the pond.

The fact that we are now seeing natural systems collapse on such a quickening and escalating scale echoes the riddle's lesson about the danger that exponential growth poses for a sustainable future.

## 2. SUSTAINABILITY THINKING

Sustainability, is generally defined as:

'Development that meets the needs of present generations while not compromising the ability of future generations to also meet their needs.' [1]

Known also as Sustainable Development and Ecologically Sustainable Development, Sustainability is one of the greatest challenges now facing humanity. The world has been on notice of the seriousness of the Sustainability challenges for a number of decades. It has been reported, with growing alarm, that such is the state of ecological decline that we are now in the midst of a species extinction event, the likes of which has not been seen since the decline of the dinosaurs. The disturbing reality of the state of the world is outlined in the landmark Millennium Ecosystem Assessment 2005[2]. This collaborative global project depicts the enormity of human activity's devastating impact on Earth's fragile eco-balance and heralds the anticipated impacts if serious human behavioural change is not implemented across the planet, quickly and systematically. Such is the level of international concern that this decade is the United Nations Decade for Education for Sustainable Development.

The ringing warnings of the ecological implications of continuing with a business as usual approach have been heard since the 1960's. Yet, the global discourse on the imperative to consider this concept began in earnest at the 1972 UN Conference on the Human Environment in Stockholm, during which the then Prime Minister of India, Indira Gandhi stated:

“The inherent conflict is not between conservation and development but between environment and the reckless exploitation of man and the earth in the name of efficiency.”

The first formal global scale determinations regarding definitions of the concept are contained in the 1980 *World Conservation Strategy* by the International Union for the Conservation of Nature and Natural Resources (IUCN), wherein it is stated:

‘For development to be sustainable it must take account of social and ecological factors, as well as economic ones: of the living and non-living resource base; and of the long-term as well as short-term advantages and disadvantages of alternative actions.’

This need to integrate the three aspects of social, environmental and economic considerations in decision-making and responsibility is the essence of Sustainability thinking.

Yet, all too often the world’s decision makers continue to claim that this form of thinking is beyond them and even utopian. In the halls of government, industry, justice and academia it is often claimed that Sustainability thinking is amorphous and ill-defined, that it is more an aspiration than a direction. It is this attitude that needs to change. Such a change requires a paradigmatic shift, with new tools for communication, governance and Sustainability.

This paper outlines the structural formation of such a tool, the novel Sustainability Analysis Framework, which has been implemented across thirty-eight agencies in the largest state government in Australia, the Government of New South Wales (NSW). Moreover, it has demonstrated that a whole of government perspective for evaluating and communicating Sustainability initiatives, issues, practice and models is achievable.

### 3. GOVERNANCE CONTEXT FOR THE SAF

The full gamut of the Australian governance structure in respect of Sustainability is outside this paper’s scope. However, it is important to understand that the Commonwealth of Australia is a Federation of States. Each State Parliament has the constitutional authority to make laws on any subject of relevance to that State, meaning that, to a great extent, the States are, in many areas, stewards of their own destiny.

NSW is Australia’s most populous state, with more than 6.6 million residents. Sydney, Australia’s only global city is the NSW capital. Boasting the largest and most diverse economy in Australia, the NSW economy, alone, is larger than the national economies of Thailand, Malaysia, Singapore, the Philippines and New Zealand. With a Gross State Product of A\$250 billion, NSW is undoubtedly the powerhouse of the Australian economy, which is the fifteenth largest in the world. [3]

The NSW Government has, for the past decade and a half, committed itself, in its rhetoric and in a legislative and policy sense, to the principles of Sustainability. Despite this, NSW, like Australia and the world generally, continues to slide backwards in its quest for Sustainability. [4] Sustainability is an emerging area of administrative endeavour, with little global experience or wisdom to guide its process. It is to this end that the NSW Government commissioned the author to evaluate its extensive and diverse Sustainability practice in the report entitled: *Sustainability: A New South Wales Whole of Government Approach* (Hereinafter ‘The Report’)[5]. The level of the NSW Government’s commitment to this process is evidenced by the fact that it was coordinated at the highest levels of the administration and engaged high-level input from a comprehensive portfolio of its agencies.

