IPEN'S SUBMISSION TO TE ARA PAERANGI FUTURE PATHWAYS CONSULTATION PROCESS

March 2022

iPEN
Turbocharging Impact

Preface

The CRIs' Impact Planning and Evaluation Network (iPEN) welcomes the invitation to present this submission in response to the information from MBIE outlined in the Te Ara Paerangi Future Pathways Green Paper 2021.

iPEN is funded by the Science New Zealand Board to undertake activities and lead initiatives to increase the impact of CRIs, grounded in the discipline of evaluation. iPEN is a network of specialists from across the seven CRIs who work individually and collectively on impact planning, monitoring, evaluation and reporting at programme, organisation and system levels.

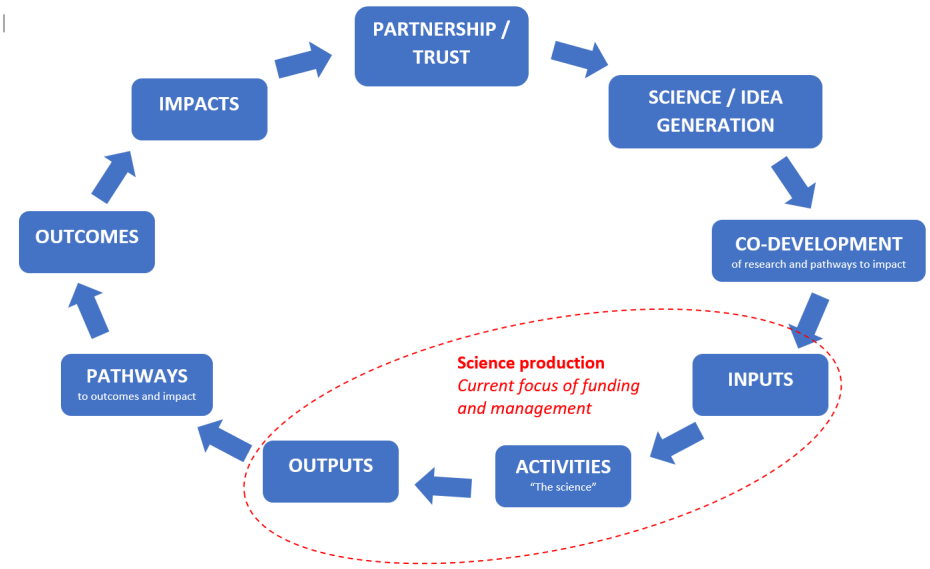
This submission is the view of iPEN. It does not purport to reflect the views of individual CRIs. It summarises views expressed by staff from across all seven CRIs over the last three years on opportunities and challenges to improve impact from science.

iPEN's submission is framed with the starting position that, in our view:

- the purpose of publicly funded research and research institutions is to deliver benefits to New Zealand (our culture, our society, our environment, and our economy)
- research should occur in an efficient and effective manner so that the impacts generated from public investments in science are maximised for impacts, and for this to be realised, the 'flow' of science from ideas to science outputs to desired outcomes and impacts needs to occur relatively seamlessly/freely, and that impediments to this flow are therefore undesirable
- for Aotearoa New Zealand, trusted partnerships with Māori (which are fundamental to delivering on Te Tiriti obligations) are important for long-term impact
- CRIs have a strong history of delivering high impact to Aotearoa New Zealand, but there are opportunities to build on this.

Further to this, we have formed a view, based on the various activities we have undertaken as iPEN over the last three years (Appendix 1) that while the intent of Aotearoa New Zealand's science system is impact, much of the focus of funding, rewards, accountability and management is centred on "science production" (Figure 1).

FIGURE 1. How impact happens, versus 'science production'
(Simplified, feedback loops not shown)



Findings presented in this paper are part of an ongoing iPEN project to identify systemic barriers and enablers to delivering impactful science, with a substantive paper expected to be released within 6 months. iPEN would welcome the opportunity to continue to contribute constructively to the ongoing Te Ara Paerangi programme.

