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A STEP towards public engagement in national science and technology policy in Australia

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Abstract

A recent response to the policy challenges of emerging technologies in Australia was a National Enabling Technologies Strategy (NETS), implemented within the federal innovation and industry department (2009 – 2013). A best-practice framework for community engagement, Science and Technology Engagement Pathways (STEP, www.industry.gov.au/step), was developed under NETS. It was co-designed through a multi-stakeholder engagement process that included citizens, and implemented in a series of engagements called STEP into the Future. Both the co-design process and STEP into the Future received Core Values awards from the International Association for Public Participation (IAP2) Australasia branch. Features and challenges of the STEP project included elevating 'ordinary' citizens to the status of stakeholders, opening up discussions about national technology and innovation policy, including and gaining commitment from decision makers in dialogues, and creating ongoing engagement 'pathways' (Russell, 2013). STEP provides an accessible and robust framework for organisations seeking engagement to inform science and technology decisions. Experience implementing this best practice framework raises critical questions about a 'best practice' approach in this context, and has led to a new concept – best-we-can practice, which will be presented.

STEP out of NETS

The National Enabling Technologies Strategy (NETS) was established within the Australian Department of Innovation, Industry, Science and Research (as then was) in 2009. It morphed out of the Australian Office of Nanotechnology (AoN), which had developed following the closure of Biotechnology Australia. Ironically, in this shift to a more generic strategy for emerging technologies, there was a hope (vain, as it turned out) that NETS could persist through successive waves of technological innovation, providing policy advice, coordination and public engagement in an ongoing way. The generic strategy also signalled a slight shift away from unbridled enthusiasm and support for emerging technologies, and encapsulated some of the 'responsible innovation' rhetoric coming out of Europe. Public awareness and engagement was a significant item in the strategy and its budget (Russell, 13).

The Public Awareness and Community Engagement program under NETS (NETS-PACE), led by Dr Craig Cormick, maintained and developed various public awareness and information

activities begun in the previous incarnations, including an information website (<http://technyou.edu.au>) and a teachers' resource. As AoN, it had explored some public engagement initiatives, including a series of public information forums and a Social Inclusion workshop. Partly in response to criticisms (see below) the community engagement capability was further developed when a multistakeholder engagement process was initiated in 2010. This culminated in a multistakeholder forum and the Science and Technology Engagement Pathways (STEP) framework (www.innovation.gov.au/step). The author was employed within the section from 2010 – 2013 and managed the STEP program.

The multistakeholder process involved two phases – a set of stakeholder workshops and the multistakeholder forum. The process adopted deliberative democracy principles and approaches and brought in leading community engagement practitioners to assist in the design and facilitation of workshops. It won the Australasian Project of the Year Core Values award from the International Association for Public Participation (IAP2) in 2011 (see Russell, 13). STEP provides principles, a process and a platform for engaging stakeholders and citizens in deliberative discussions about emerging science and technology.

There were a number of factors leading to the emergence of a framework for deliberative engagement under NETS. Staff members within the program, including the author, were influenced by international developments in public engagement in science and by connections with community engagement and Science and Technology in Society (STS) communities. The Minister at that time, Senator Kim Carr, had made strong rhetorical commitments to community engagement and also to bringing stakeholders including NGOs to the table in discussions of new technologies. NGO groups and academics with commitments to deliberative engagement had been publically critical of the public awareness program's activities. The genetic modification (GM) debate and the narrative of nanotechnology being the next development, both in technology and in public engagement, provided a background to these influences (Russell 2013).

Following the co-design of the STEP framework, an implementation program called STEP into the Future was instigated, to trial, develop and showcase STEP. The program, which ran from 2012 up to the closure of NETS in mid 2013, involved seven engagement projects on a range of topics in a range of locations. Oversight and input to the projects was provided by multistakeholder working groups. Reports were prepared and evaluations conducted for each engagement. The overall program was evaluated by an external consultant in 2013. Information about STEP and STEP into the Future is available through the STEP website: www.innovation.gov.au/step.

STEP was recognised as a new and innovative development. This in itself reflects the lack of a culture of deliberative engagement in this setting. While its novelty was embraced and it was given support under NETS, it was arguably not empowered within that setting. There was no mandate for the uptake of STEP, neither the process nor the results. *STEP into the Future* was very much a demonstration project. It was unusual in having resources but no clients as such. The engagements were set up, as much as possible, as partnerships with various decision-making groups. However, their understanding of the goals of STEP and their commitment to the process were variable. The evaluation of STEP and STEP into the Future, which involved consultation with participants, reported a lack of decision

impact as the major weakness of the program. So, while STEP was developed as a 'best practice' framework, and the program was successful in many regards, it arguably did not achieve 'best practice' nor has it established discernible 'engagement pathways' to date. The reasons for this are instructive.