### 4. A COMMON LANGUAGE AND FORM

A Sustainability Survey of NSW Government Agencies (Hereinafter ‘The Survey’) was undertaken, requesting selected agencies to submit all legislation, policies, strategies, projects and experience relevant to Sustainability practice and thinking. The agencies’ response was voluminous and unstructured. Thus, the author’s first task was to evaluate the common Sustainability issues facing the disparate arms of government.

From the data submitted to ‘The Survey’ the following ten prevailing issues were identified: Conservation of Biological Diversity, Conservation of Resource, Partnerships & Synergies, Pollution Minimisation, Research and Development, Social Equity & Education, Social Equity as a Regional/Spatial Driver, Sustainability Reporting, Sustainability Trade-offs, and Sustainable Quality of Life.

Once the commonalities were identified, the process of defining these Sustainability issues was undertaken, in order that a common vocabulary was established for the purposes of the undertaking. This process of categorizing and defining the Sustainability Issues common across the Government was an extensive process and is outside the scope of this paper.

Following the categorization and definition phase, a visually accessible and structured mode of communication was devised, in order that the highlighted Sustainability practice was able to be shared across the whole of government. The sharing of this practice was via short stories of specific project experience. These stories were positioned in uniform one page structures, namely the Sustainability Review Matrices and the Sustainability Issues and Practice Tables, the forms of which are detailed below.

See Figure 1 Sustainability Analysis Framework Process.

## 5. SIMPLY ONE PAGE: DIAGRAM & STORY

In its essence, the SAF draws upon two of humanity's fundamental learning tools – the diagram and the story.

The power of story is inestimable. It is a universal mode of human communication. It is through the sharing of stories across millennia that the cultures and technologies of humanity have grown. Civilisations have come and gone but their wisdom has remained in the annals of *history*. Yet, story is as modern as it is ancient. We still receive and give our news in the form of story and we conceptually communicate about the world, both imaginary and real, in story form. Thus, the central importance of deploying story, as a Sustainability knowledge communication tool in the SAF was identified at the outset.

The framing of these Sustainability stories within a visually accessible form was, however, a challenge. The challenge of visualization in complex problem solving is not new, as this observation by physicist Richard Feynman, whilst working on the Manhattan Project in 1945 attests: "The single biggest problem we face is that of visualization." Therefore, the importance of creating a framework which was visually accessible and simple conceptually was deemed an imperative in the SAF design process.

Conceptually, the SAF is based upon communications and cognitive research, which concurs that, visually, readers are most likely to access and engage with single page documents, rather than lengthy reports [6]. Thus, the two mechanisms comprising the SAF, the Sustainability Review Matrix and the Sustainability Issue and Practice Table, are modeled to fit on either A4 or A3 single page formats, depending upon the nature and scope of the agency submissions.

## 6. SUSTAINABILITY ANALYSIS FRAMEWORK

The SAF consists of two related parts, namely the **Sustainability Review Matrix (SRM)**, which is the agency specific assessment tool and the **Sustainability Issues Practice Tables (SIPT)**, which are the whole of government communications tools.

**The Sustainability Review Matrix (SRM)** provides a world first model for integrated analysis of Sustainability initiatives, issues and practice. As a matrix in both the mathematical and literal senses, it treats each Government agency/organization as an entity, comprised of various Sustainability components.

These components are outlined in three sets, namely Initiatives, Issues and Integrated Outcomes and Models.

- **Initiatives** are categorised into the Sustainability considerations of Social, Economic and Environment.
- **Issues** are categorised into the Sustainability issues arising from the full data set analysis.  
  
How the agency addresses a prevailing challenge is then detailed.
- **Integrated Outcomes and Models** highlight innovation and notable practice in how the agency is dealing with a prevailing Sustainability issue. This set of the SRM serves to demonstrate integration of social, economic and environmental considerations as well as when an activity has a net Sustainability benefit.

**The Sustainability Issues and Practice Table (SIPT)** is the whole of government mechanism.

In the full execution of the SAF Methodology, each of the prevailing Sustainability Issues identified from the full data set analysis would be allocated a SIPT.

