Australian Government
Department of Education and Training

How to engage effectively and efficiently with Government on research infrastructure

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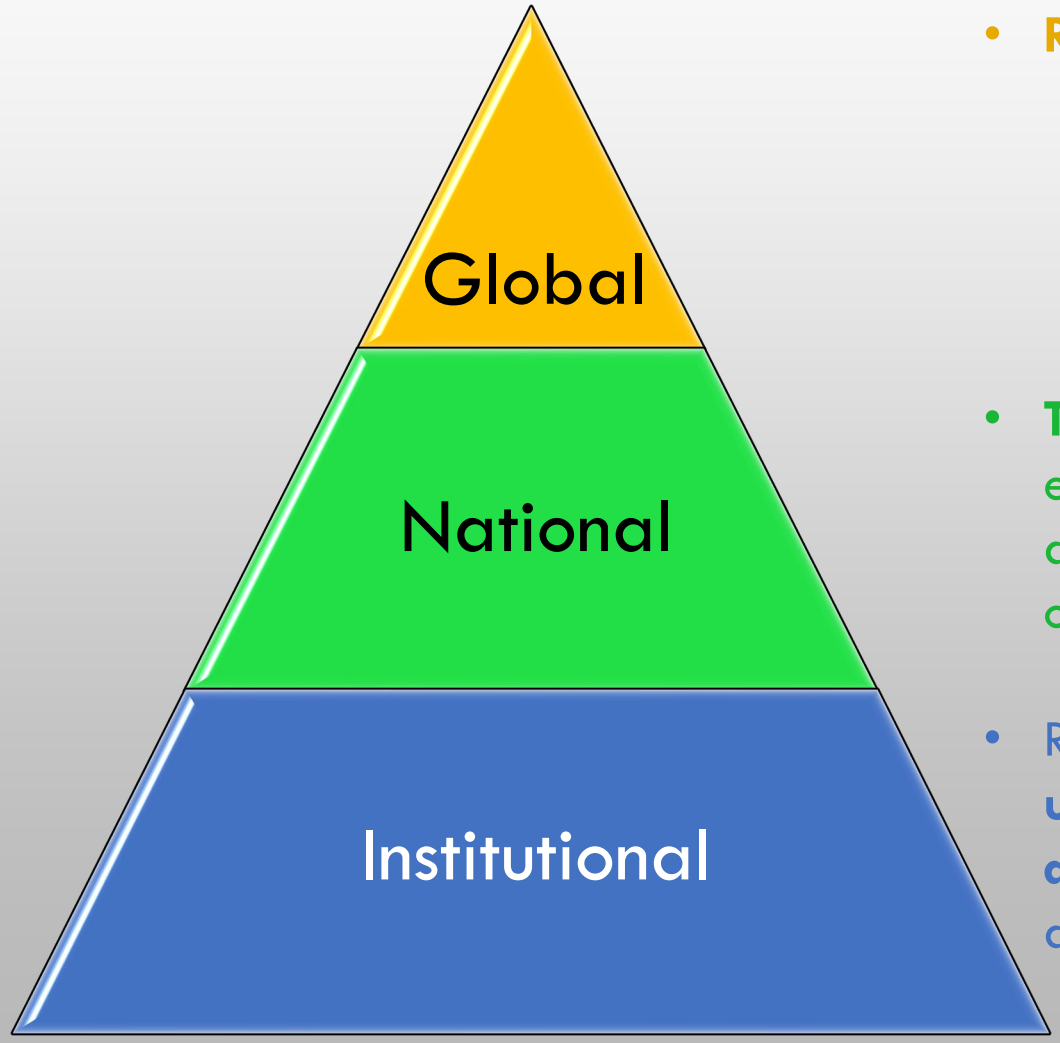
Setting the Scene - Types of Research Infrastructure



- **Require global-scale investments** due to complexity and cost, e.g.
  - Large Hadron Collider at €7.5 billion
  - International Space Station at over $150 Billion USD
  - Giant Magellan Telescope projected to exceed $2 billion USD.

