



Science & Technology AUSTRALIA

STEM Advocacy: Lessons from the USA

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Introduction

The US context

In the current political climate, scientific evidence appears to be falling out of favour in the United States of America – as many STEM professionals and affiliated organisations voice concern that decision makers are ignoring research and evidence when formulating policy.

The most high profile example of this concerns climate change, and the broad changes that have been implemented in the Environmental Protection Agency (EPA).

The lack of engagement with science and evidence in this process has been well reported, with articles in Nature¹, the Scientific American², the Washington Post³, and the New York Times⁴ (among others,) which bolster the claim that the best available evidence is not being applied.

Despite this perceived anti-science position, in 2018 it was announced that scientific research would receive the biggest boost to funding since the 2009 economic stimulus package⁵ - an increase of 12.8% or \$20.1 billion above FY 2017 estimated R&D.

According to representatives from US STEM organisations, the reason for this specific support is due to the members of the Congress and the Senate wishing to express disapproval of the Presidential recommendations, and funding across the board was increased. However, it was universally agreed that the House and Senate both respect scientific research and understand its value. It is a bipartisan position, and is the result of years of consistent, ongoing efforts to promote the value of STEM in the halls of power.

This strong support for the American STEM sector is in stark contrast to the struggles encountered in Australia, where the STEM sector is facing falling government investment⁶, an increasing reliance on in-direct funding mechanisms (such as the R&D Tax Incentive), and no whole-of-sector strategy for STEM in Australia.

¹ [Science under siege: behind the scenes at Trump's troubled environment agency](#), Nature, 12 July 2018

² [Trump's EPA Puts Our Health at Risk](#), the Scientific American, 13 July 2018

³ [In an internal memo, the White House considered whether to simply 'ignore' federal climate research](#), the Washington Post, 23 May 2018

⁴ [In the Trump Administration, Science Is Unwelcome. So Is Advice](#), New York Times, 9 June 2018

⁵ [Trump, Congress approve largest U.S. research spending increase in a decade](#), Science Magazine, 23 March 2018.

⁶ [Research and development investment drooping](#), Science & Technology Australia, 17 October 2018

The Australian context

Following a comprehensive consultation with its 70+ member organisations, which represent in excess of 70,000 STEM professionals, Science & Technology Australia (STA) has identified the following primary policy objectives for the Australian science and technology sector:

- Achieve a whole-of-government plan for science and technology
- Develop a strategy to equip the future Australian workforce with STEM skills
- Secure strong, balanced investment in fundamental and applied research
- Receive a commitment from government to create policy across all portfolios that is informed by the best available evidence

These priorities are off the back of recent figures that indicate a steady decline in funding for scientific research in Australia⁷.

Strangely, this coincides with strong messaging from government regarding the importance of science and technology and an apparent desire to ensure Australia remains scientifically competitive⁸.

STEM organisations, particularly representative societies and associations, have the opportunity to hold government to account and promote the ways in which Australia will benefit from better funding outcomes. It is in everyone's interests for the STEM sector to present a vision for how Australia can lead the world in scientific and technological research.

How these lessons will be applied

It is important to note that the systems of government and political environments differ greatly between Australia and the United States, and this document has been crafted with this in mind, however there are many lessons that can be learned by reaching across the globe and finding examples of successful and effective advocacy.

In summarising elements of the successful advocacy carried out by the US STEM sector, this report aims to provide guidance and suggestions to inform and enhance Australian STEM advocacy efforts.

In uniting as a sector to celebrate and promote the achievements of science and technology, and the role of STEM in securing a prosperous and productive future for all Australians, we can begin to build the case for a similarly ambitious funding increase by our own government.

This report will explore in particular examples relevant to:

⁷ [Research and development investment drooping](#), Science & Technology Australia, 17 October 2018

⁸ [Speech at the Prime Minister's Prizes for Science](#), Minister for Industry, Science, and Technology, Karen Andrews, 2018

- **campaigning for science**, including useful methods and effective election activities, specifically the role for grassroots movements and STEM professionals;
- **key messages and motivators** for government to prioritise strengthened science funding; and
- the **role for associations and societies** in bringing about better support for STEM in Australia.

In order to explore these aspects of science advocacy, this report will draw from discussions with representatives from some of the USA's leading STEM organisations. These include the [American Association for the Advancement of Science](#); the [National Academies of Science, Engineering and Medicine](#); the [National Science Foundation](#); [SEA Change](#); the [Association for Women in Science](#); the [March for Science](#); and others.