Drawing from the SRM analysis,

- **Best practice models** and case studies of how agencies deal with the Issue are selected for inclusion in the SIPT; and
- **Selected case studies** are utilized to showcase innovation and integration and agencies' experience of sustainable service delivery.

### Rationale for Practice Model and Case Study Selection:

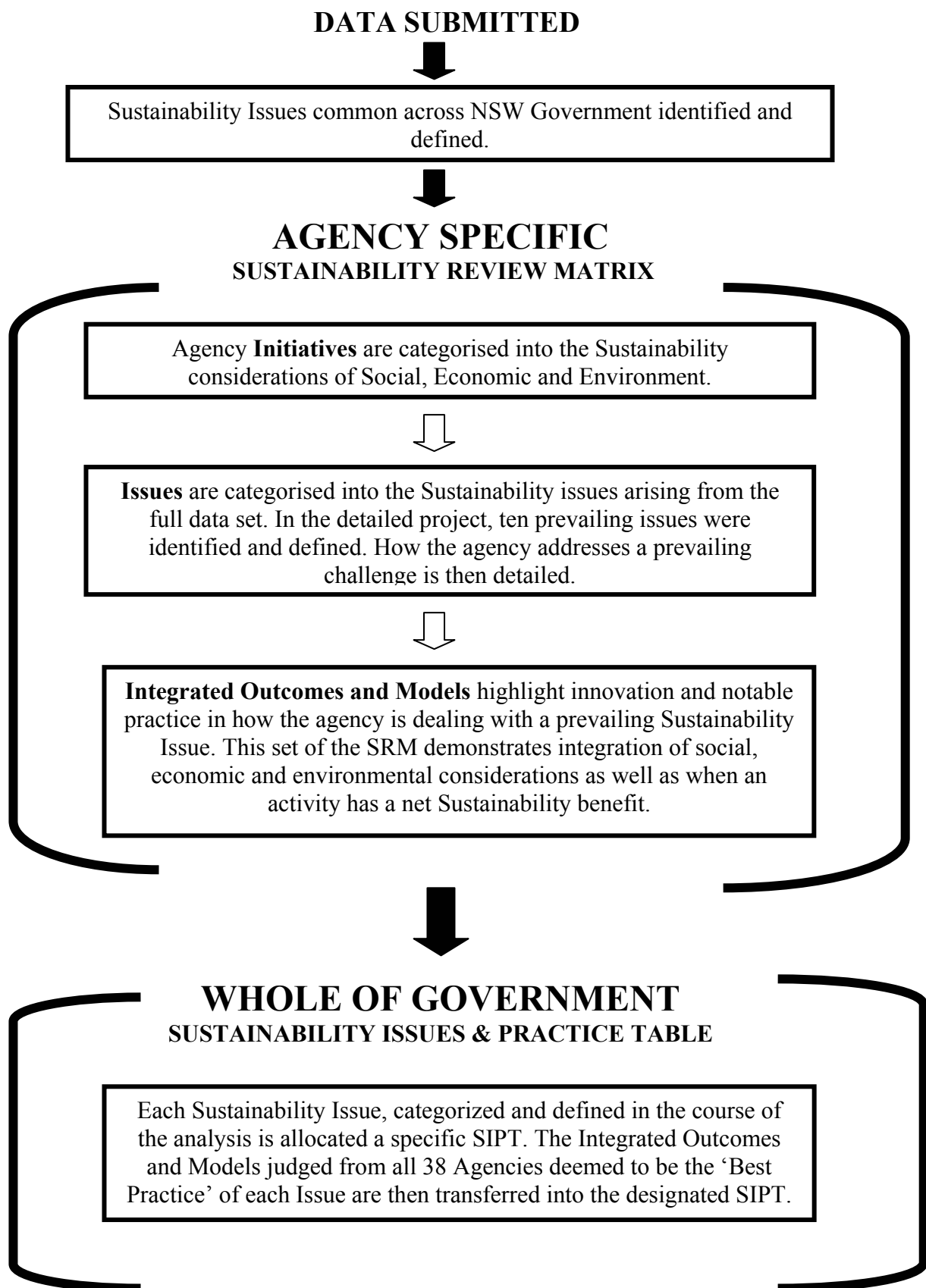
While the NSW Government has underscored its commitment to Sustainability with core directives, it has also allowed for a flexible and evolutionary approach to Sustainability. This has enabled agencies to determine what Sustainability means to them. This has resulted in the development of innovative practice models, which have been selected for inclusion in the SIPT on the basis of the following criteria:

- innovation;
- integration of the core Sustainability principles;
- development of performance indicators;
- processes of reporting and evaluation; and
- general applicability.