STEP into the Future

The STEP framework described a process for running engagement projects. This involved NETS staff selecting topics, in consultation with a variety of stakeholders, and putting together multistakeholder working groups to assist in the design of engagements and to provide oversight. These working groups, typically with 6-8 members, were an important part of STEP into the Future and comprised decision makers, information experts, other stakeholders including critical voices, and engagement specialists. They interacted with the project manager through teleconferences and (where possible) meetings and reviewed project documents, particular the project plan, engagement design, and information resources. They also participated in engagement events and assisted with evaluation.

The *STEP into the Future* program involved the following engagement projects:

- Nanotechnology and environment public forum, Perth, Feb 2012
- Synthetic biology scoping workshop, Sydney, Mar 2012
- Nanotechnology and energy diversiforum, Brisbane, Jun 2012
- Science, technology and wellbeing forum, Canberra, Aug 2012
- Nano-bionics & clinical trials discussion, Wollongong, Sep 2012
- Societal implications of enabling technologies diversiforum, Melbourne, Oct 2012
- Nanotechnology and informed choice citizen deliberation, Sydney, Mar 2013

The process and results of the major STEP into the Future engagements are summarised below. The two smaller forums (Nano and Environment forum, Wellbeing forum) are not described in detail.

A synthetic biology scoping workshop was held in conjunction with an information forum about Synthetic Biology held at the Human Genome (HUGO) meeting in Sydney in March 2012. The forum was organised by another program within the department (the then Department of Industry, Innovation, Science, Research and Tertiary Education or DIISRTE) and the scoping workshop involved various experts from the information forum as well as other interested stakeholders, including legal and social researchers, artists and NGOs (30 participants in total). The workshop was facilitated by Prof. Janette Hartz-Karp who also led the design of the workshop. As a scoping workshop, there was no working group assigned to this project¹.

¹ It was hoped that the project would be extended and that a working group could be selected from participants of the scoping workshop. For various reasons, including a lack of clarity about the locus of decision making (see below) it was decided not to proceed with a larger project.

Despite diversity of perspectives within the group, when asked about issues for the ongoing development of synthetic biology, participants' responses converged around a number of key themes. These included:

- synthetic biology research as convergent and open
- synthetic biology as socially responsible and responsive
- life as a raw material

Despite consensus among scientists, policy makers and commentators about the need to avoid synthetic biology becoming 'the next GM', there was little sense of responsibility in moving forward.

A Nanotechnology and Energy dialogue was the next project, a partnership with a nano-engineering sub-committee of Engineers Australia and the UQ Energy Initiative. It involved a panel of nanotechnologists working in the energy field. The engagement specialist on the working group and facilitator was Amanda Newbery. The forum, which was open to the public and included a number of citizens recruited for their relatively low interest in science, involved 80 participants including scientists, engineers, students, social scientists NGOs and citizens. It was held at the Brisbane Powerhouse, which contributed to the energy of the forum.

The dialogue was intended to open up a discussion about nanotechnology innovations in the energy sector by exploring the issue of how 'the energy problem' is defined. The intention was to highlight different problem definitions and to look critically at how innovation responds to particular definitions and their implicit social goals. In process terms, the discussion was very lively, respectful and engaging, and there were some useful insights about technological optimism and its influence on behaviour and action. However, the expert panel adopted an educative role and a distinction between information provision and deliberative engagement was not well maintained, for citizens and for decision makers at the forum. The forum was criticised as unbalanced by NGO groups.

The next STEP event was a discussion on nanomedical devices, focussed on ethical issues for clinical trials, which was a collaboration with the Australian Research Council Centre of Excellence for Electromaterials Sciences (ACES). This discussion, held in Wollongong in September 2012, attracted about 30 participants, including researchers, engineers, social scientists, regulators and policy makers, consumer advocates, recipients and carers. It was open to the public but no attempts were made to recruit 'ordinary' citizens. The facilitator and engagement specialist was Max Hardy.