Background

Over the last 8+ years iPEN has been applying an evaluative lens to consider and create opportunities for CRIs to use key tools to better partner and plan for impact, to:

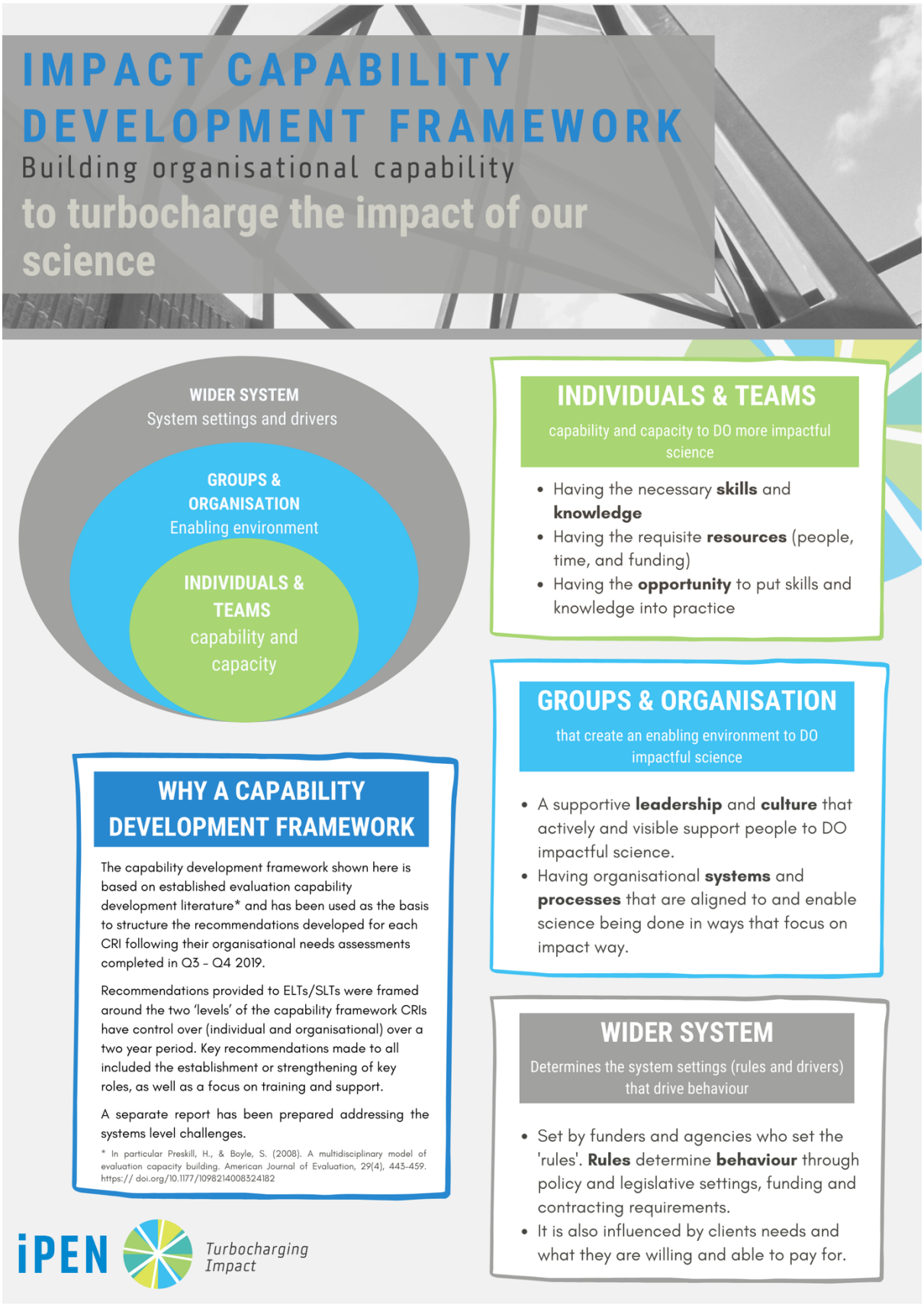
- undertake science in a way that is more likely to deliver impact
- improve knowledge exchange activities
- better evidence the impact of research and create a virtuous learning cycle.

To support this work, 3 years ago iPEN commissioned an independent expert in impact and evaluation to complete a comprehensive survey of knowledge and resource gaps as part of a baseline assessment of CRIs' impact/evaluation maturity.