Case studies selection was made on the basis of successful implementation, innovation and general applicability of the Sustainability Practice Model.

See Figure 2, The Sustainability Analysis Framework, which shows the flow of data and knowledge through the SRM and SIPT processes.

# SUSTAINABILITY ANALYSIS FRAMEWORK PROCESS



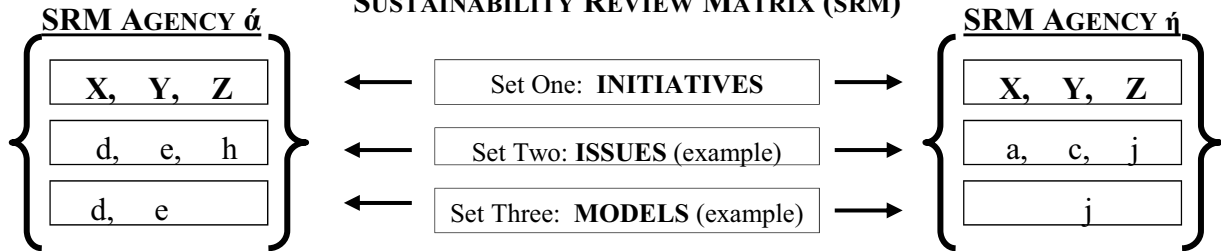
**Figure 1.** Sustainability Analysis Framework Process © K.Hodgman (2006)

# SUSTAINABILITY ANALYSIS FRAMEWORK

## AGENCY SPECIFIC PHASE

Agency Information is analysed and categorised into three sets -Initiatives, Issues & Integrated Practice and Models. Each Agency is designated a

### **SUSTAINABILITY REVIEW MATRIX (SRM)**

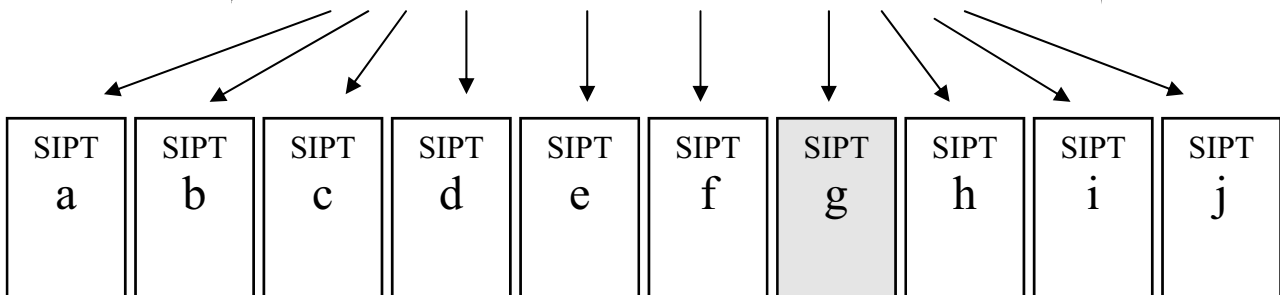


Social = X    Economic = Y    Environment = Z

- Conservation of Biological Diversity – (a)
- Conservation of Resource – (b)
- Minimisation of Pollution (c)
- Partnerships & Synergies – (d)
- Research & Development – (e)
- Social Equity and Education– (f)
- Social Equity as a Regional/Spatial Driver – (g)
- Sustainability Trade-offs – (h)
- Sustainability Reporting – (i)
- Sustainable Quality of Life – (j)

## WHOLE OF GOVERNMENT PHASE

Pool of MODELS for each ISSUE.  
Each Sustainability Issue, categorized and defined in the course of the analysis, is allocated a specific  
**SUSTAINABILITY ISSUE & PRACTICE TABLE (SIPT)**



The Integrated Outcomes and Models judged from all 38 Agencies deemed as “BEST PRACTICE” of each Issue are transferred into a designated SIPT.