- **The National merit-based access infrastructure,** either physical equipment or data streams. Also involves network capabilities across the country, to make this dispersed kit greater than the sum of its parts.

- Represents the majority of research infrastructure. **Hosted by universities, research institutes and Government research agencies** (e.g. CSIRO and ANTSO) to support their own research activities.

National research infrastructure comes in many forms

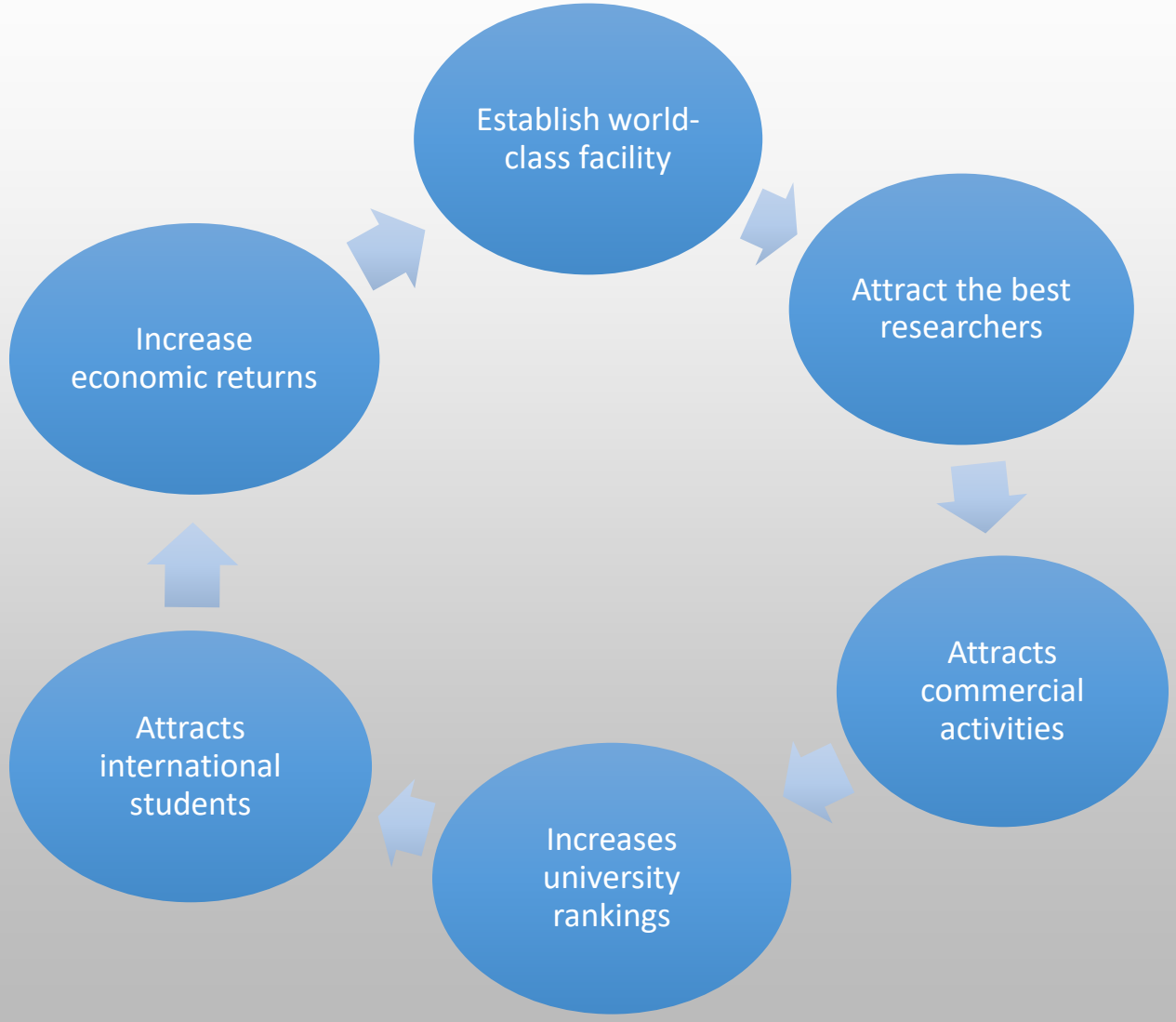
National research infrastructure comprises the nationally significant assets, facilities and services to support leading-edge research and innovation.
It is accessible to publicly and privately funded users across Australia, and internationally.

