

KE4CAP EU-Australia Bilateral Knowledge Exchange Event

Knowledge exchange: Services and science supporting climate action

An EU-Australia bilateral workshop on developing and using web-based resources to enhance climate intelligence and support climate action

Melbourne, Australia, 3-5 March 2020

Report from the KE4CAP project perspective

Web-based platforms are an effective means of presenting knowledge to support decision making. Yet their evolution needs to balance the experience, needs and capacities of users such as policymakers and practitioners, the availability of relevant, usable and legitimate knowledge based on the science, and the resources available for platform development. Within the Strategic Partnerships for the Implementation of the Paris Agreement (SPIPA) programme, the Stepping-Up Knowledge Exchange between Climate Adaptation Knowledge Platforms (KE4CAP) project is facilitating knowledge exchange between Europe and other G20 countries. The aim is to advance cooperation and learning with respect to using web-based platforms to support climate adaptation planning and action.

1. Introduction

The first of three KE4CAP bilateral knowledge exchange (BKE) events was held with Australia in Melbourne, 3-5 March 2020; others are planned with Canada and Japan in 2020 and 2021. These bilateral events are aimed at stimulating knowledge exchange to advance cooperation and learning between and within countries, and to inform the revision, and inspire the evolution, of climate adaptation web-based platforms in Europe and host countries.

Discussions during the BKE events are intended to inform both deliberations within the host countries and developments in Europe, as well as future activities within KE4CAP. The project is working towards producing a consolidated assessment of the value added from using web-based adaptation platforms and a summary of the challenges and lessons learnt on the evolving nature of web-based platforms. All reports will be shared across SPIPA-targeted countries.

This report summarises the EU-Australia BKE event from the perspective of the KE4CAP project. It includes reflections on the contributions to KE4CAP, with an emphasis on:

- Indications of value added from using web-based platforms; defining the value proposition (section 2.1)
- Specific challenges and lessons learnt towards enhancing value, including governance, business models and user engagement (section 2.2)
- Other challenges and opportunities for knowledge exchange (section 2.3)
- Thematic analysis (section 3)
- Lessons learnt for subsequent KE4CAP activities (section 4).

A separate workshop report capturing learning from an Australian perspective is available from our Australian hosts: the National Environmental Science Program, the Earth Systems and Climate Change Hub and CSIRO (Navigating Climate Change Mission).

1.1 Background

The BKE EU-Australia workshop, *'A Platform Approach to a National Climate Intelligence Capability for Australia'*, focussed on advancing the development and use of web-based resources in Australia to enhance climate intelligence and hence support action. Representatives from KE4CAP/EU (8%) joined 50 participants from central and state government (19%), private companies (15%), Indigenous communities (6%), and scientific organisations (52%) in Australia to consider the range of climate platforms and services currently available, to explore a vision for the future for climate services as a national capability in Australia and to consider potential pathways towards defining and realising that vision. Contributions from the EU highlighted approaches to web-based platforms available in Europe and provided examples of challenges and solutions regarding the development of these platforms and associated services, partnerships and business models.

The final agenda is given in Annex 1.

2. Reflections on the EU-Australia BKE Contributions to KE4CAP

The EU-Australia BKE event was not only a critical part of identifying and assessing capabilities within Australia, but it provided an opportunity to initiate the KE4CAP knowledge exchange agenda. The resulting deliberations identified learnings that could inform both European and Australian efforts. Although the current state of platform delivery of climate services is less mature in Australia, the discussions and exchanges at this BKE event provided opportunities to learn from each other.

This section focuses on aspects of the discussions and learnings related to the value added from using web-based platforms, the specific challenges related to enhancing that value, and other

challenges and opportunities where knowledge exchange would be beneficial. These three areas of reflection target challenges of particular concern as expressed by the broader KE4CAP community and demonstrate the contribution of this EU-Australia BKE to KE4CAP.

2.1 Indications of value added from using web-based platforms – defining the value proposition

First and foremost, similar to other countries, there does not exist within Australia a clear and agreed value proposition supporting web-based climate knowledge (also referred to in Australia as ‘intelligence’) platforms and associated capabilities, products and services.