The discussion had quite a narrow focus, and also involved a rather small and select group of participants, with a notable absence of critics. This meant that bigger picture issues about nanomedicine were left largely undiscussed. However, the narrow framing was associated with a particular area of decision making for which there were unresolved questions and therefore an opportunity for the discussion to feed into current decision making. Decision makers including researchers and policy makers were receptive to the results of the discussion, which provided useful, targeted input. It also built recognition of the value of including more voices in decisions in this area, particularly those of potential recipients of medical devices and their carers.

A new method described in the STEP into the Future program was the diversiforum. Not a prescribed method, this name was given to forums involving representatives from a range of stakeholder groups, normally including citizens. They used a range of dialogue and deliberation methods. Diversiforums had the main aim of bringing together an extensive range of diverse perspectives and stakeholder groups, to broaden thinking about a topic. Often, they sought to shift existing polarity and conflict and open up discussions with fresh perspectives.

A diversiforum was held in Melbourne in October 2012 addressing the topic of Societal Implications of Enabling Technologies. This forum contributed to a Futures Survey initiated by an Expert Forum that had been set up under NETS to conduct foresighting and issues analysis. Members of the Expert Forum and of the other NETS advisory body, the Stakeholder Advisory Council, were on the working group for this project. The activity, which was open to the public, drew about 50 participants from industry, government, NGOs, commentators and community representatives. There was no citizen recruitment. Keith Greaves was the facilitator and engagement specialist. The forum involved a broad-ranging discussion of the societal implications of new technologies, both generally and specific examples, and how they can be taken into account in decision making.

The diversiforum gave rise to respectful, engaged discussion that seemed to broaden thinking and highlight difference in a constructive way. An exercise in mapping the decision making context was very useful in highlighting the complexity of decision making and governance for new technologies and how the territory is mapped differently by different groups. The forum gave rise to new policy agenda items, including the need to invest in better science policy and public engagement capability. The discussion was arguably too broad and diffuse at times, causing frustration for some participants. The broad focus also meant that there was no clear target for recommendations and though some participants and working group members regarded it as a first step in a longer conversation, the closure of NETS and the STEP program meant that there was no obvious next step for this conversation.

The final STEP project was a citizen deliberation on Nanotechnology and Informed Choice, held in Sydney in March 2013. This was the only project to involve a mini-public, a group of 60 randomly selected residents of Sydney. They participated in a preparation evening and a whole day session involving a key informant panel and a modified World Café. The panel and working group included key figures in the Australian debate about nanotechnology labelling. Prof Lyn Carson provided community engagement expertise on the working group, and Lucy Cole-Edelstein was the facilitator and worked with Prof Carson and myself on the design.

The project did not explicitly involved decision makers, except on the working group. It contributed to an ongoing area of policy debate that was potentially sensitive, because of decisions already made by some players and pressure on the issue from different quarters, including NGOs and industry. Because of this context, the intention was to provide input to the debate generally under the rubric of NETS, without focussing on particular decision makers or decisions. A feature of the project was the commitment from stakeholders (key informants and working group) and the high level of engagement of citizens with the topic (many had not heard of nanotechnology prior to the event), which impressed the stakeholders. Note that many of these stakeholders are key figures

contributing in this policy debate. Many of the results and recommendations emerging were predictable, with the citizens calling for labelling, strong regulation and quality information to be provided by government. Others were more surprising, with the number one concern about nanotechnology being environmental impacts, particularly in relation to safe disposal, and a strong demand that informed choice requires information about alternatives and other options.

Features and Challenges

One of the key features of STEP, which distinguishes it from other related approaches, is the mixing of stakeholders and 'ordinary' citizens in deliberations. This approach was taken partly in recognition of the marginalisation of 'purely' public engagement, which generally lacks impact and is not integrated into decision-making (Hendricks et al. 2007). Contributing to this marginalisation is a focus on publics and the challenges associated with engaging them, rather than on decision-making and the challenges associated with its democratisation. However, there are significant challenges associated with this 'partisan' approach to engagement (Hendricks et al., 2007).

Preparing and informing participants is key to their meaningful involvement in these events, but fraught with difficulty, given the uncertain and political nature of information in these debates. As Andy Stirling points out, knowledge has power and calls to provide balanced, factual and scientific information are naïve to this. Our best success in STEP into the Future was the Nano Choice engagement, in which we asked key informants with different perspectives to provide one-page briefs on the topic. They then participated in a panel session and were questioned by the citizen panel. This approach to balance, which involved presenting a range of positions, rather than constructing a 'balanced position', seems most appropriate for engagement. Our experience with the Nanotechnology and Energy forum also highlighted the importance of distinguishing information provision and deliberation. In the Nano Choice engagement, they were kept quite separate.