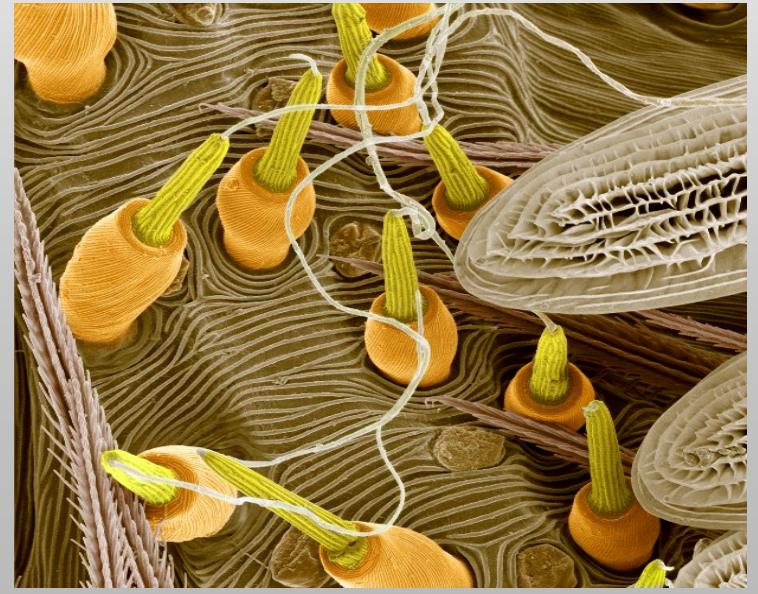
Definition in 2016 National Research Infrastructure Roadmap

Our goals for NRI is to…

- **Enable world-class research** to be undertaken in Australia through the establish and support for large-scale research infrastructure, where there market would otherwise not provide it
- **Enable access to global and international research infrastructure** were it is not possible or feasible to establish this capability domestically
- **Establish nationally significant data streams** and their availability for research, including analytic tools and data linkage
- **Ensure access to large-scale research infrastructure,** and that this access is prioritised to the most meritorious research
- **Target infrastructure investments** to areas that are or can be research strengths for Australia.

The Benefits of National Research Infrastructure (NRI)





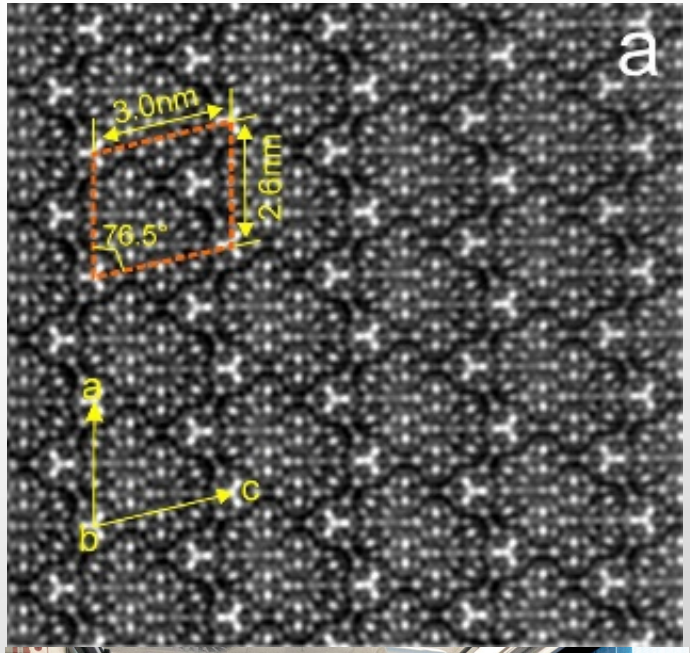
The potential impacts of research enabled by NRI are broad, but sometimes hard to show causality:

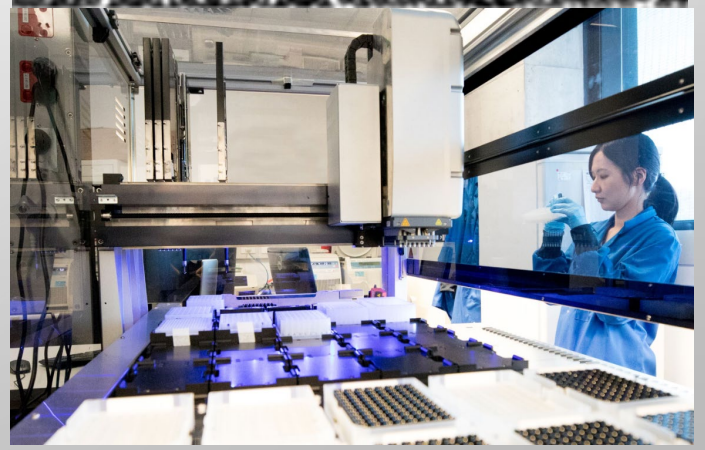
Categories of benefits include:

- **World class research capability and recognition –** publications enabled, citations, commercialisation activity, user satisfaction of facilities meeting need.
- **Collaborations –** number enabled, between various facilities and research stakeholders.
- **Value of Investment –** increases in co-investment, return on Govt investment, Govt services, employment.
- **Accessibility –** increase in domestic and international users and merit based access.
- **Infrastructure performance –** improved facility efficiency and effectiveness.
- **Governance –** improved visibility of outcomes and variability on costs (projected v. actual)

Case studies are valuable:

- Support more resistant agricultural industries.
- Better understanding of weather and climate.
- Advances in medical research, including utilising synthetic biology.
- Underpin emerging technologies, including:
  - New understanding on arrangement of atoms in a complex aluminium alloy (corrosion)
  - li-ion conductor (battery material).