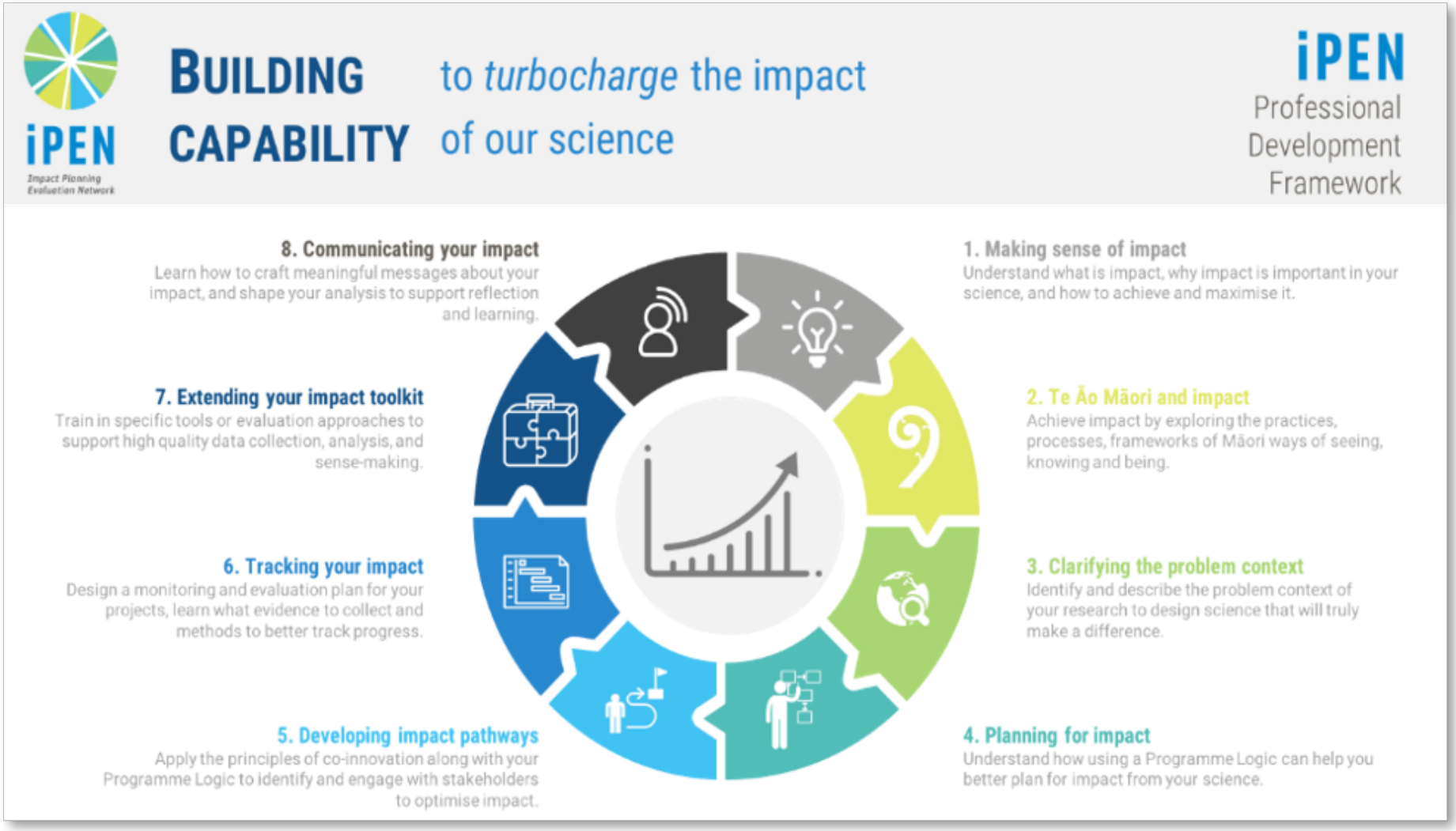
This led to the development of a capability development framework, with an initial focus on staff capability and capacity building, which has become an ongoing pan-CRI training programme (Figure 2a, b, c).

Note that the 8 training areas (2b), as identified by CRI researchers and other staff to improve their ability to deliver impact, extend beyond the "science production" sphere identified in Figure 1.

FIGURE 2a. iPEN's impact capability development framework identifying a nested approach to building capability.



2b iPEN's training wheel to support capability development in individuals and teams.



2c. iPEN's capability assessment tool describing levels of maturity in impact capability (at individual and organisational levels).