STA will be applying the lessons in its work to give a voice to the 70,000 STEM professionals we represent, and to strengthen our 70+ member organisations.

STA asks that this report is kept in-confidence, as it has been crafted for the use of members of STA. Circulation amongst membership is permitted and encouraged, however it is not to be made publicly available.

Any questions can be directed to Dion Pretorius via email at dion.pretorius@sta.org.au.

Lessons from the USA

Over two weeks, more than 20 meetings were held with senior level representatives and advocates from government and non-profit organisations that engage in science policy, advocacy and engaging with decision makers.

During these discussions, three themes were most prevalent:

- The STEM sector's greatest asset is its reputation for providing information and evidence that is free from bias or agenda.
- Unity, consistency and a collective voice are key to effective advocacy.
- The aim for any advocacy should be to achieve bipartisan support.

These three elements are considered key to the STEM sector's influence and ability to impact policy in the USA, and hold strong relevance in Australia too.

Three themes (campaigning methods, key messages and motivators, and the role of associations and societies) were the focus of this report, and the applicability of the American experience to amplify or enhance the role of the Australian STEM sector in policymaking have been highlighted below.

Campaigning for Science

Advocacy and government relations - particularly as Australia approaches a Federal Election in early 2019 - are always more effective when they are unpinning by a foundation of long-term relationships, broad vision, and consistent messaging. Appealing to all sides of politics is important, as each will be important to engage at different stages of the political process, and can act as champions for STEM either in government or opposition.

In the USA, STEM organisation that are non-partisan, clear and consistent in their messaging, and considered 'established' in the sector, are the most effective advocates.

"When you're sitting around the table with a newly appointed government or a newly appointed Minister, they will look around and recognise the people who were at the table before they gained power."

For this reason, it is important - particularly during an election campaign - to remain consistent, in contact, and to ensure there are no major surprises sparked by activities. The platforms and ideas that underpin this work should be known to decision makers, and each individual activity should nuance or reinforce a specific component of that existing platform.

In instances where the US STEM sector has been subjected to upheaval or unexpected announcements and changes, foundational political engagement has provided forewarning or allowed for quicker responses to propose rectification.

Key learning: build campaigns with long-term advocacy in mind, setting short term measurable goals that are informed by long term strategic objectives.

Much like Australia, STEM professionals in the USA are becoming increasingly interested and engaged in the political process. However, it's important that they are given the opportunity to easily and efficiently channel this energy.

Movements like the March for Science have been born from this, one of the most prominent science policy campaigns in some time. The high level of engagement was achieved by empowering STEM professionals through easily accessible tools, resources and templates. This also supported a collective voice and consistent messages.

Specific methods of empowering STEM professionals to participate, which have proven successful in the USA and are likely to apply to the Australian context, include creating support materials that articulate desired tactics and outcomes – for example:

- **Face-to-face meetings with Parliamentarians (most effective)**
 - Contact details
 - Instructions on how to ask for a meeting
 - Description of a meeting and advice on how to prepare
 - Suggested topics for conversation and key messages
 - Follow up suggestions (social media, email etc.)
- **Phone calls to Parliamentarians**
 - Contact details
 - Script for the call (specifically, key messages)
 - Follow up suggestions (social media, email etc.)
- **Online correspondence with Parliamentarians (email, social media)**
 - Template email
 - Sample social media content
 - Relevant images or banners
- **Petitions (more effective with more signatures)**
 - Links for supporters to share with friends
 - Clear advice regarding the purpose and plans for the petition
- **Collective action**
 - Open letters from members/stakeholders
 - Public demonstrations
- **Easy access to campaign materials**
 - Provide an online platform for supporters to access promotional materials and templates/tools for approaching decision makers

Key learning: Empower STEM professionals to become strong advocates in the campaign, utilising the methods and tools outlined above.

Key messages and motivators

In the USA, there is bipartisan support for the value of scientific and technological research, which is backed up by action from decision makers to reinforce this.

A significant reason for this action is the strong and consistent promotion of STEM as a valuable contributor to the national economy by the sector, using third party validators, surveys and statistics.

It is also important to think of the broader impact of science and technology – for example disengaged decision makers will understand and support assertions like “research and development is good for Australia” more often than they would understand “biomedical research is good for Australia”.