The challenge in the STEP approach is to elevate citizens to the status of stakeholders. This is no mean feat. Some of the inequality of knowledge and expertise can be overcome by facilitated deliberation and this is helped by framing engagements around social goals rather than around technical possibilities. This can also emphasise the status of stakeholders as citizens. Designing activities that connect the technology issue with lived experiences, priorities and values assist with this. Such activities can also help in opening up discussions about national technology and innovation policy. Often debates focus on technical aspects or high level policy issues, taking underlying social goals and ethical issues for granted. In particular, discussions that focus on risk can derail constructive conversations by narrowing the focus to technical aspects of risk. A risk focus takes for granted the question of benefits, and how the benefits of new technologies are constructed around particular narratives of progress and wellbeing. The Societal Implications forum explicitly challenged this risk focus, as did the Nanotechnology and Energy forum.

Including decision makers in engagements, gaining commitment from them and influencing their decisions were major challenges for the STEP program that were at most partially met. As mentioned in the introduction, though well supported and positioned within government to access decision makers, STEP had no mandate; there was no requirement that it be considered. Stakeholders regarded lack of decision impact as a

major weakness. However, it may be that this weakness is calibrated against expectations rather than the political reality of this kind of process.

As for Technology Assessment, an expectation of direct impact on decisions is not only unrealistic, but misunderstands the role of this type of process in the broader context of policy making (Hennen, 2012). Deliberative engagement of this type, particularly in early stages, probably has its most useful role in informing decisions, included the early framing and scoping of issues. An emphasis on decision impact tends to lead to a focus on the 'pointy end' of decision making, where issues are already tightly framed around a narrow set of questions or considerations that require resolution. Rarely is there an opening for public input and rarely can public input provide useful insights at this stage. A focus on the much earlier stage of issue framing and opinion forming may result in greater, though less measurable, influence on decisions.

The STEP framework recognised the importance of a shift from engagement events to ongoing engagement 'pathways' (Russell, 2013). These pathways are contributed to by:

- new processes and tools being established that are recognised as assisting in particular contexts (such as when ethical issues arise requiring outside input as in the case of nano-bionic clinical trials)
- new agenda items arising from engagements, particularly when they relate to the broader connection of technoscience and society (such as the call for better science policy capability in the Societal Implications forum)
- new relationships forming between different groups with different perspectives and stakes in issues (such as scientists and social scientists comparing perspectives on the emerging field of synthetic biology)
- new channels for input to inform decision making (such as was provided by NETS and STEP)

There was disappointment expressed amongst various stakeholders when NETS ended and was not renewed. Ironic that STEP emerged pretty much at the end of that road. One bright light is the fact that STEP was published under Creative Commons, in line with an open government policy, and is therefore available for use by other organisations (www.industry.gov.au/step or contact the author).

Best-we-can practice

There has been increasing rhetorical enthusiasm for community and stakeholder engagement in Canberra lately, accompanied by calls for best practice. STEP is one of a number of engagement frameworks that have recently been published. Though many of these frameworks focus on stakeholder engagement, the principles and guidelines are similar. They invariably include a range of compelling benefits of good engagement in terms of improving the quality and implementation of decisions. Given these benefits, there is frustration that decision makers at a national level, unlike those in many local contexts, have not embraced these approaches more and that they are not yet embedded in national public policy making. Having shared these frustrations, I now see them as naïve. What this compelling framing ignores is that deliberative democracy is fundamentally radical and emancipatory (Habermas, 1984). In giving voice to the disempowered and demanding that their input influence decisions, its aim is to shift

power relations. Resistance to this is inevitable. There is thus a fundamental tension in scaling up this type of practice in contemporary democracies.

In this context, there is a need to consider strategically how to begin with scaling up (Friedman, 2006). Ironically, this strategic work is sometimes inhibited by high standards of theory and practice, influenced by a vision of how things could be. Attempts to apply best practice under the constraints of a lack of commitment (or implicit fundamental resistance) can backfire. Practitioners may:

- push for more commitment than exists, creating a defensive and potentially adversarial relation between decision makers and the deliberative process
- design best practice processes that fail in their implementation, or
- abandon efforts to engage because of the constraints.