	STAFF HAVE:	ORGANISATION HAS:
PROFICIENT / EXPERT	• All staff will have received some training in impact and MERL activities. Those with a strong role to play will have received. comprehensive training including refreshment. • Staff routinely design their projects with a clear consideration of impact and MERL and need only limited support (peer review). • There are many examples of good practice and these are well known.	• Strong and consistent messaging at all levels (CE down to managers and staff). People can easily explain the importance of impact and how they practically address this in their work. • Strong in-house support, including in-house experts, a network of champions, and a manager with dedicated responsibility in this area. • Systems and process are supportive (overall). There is a strong system to reward and recognise good practice, and this is publicly celebrated. • Routinely linked to continuous improvement, organisational learning and reflective practice.
CONSOLIDATING	• Good knowledge and skills in this area and have several opportunities to practice and apply. They are in a good position to support or teach others in their project work. • There is specific allocation to MERL type activities at a level that means it can be included in project activities fairly consistently. • There are several examples of good practice and these are well known and used.	• Strong and consistent messaging at all levels of senior leadership, and there will be a role with specific responsibility in 'impact' within SL. • There is in-house support available and this is coordinated and overseen by a manager, who also contributes to more strategic decision-making giving impact a 'voice'. • Systems and process are relatively well aligned to supporting impact. This includes a rewards or recognition of examples of good practice. • Several examples of strong links to continuous improvement, organisational learning and • reflective practice.
DEVELOPING	• Some knowledge and skills in this area • and apply this in their work however it is patchy or limited to specific skills. • There may be some specific allocation of resources to MERL activities but this will be patchy. • A few examples of good practice may have been identified and being used.	• Strong and consistent messaging from SL and alignment to organisational goals clear. Support from Tier 2 & 3 • managers likely to be more inconsistent. There may be a manager responsible for oversight/coordination. • There is likely to be some in-house support (e.g. champions but this will be regularly stretched. • Systems and processes will be more aligned to support impact but still patchy, including rewarding/ recognising examples of good practice. • Patchy links to continuous improvement, organisational learning and reflective practice.
EMERGING	• Little to knowledge or understanding of Monitoring Evaluation Research and Learning (MERL) activities and tools. • Limited practical experience or examples to refer too. • Resources (e.g. time and funding) also likely a constraining factor.	• •Has general support for the idea from senior leadership but message likely to be inconsistent or occasional. • •Messaging may lack integration with organisational goals/objects • •There may be some in-house support but this will be regularly stretched and not well supported. • •Systems and processes generally not designed to support consideration of impact, including rewarding or recognising examples of good practice. • •Little or no links to continuous improvement, organisational learning and reflective practice.

This survey and research surfaced a number of wider systemic problems that hindered the ability to maximise impact. iPEN began exploring these in 2020 and 2021 via some deeper analysis and internal workshops with iPEN representatives and partners (e.g. in New Zealand universities, KiwiNet, Ministry for the Environment, Ministry for Primary Industries, Callaghan Innovation and MBIE). This contributed to a paper for the Science New Zealand Board that summarised initial findings and recommended further research was needed to better understand issues and opportunities to enhance impact across the science system. As of the date of this submission, the research for the expected paper has been completed and analysis has begun – hence the findings of this more comprehensive work are not included in this document.

This approach means iPEN's submission does not centre around the themes of the Future Pathways Green Paper, but is grounded in a systems thinking perspective, as seen through the "iPEN" lens. However, our initial and future findings are of direct relevance to issues raised throughout the Green Paper, often spanning multiple themes. We also believe our systems-based analysis assists in identifying other important considerations in terms of delivering maximum impact from the system that appear less apparent in the questions posed in the Green Paper.

Systemic Issues and Opportunities

Appendix 1 contains a presentation already shared with MBIE's Future Pathways team. Findings from our initial research on capabilities and gaps included:

- Scientists are motivated (intrinsically) to make a difference (have impact) and are aware that demonstrating impact is important.
- Many scientists seek knowledge and skills in evaluation to help them deliver more impact.
- The current system tends to under-recognise, reward or provide feedback to those delivering impact, c.f. those delivering science excellence .
- Key barriers to delivering impact identified were a lack of funding and time.

In addition, a number of systemic barriers to delivering greater impact were surfaced that are less within the sphere of influence of scientists or research institutions/organisation like CRIs. These are summarised around 7 wider systems-level opportunities in the "From – To" figure in the presentation. We explore these in further detail in Table 1.

