Australian Government

Chief Scientist

Dr Cathy Foley AO

Welcome Address

To

Science Meets Parliament

Monday 28 February, 2022

Thank you.

I'm really happy to be here and to have the opportunity to welcome you.

I'd like to acknowledge the many lands we're all coming from today, in this highly international space.

Here in Sydney, I am speaking on the traditional lands of the Cammeraygal people. I pay my respects to them and to the traditional custodians of other lands where, you, the audience members are based.

I acknowledge the elders who are caring for those lands. I pay my respects to the old ones who have come before and the young ones who will follow.

**

I have a **long history** with this event. As I said last year, I have been attending since the first Science Meets Parliament 22 years ago and I know we've made important strides since those early days.

But of course so many challenges remain. That process of making progress is **never linear**!

I want to acknowledge upfront that things are **by no means easy** for our research community in science and technology at the moment. We are facing a number of challenges but as researchers we love a challenge!

Universities, are going through a period of significant change, with uncertainty over the make-up of the university student cohort, online learning and the shape of the university sector over coming years. The ARC and the NHMRC are both dealing with some challenging questions.

In the context of this uncertainty, I want to reflect on what has brought you here.

Why have you given up precious days to learn how to better connect with parliamentarians and policymakers?

In the interests of brevity – and because I'm speaking to you through a screen! - I'm going to suggest an answer to my own question.

I'm going to hazard a guess that many of you are here because you know that whatever your differences, your frustrations, however busy or distracted you are, however much you really wish you were in the lab or your office or workplace deep in the process of discovery, however much you dislike online meetings...

… You know that in the end in order to go forward you must continue having the conversations. Show up and share your experiences and expertise, and hear about the experiences of others.

It's the same advice you might've given your own kids on their return to school this month: Front up, be nice, resist the temptation to be judgy, and try to understand where the other kid is coming from! Take it as a learning opportunity.

**

You will have heard much about the emerging industries and critical technologies that Australia is focused on, from low-emissions, to medical manufacturing, a new space industry and promising quantum technologies.

These things are not just ambitions under the banner of "wouldn't it be lovely".

They are all attracting significant investment and energy. There's real and intensive work happening and it desperately needs the input of scientists, technologists, researchers and entrepreneurs and it needs more of them.

The effort is focused on solving difficult research questions that remain in these areas.

Building domestic capability.

And addressing an urgent need to grow the STEM workforce significantly.

The questions for you are:

- How do you make the most of the opportunities that are offered up and harness them to advance your own work?
- How do you maximise your influence?
- And how do you build satisfying lives and ambitious careers here in Australia without having to look overseas for opportunities?

When I spoke to you last year at the National Press Club, I talked about the need to better link up at the interfaces between the spheres of research, industry and policymaking to achieve impact from our research.

I also spoke about what I've come to describe as "Science Plus" – this is the reality that innovation starts with science, but science can't do it alone. There's a whole range of expertise that is needed to bring a discovery through to impact.

Since then, we've been working hard to shift this agenda forward.

I'm working now on some of the structural changes that will help make the research and innovation system fit for purpose into the future.

1. I'm encouraging a step change in the way we use data and digital technologies. Forward-thinking researchers should be incorporating the new digital revolution in their planning.

   All science and research should be factoring in:
   - The huge increase in the size of datasets that need supercomputers to make sense of.
   - The capacity of deep learning to take over much of the sorting and searching, the testing and simulating.
   - The need for interoperability in datasets so we can take full advantage of the promise of AI.
   - And the changes on the horizon with quantum computing.

**

2. **A second issue** I'm working on is the need for better access to the research literature. This is something I have been exploring in some detail over the past year. My aim is an open access strategy that will improve the ability of all Australians – not just those with the right institutional subscriptions – to read the research literature. This will mean more eyes on your work, more visibility at the levels of policy and government and industry, and importantly, it will bring research directly into classrooms for the benefit of our young people. I can tell you that the responses to my initial discussions have been overwhelmingly positive.

3. And thirdly, a rethink of how we measure success. This is another of those big, structural issues that I'm giving thought to. I'll have more to say in other forums, but the basis of my thinking is that the ways we currently measure success, metrics such as citations and publications - and some of the international measures of innovation - are not helpful in the quest to create more diversity, build-interdisciplinary teams, and realise the potential of research.

**

I'm working on these things. But I can't deliver them alone.

I'm also involved in a range of national priorities, including developing a quantum strategy this year. Exploring options for boosting the STEM workforce. Contributing to work on critical technologies including low-emissions technologies.

These are big challenges that also require a collective effort and attention from all of us.

You and me, all of us, we've all got skin in this game.

**

You'll no doubt hear a lot about research commercialisation over the next few days, as you will have over recent months.

The principles that the recently released action plan are built on are really well founded and align with my approach.

- Focusing on our strengths and identifying our priorities for a collective effort
- Workforce mobility between industry and universities
- Entrepreneurs and companies reaching into the research and innovation institutions to find the expertise they need

This is important work. And I'll be leading a panel discussion on the topic on Friday.

**

But when you hear the term research commercialisation, I don't want you to think that every researcher also has to be an entrepreneur. That's not what it's about.

Australia has world leading fundamental research and must continue to invest in it. It is vital. It is the nerve centre from which all else reaches.

Yes, we need entrepreneurs and an entrepreneurial mindset is really important in our economy. But that will always be **just one** component of the ecosystem.

I have said it time and again, and will continue to do so. Australia has world leading fundamental research, and we must continue to invest in it. Preserve it, support it and celebrate it.

So I'm not about turning everyone into an entrepreneur.

What I **am** about is making sure that if and when an opportunity does arise from a piece of fundamental research – whether it's a practical application, or a commercial application, or a contribution to the development of a new technology - that there is a smooth pathway and everyone understands the role they can play.

So that as a researcher or innovator, you can see where to take your idea. As an entrepreneur, you can navigate the hurdles. As a leader in business or industry, you are alive to the expertise that exists

within our research institutions. As a policymaker, that you can tap into the best that Australian research and science has to offer.

What I'm also about is coming to this with curiosity. Constantly challenging my biases and preconceptions and encouraging others to do the same.

Just as we've been telling our kids to be optimistic and open-minded about the opportunities and relationships they find at school, we have a responsibility to be open to diverse ideas and perspectives as we all look for ways to build our nation.

As I say, it's a collaborative effort. Fundamental research, innovation, commercialisation and government, we've all got a role to play. That's how we achieve success.

**

I want to finish by acknowledging that we are in a most uncertain world.

But as a scientists this puts me back in my comfort zone here, as you will be too.

Uncertainties and best estimates are the stuff of science. When we develop a theory or potential solution, we test it, then adjust it in light of new knowledge.

Or we go back to the drawing board and test another option. We make predictions based on probabilities, not certainties.

That process of doing science and research is just what has played out in the pandemic – where we have seen science in action:

Not perfect, but right.

Not instant, but iterative.

Not one answer contained in one paper, but a deluge of contributions in tens of thousands of publications.

Not a man shouting Eureka but a **collaborative worldwide effort** to build knowledge bit by bit.

This is the work we are doing.

I commend you for making the effort to be here.

I trust the coming days will be fruitful.

#