I would like to propose a remedy which I call ‘best-we-can’ practice. This recognises that when a road is long and hard, it is unlikely to be straight. There is a need to keep an eye on the goal, but to focus on route-finding, on finding ways around obstacles, on taking small steps and on sustaining the journey. In particular, there is a need for strategic work around establishing commitment and engagement ‘pathways’. ‘Best we can’ practice is not about lowering standards or about ‘less than best’ or ‘imperfect’ practice². It’s about tailoring engagement efforts to the context, and optimising conditions for engagement in order to maximise the long-term sustainability and impact of deliberative democratic practice. But under these circumstances, how do we know we’re doing the best we can? What does success look like? And how can we avoid instrumental and political co-option of engagement processes? An important part of theorising best-we-can practice is identifying strategic vs erosive applications of principles (see Table 1).

Principle	Strategic	Undermining
Commitment and integrity	Find a question that the decision maker is open to	Choose a bigger question and hope to build commitment
Leadership buy-in	Look for opportunities to create value for decision makers	Over-promise and ignore disruptive potential
Transparency	Be transparent about objectives and design; use appropriate transparency for the deliberative process	Insist on transparency at every stage
Clarity of objectives and scope	Be clear about the promise, even if it means lowering expectations	Over-promise

² Grimes 08 imperfect deliberation

Inclusiveness	Balance inclusiveness with what will work (a good outcome, not a particular outcome!)	Sacrifice a productive process for the sake of inclusiveness
Good process	Practitioner expertise informed by an understanding of the context	Focus on tools and techniques 'event' focus
Participant satisfaction	Satisfaction balanced against discomfort from shifts in thinking	Participants pushed out of comfort zones become alienated or defensive
Information and knowledge	Information balanced, accessible and appropriate	Info balanced but too technical or too much
Information vs Engagement	Clear distinction between information provision and deliberation	Including experts without attention to expert-lay divide
Deliberation	Find opportunities to create deliberative conditions	Seek to create deliberation where it is needed most
Dialogue and open discussion	Find ways to open up discussions, shift thinking	Go too broad and lose relevance
Decision impact	Consider the broader decision making process and find openings	Focus only on 'pointy' end of decision making or too broad to connect with decisions

Table 1 – Application of principles for best-we-can practice

Best-we-can practice is about **incremental** progress, focussing on windows of opportunity and small 'wins'. Aiming for large, high stakes projects is fraught because of the difficulty in getting support for them, and because of the risks of losing precious support if things go wrong. The framing of projects needs to be strategic, in the sense of setting projects up to succeed, **not** by manipulating the outcomes, but by establishing objectives and questions that are most likely to lead to productive discussions and useful input. Modest ambitions are a feature of Best-we-can practice.

Capacity building is a critical focus for best-we-can practice. This includes institutional, human and social capacity. New processes and structures are required, both to provide settings for engagement and channels between engagement and decision-making. There already exists considerable capacity in terms of engagement practitioners and theorists in Australia and New Zealand. One of the major strengths of the STEP program came from the involvement of some of the pre-eminent engagement practitioners in the country. However, capacity for deliberation is also needed more broadly in societies used to adversarialism and alienation from decision-making. This includes capacity amongst citizens, stakeholders and decision makers. Relationships are also a key aspect of capacity building. The embedding of deliberative engagement both requires and generates new and deeper relationships between decision makers, stakeholder and citizens.

Critical to incremental progress and capacity building is **evaluation**, involving critical reflection by all those involved, including sponsors and decision makers. A powerful way to build capacity and commitment is to involve potential sponsors, political leaders and other stakeholders in the development of the field, including involvement in evaluation, but also where possible in **co-design** (Russell, 2013).

Scaling up may be best served by **diversification**, with deliberative engagement processes used in multiple contexts. For example, national policy-making has multiple influences. Processes can be developed that directly inform policy-making. Other useful processes include those that involve the mass media and function to make media debates more deliberative, and grass roots processes that develop the capacity for deliberation amongst communities and community groups. These build capacity on multiple fronts; amongst citizens, leaders, practitioners.

Above all, best-we-can practice must be **adaptive**. Engagement contexts, particularly at national levels are never simple or predictable enough for best practice, particularly of the check-box variety. Best practice reinforces the myth that there is a best way to do engagement, a scientific approach, that will lead to optimal outcomes. Scaling up needs to face the issue of power (Stirling, 2008). Moreover, I think it needs to do this by taking the focus off publics and citizenship, and to focus instead on decision makers and political power brokers and their practices in making decisions in the public interest. This needs to be a conversation about policy making.

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