TABLE 1. iPEN's seven opportunities to enable greater impact with further explanation

FROM (CURRENT STATE)	TO (FUTURE STATE)	EXPLANATORY COMMENTS
1. Traditional science paradigm drives siloed disciplines and a focus on academic excellence	Paradigm equally values academic excellence AND impact. Also values other knowledge systems, e.g. Te Ao Māori, trans-disciplinarity	One of the greatest barriers that hampers progress to the future state is the boundary around what constitutes 'science'. The current definition does not adequately recognise and endorse all the science and activities that delivers outcomes and impacts; it focuses on science excellence through the lens of high-quality outputs (e.g. prestigious publications). Also refer FIGURE 1 (How impact happens, versus 'science production'). The traditional science paradigm has a strong influence on how the science system operates and decisions are made, including where efforts and resources are directed.
2. Te Ao Māori poorly understood; scientists often struggle with their cultural competency and confidence, constraining delivery of impact with and for Māori	Te Ao Māori understood and valued across the system, contributing to greater impact with and for Māori	There is a desire to create more and greater impact with and for Māori. However, barriers include a lack of confidence, capability and resource/time. Progress is hindered by values deeply embedded in the prevalent science paradigm (see above). Issues regarding Te Ao Māori and Mātauranga are well documented and have recently been aired in the media.
3. Scientists trained to pursue academic excellence	Scientists trained to deliver impact while achieving (more broadly defined) academic excellence	Skills required to deliver more impactful science are more diverse than those traditionally taught and subsequently recruited. They include diverse disciplinary expertise, and 'non-research' skills, knowledge, and experience such as problem definition, IP management, communications, evaluation, commercialisation.
4. Scientists and science providers recognised for delivering academically excellent outputs	Scientists and science providers recognised for contributing to impact, grounded in excellent science	Current reward and recognition mechanisms for scientists continue to reinforce traditional views of excellent science and therefore may fail to incentivise those seeking to deliver more impact.

FROM (CURRENT STATE)	TO (FUTURE STATE)	EXPLANATORY COMMENTS
		Early career scientists, in particular, describe the need to prioritise activities that may support career progression (as measured against the traditional science excellence metrics such as citations) over the delivery of impact (also see point 3). KPIs tend to focus on outputs, which are more readily measured (e.g. science production milestones, publications), which become the focus of performance management processes.
5. Funding mechanisms 'talk' impact, but 'walk' outputs and academic excellence	Funding mechanisms talk AND walk impact, grounded in excellent science	Funders commit resources to 'produce science' but may not always recognise the tasks, costs and time associated with essential components to deliver impact (Figure 1). Developing and maintaining trusted, deep, and long-term relationships between scientists and stakeholders has been highlighted as a critical enabler of impactful science (around the entire cycle above). This means that insufficient time and resource may be allocated to this long-term investment.
6. Contracts only resource outputs and weakly support researcher-user collaboration for impact	Contracts focus on outcomes and impacts; and provide resources for partnerships and collaboration, impact planning, and Monitoring, Evaluation, Reflection and Learning	Staff describe that at times there can be insufficient flexibility to establish problem contexts in collaboration with stakeholders, co-design the knowledge sets needed, and implement mechanisms to deliver impact. Staff also describe feeling like they are sometimes in a `project economy', seeking and securing funding to `keep the lights on' and avoid losing capability. There is little time and resources to be adaptive and reflexive while the priority remains delivering outputs.
7. Reporting up for accountability	Monitoring and evaluation for feedback and learning/improvement, while demonstrating the	Currently, evaluating impact is motivated by a need to report and demonstrate accountability to funders. There is currently little scope to embed and resource Monitoring, Evaluation, Reflection and Learning within science contracts to identify and strengthen impact goals, identify a full

FROM (CURRENT STATE)	TO (FUTURE STATE)	EXPLANATORY COMMENTS
	value of CRIs and providing accountability	range of indicators, construct and support pathways and generate impact. Other sectors (e.g., international development) that are also strongly motivated to understand and be assured their investment/financial support is delivering impact have recognised and resourced these critical activities as part of project design and delivery for some time.

Next steps

As stated above, as of the date of this submission, iPEN is at the analysis stage of deeper research into systemic barriers and opportunities.

To date, this ongoing follow-up research is validating our initial analysis, while also providing some richer insights on some of the dynamics at play and the behaviour of different 'actors' in the system that this results in. It also appears to be uncovering some additional sub-themes.

We will contact MBIE as soon as we are in a position to share these findings.