The role of science and research on the broader economy is also valuable to share, and though it is done well in Australia, must remain a priority.

Key learning: tell a story that extends beyond the focus area of the organisation – even beyond the STEM sector – by incorporating third party validators and considering the role of industry.

There is also space for STEM-connected organisations in the private sector to meaningfully participate. Though business have broader issues to highlight, it’s important that the sector acknowledges the benefits to business when government supports research and development.

In Australia there are many conversations going on around the Research and Development Tax Incentive for instance, and the more we can include the voices of private-sector stakeholders, the more likely positive changes will occur.

Science and technology also play a significant role in shaping US international relations, and the same is true for Australia. Often relationships with foreign entities are bolstered and strengthened through scientific collaboration and exchange.

In acknowledging and celebrating this contribution, the STEM sector can further reinforce its value and broaden people’s perspectives when it comes to the role of science and technology in society. Not only does it deliver direct benefits through research, it also helps to forge better diplomatic relations.

Key learning: consider the broader context of STEM’s influence – incorporate messages that highlight the sector’s impact in areas like diplomacy, trade and national security.

Finally, statistics and surveys play an important role in US politics. For example, two of the more influential messages raised was the high percentage of US citizens who would be willing to pay more tax if they knew it was going towards medical research; or the number of Americans who believe that even if they

receive no direct benefit from it, that scientific research should still receive strong funding support.

Applied to the Australian context, these types of statistics and stories could help reinforce messages promoted through campaigns and lobbying. The value of these has also been shown in previous surveys conducted by STA and building on this could enhance the sector's communication and advocacy.

Key learning: surveys and statistics would be an effective addition to the policy and advocacy activities of STA and its members.

A role for associations and societies

First and foremost, societies and associations represent credibility in the USA, much like they do in Australia. Their collective support for the March for Science for example, or their role in initiatives like the AAAS supported [Coalition for National Science Funding](#), symbolise that these activities have the collective support of the STEM community.

Societies and associations help provide credibility and allow for the mobilisation of their members.

There is no organisation in the USA that exists solely to bring together the collective voices of organisations in the STEM sector. While organisations like AAAS are stalwarts in the sector and very highly respected by decision makers, their core role is not to represent the collective will of the science and technology profession.

In Australia, STA has played this important role for many years, and we must fully capitalise on this advantage for the benefit of the STEM sector.

Key learning: There is strength in a collective voice, and STA should ensure that all communications reflect this strength.

Associations and societies are also informal consultants for policymakers and should embrace this role in a proactive manner.

“Politicians like scientists who are true to the scientific method, who don't overreach... They are relied on for their sober assessments.”

Rather than waiting to be called upon, the most effective advocates in the USA are the organisations that actively participate. In Australia, STA makes submissions on the sector's behalf, but can also provide better access and support for its member organisations to the opportunities to participate that exist.

Key learning: STA can play a more meaningful role in connecting associations and societies with opportunities to participate in consultations and make submission to government and other decision makers.

Finally, societies and associations are mobilisers. They empower STEM professionals to mobilise at the grassroots and connect them to opportunities to participate at all levels. It is vital that STA engages with its members on an ongoing basis, to ensure that the sector is working towards collective goals and promoting consistent messages.

Key learning: STEM organisations play a vital role in mobilising STEM professionals, and STA should empower them to do so in a consistent and effective way.

Summary of key learnings

1. **Key learning: build campaigns with long-term advocacy in mind, setting short term measurable goals that are informed by long term strategic objectives.**
2. **Key learning: Empower STEM professionals to become strong advocates in the campaign, utilising the methods and tools outlined above.**
3. **Key learning: tell a story that extends beyond the focus area of the organisation – even beyond the STEM sector – by incorporating third party validators and considering the role of industry.**
4. **Key learning: consider the broader context of STEM’s influence – incorporate messages that highlight the sector’s impact in areas like diplomacy, trade and national security.**
5. **Key learning: surveys and statistics would be an effective addition to the policy and advocacy activities of STA and its members.**
6. **Key learning: Australia is ahead of the USA in unifying its voice under the banner of a peak body like STA, and should use this to our advantage.**
7. **Key learning: STA can play a more meaningful role in connecting associations and societies with opportunities to participate in consultations and make submission to government and other decision makers.**
8. **Key learning: STEM organisations play a vital role in mobilising STEM professionals, and STA should empower them to do so in a consistent and effective way.**