### SIPT TITLE FOR EXAMPLE **SOCIAL EQUITY AS A REGIONAL/SPATIAL DRIVER (g)**

AGENCY á	Story of Agency á Best Practice of Sustainability Issue (g)
AGENCY é	Story of Agency é Best Practice of Sustainability Issue (g)
AGENCY í	Story of Agency í Best Practice of Sustainability Issue (g)
AGENCY í	Story of Agency í Best Practice of Sustainability Issue (g)

## CASE STUDY

Story of Agency β Best Practice of Sustainability Issue (g),  
which is deemed to have demonstrated most notable Best Practice.

## 7. FINDINGS

As the focus of this paper is on the SAF's knowledge communication capacity, these findings shall be limited to this regard. The Sustainability Analysis Framework has proved itself flexible enough to be effectively deployed across all the selected thirty-eight agencies of the NSW Government. Hitherto, there had been no established coordinated approach to communicating Sustainability approaches across the Government. The SAF has proved effective in providing and communicating a corporate history of Sustainability initiatives, issues, practice, and models. Moreover, it has provided a Sustainability inventory of what is happening across a considerable sample of the NSW public sector and identifies areas in need of development and support.

The educative capacity of the SAF was evidenced by the fact that all agencies were able to understand and effectively interact with the electronically transmitted SRMs in two phases of the process, firstly in the requests for additional information and secondly in the agency endorsement phase of the SRMs, in which information veracity was peer reviewed. Moreover, the enthusiasm for the project was evident at a number of seminars conducted by the author at federal, state and local government levels. In the context of the NSW Government project, over sixty senior officers from across the Government attended a seminar, hosted by the Director-General of the Premier's Department, Dr. Col Gellatly and championed by the NSW Sustainability Commissioner, Professor Peter Newman. Consequently, a number of agencies were emboldened to submit for analysis comprehensive and completed SRMs; others interacted with the electronically transmitted tools and updated their material; whilst others were enlightened as to the breadth and scope of Sustainability and were able to identify projects which met the definitions. These indicative emails, which were received during either the SRM agency verification phase or following the seminar, also attest to the efficacy of the SAF as a knowledge communication tool:

"I have tracked the changes made for ease of updating... The changes are a result of further developments in this area since our original response to your request." Department of Local Government.

"We can now better understand your intention of the report and have added information as appropriate." Sydney Harbour Foreshore Authority

"A fair and accurate appraisal..." Community Relations Commission for a Multicultural NSW

"I really enjoyed your presentation on the framework... and I think that your report will make a significant contribution to understanding sustainability at a whole of govt. level." Sydney Olympic Park Authority

## 8. CONCLUSION

The Sustainability Analysis Framework acknowledges the enormous value of experience to organisations. It has demonstrated within a sample of only one government that much Sustainability experience has already been gained and that this knowledge is ready and possible to be shared. Furthermore, this knowledge can be simply stored and thereafter utilised for the whole of organisation's benefit and beyond.

The Sustainability Analysis Framework provides guidance by:

- Establishing a novel whole of government mechanism for evaluating and communicating Sustainability initiatives, issues, practice and models;
- Identifying best practice and innovation, along with the wisdom gained from service delivery within Sustainability thinking; and
- Educating public administrators, through their interaction with the simple whole of government mechanisms, of the imperative to integrate social, economic and environmental considerations in decision-making.

The simplicity of its form and method gives the SAF the flexibility to be deployed in various organisational contexts, to assist in the collection, maintenance, re-use, access and sharing of Sustainability knowledge not only in particular instances but to aid in broader problem solving.

The successful deployment of the Sustainability Analysis Framework across the various agencies of such a significant bureaucracy as the Government of NSW shows that this generally applicable mechanism is effective in the collation of data, the sharing of information, the organisation of knowledge and the communication of wisdom in a whole of government context.

## 9. REFERENCES

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