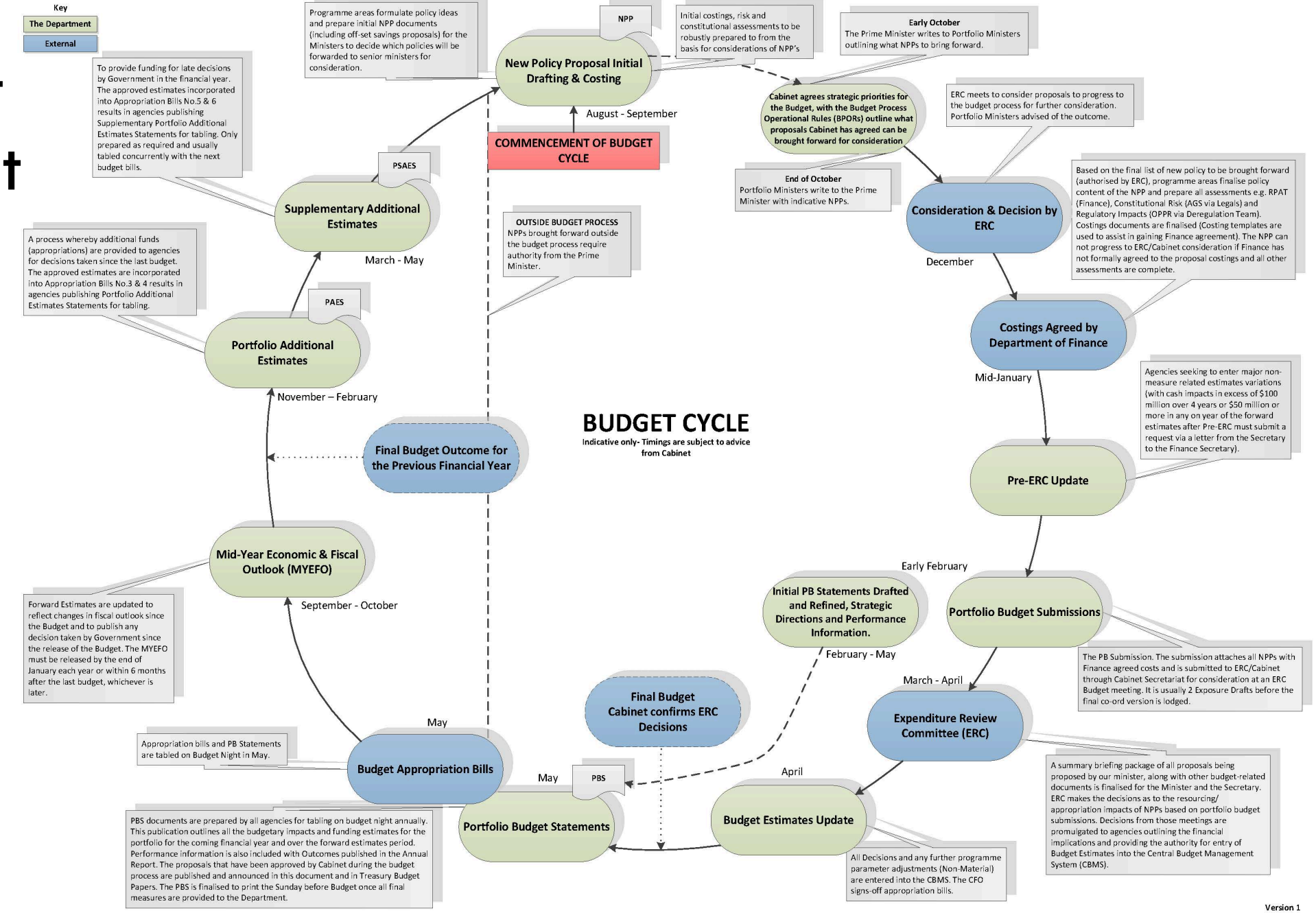
Development of the Budget is complex

Timing

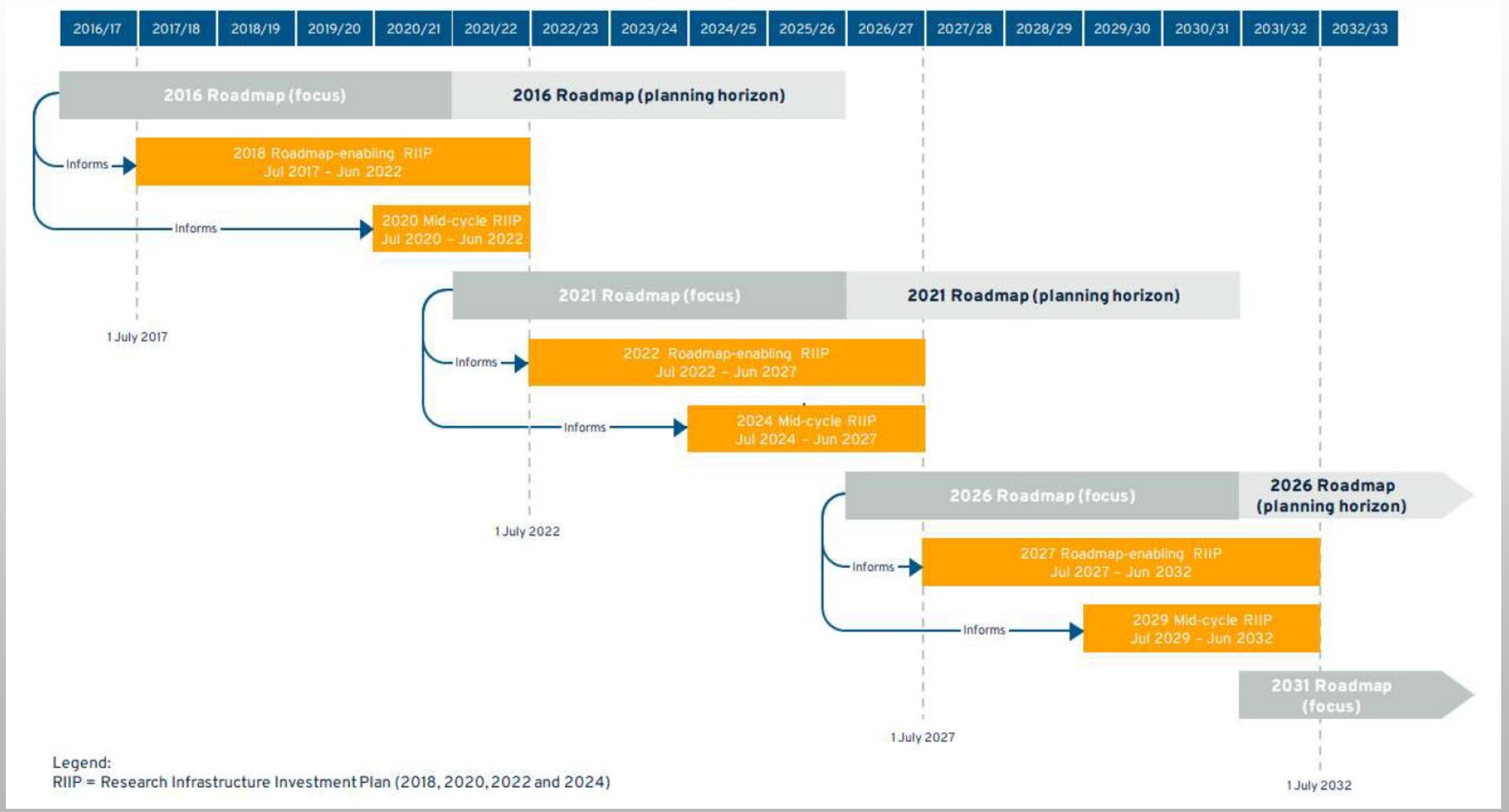
- It is everything.

Funding

- How strong is your case.
- New funding usually needs to be offset from within the Portfolio - usually, for someone to "win" someone has to "lose".



Planning and investment cycles in NRI



What makes something stand out?

- **Clarity of message** – what is your *simple* 30 second pitch. What, why, who benefits, cost and impact.
  - Language needs to be clear and not technical, consider diagrams.
- **Difference** – How will this differ from existing investments, and what is the delta of impact and activity?
- **Market failure** – Clear argument about why should the Government intervene.
  - Why cant stakeholders come together themselves and undertake?
  - Why is this not commodotised or the cost of "playing the game" for an institution / body
- **Return on Investment** – all projects are competing for funds. What is the case for spending limited funding on your project over another?
  - How much "access" is being bought and is this proportional to the Government's investment? Who else is investing?
  - Is the Government "on the hook" for the longer term and any plan to transition off NRI funding?
- **How will the investment contribute to the economy** – potential economic impacts of resulting research, benefits to industry and potential jobs created.
- **Who will benefit** – Which sector/s of the research sector and industry will benefit.
  - You are all "competing" but how are you selling a collective message?

The future is bright but complex for eResearch

- How are you self organising and starting to think about the future of eResearch investment and what that might need to look like.
- There are hard questions ahead for us all about the future interactions between HPC, data, tools, commercial entities, university and research agency enterprise needs, merit access, and refreshing existing capabilities.
- What is the sweet spot for future investment? and how will this not look like gold-plating?
- Government Engagement 101 - Don’t wait for Government to ask the questions and think about how you are engaging with all parts of the “government system” to sell the case: Ministers (and their advisers), central agencies, policy agencies, other levels of government, and external players (such as media, industry etc).