Deliberations during the BKE event highlighted elements that could be reflected within a value proposition:

- The intention is to have the capability to co-design and co-produce information, data and associated knowledge for all Australians; the goal is a well-adapting and climate resilient Australia.
- The ideal outcome would be a sustainable national climate service capability within Australia, with the emphasis on service provision that is able to support users on their journey towards achieving a well-adapting and climate resilient Australia.
- The value proposition should reflect the need to go beyond simply facilitating access to climate data and increasing awareness to supporting pathways to action.
- What is needed is a double-sided value proposition that has legitimacy and weight within both the science and policy/practice (user) communities, and which includes recognition of the net benefits of both science-based evidence and of policy and practical actions.
- The value proposition should be co-established between providers and the different user (including purveyor) communities. This could potentially lead to multiple but interlinked versions of the value proposition each targeting different user communities.

An effective value proposition needs to be appropriately framed if the intention is to inform and drive action. Deliberations indicated that such a framing should reflect the value arising from linking and consolidating existing initiatives and investments (i.e. climate science, services, data/information platforms) and enabling the integration of additional activities and continued improvements at both national and sub-national level across multiple sectors. It was also suggested that such a framing should be based on considering:

- What? A core Australian platform, supported by an ecosystem of sub- and/or otherwise aligned/integrated set of differentiated platforms tailored to specific needs, which helps users to find the relevant, usable, legitimate and credible information they need.
- Why? Deliver value to all users in terms of socio-economic and environmental well-being and other benefits as reflected in the Paris Agreement, the Sustainable Development Goals (SDGs), Disaster Risk Reduction (DRR), Task Force on Climate-related Financial Disclosure (TCFD) and other related climate actions.

- How? Integrating scientific and knowledge exchange capabilities across disciplines and different sources to co-design, develop and deliver a platform ecosystem capability with and for the diverse spectrum of users (including purveyors).

It was recognised that who puts the value proposition forward is critical due to implications for its legitimacy and credibility. The ideal situation was identified as one in which those making the case for web-based platforms and the products and services they provide should be the intended users. In making the case, it should be based on the demonstrable value added from such platforms, articulated in a manner that is meaningful to those intended users. Deliberations pointed to aspects of this value added that included providing on-going and trusted decision support through ready access to appropriate information and knowledge needed to inform decision-making for climate action, including for climate risk assessment and climate resilient investments.

A key point made during discussions relates to the scope of the effort and resources required. Whilst it may be daunting to achieve the desired value proposition, as demonstrated within Europe it is possible even with limited resources to make a difference by progressing towards that vision through a strategically targeted and phased approach. Australia can also learn from the successes or otherwise from investments in Europe and elsewhere. Crucial to success and sustainability are nurturing, building and demonstrating support for these initial and phased efforts by engaging early and working with the intended users, providers, purveyors and other stakeholders.

2.2 Specific challenges and lessons learnt towards enhancing value

The EU-Australia BKE discussions focused on governance, business models, including defining a value proposition, and enhancing user engagement. Consideration of these also reflected the need to build on, integrate and coordinate existing capabilities and activities and, where appropriate, leverage relevant learnings and experience on a reciprocal basis between Australia and the EU. These areas were identified as key challenges for Australia, but also opportunities where sharing experiences and lessons learnt could provide mutual benefits.

As a starting point, Australia aspires to be a global leader in using scientific knowledge, data and information to inform decision-making and support climate action, but questions are being asked by stakeholders as to 'who, what and how' and potential next steps. These questions are particularly important considering the existing and emerging governance and political and economic context within Australia. In addition, the 'platform landscape' within Australia is currently fragmented and, although not necessarily intended, competitive rather than coordinated and complementary, with implications for gaining the confidence and 'buy-in' of the intended user communities. This is a challenge in many parts of the global web-based climate platform community and exploring means of addressing this, such as through an 'platform ecosystem approach' across national and regional levels as suggested during this event, could have some merit.

2.2.1 Governance

Governance is the process of decision-making and implementation. It involves a range of actors including government, non-government organisations, industry, communities and the media. Good governance has eight major characteristics. It is participatory, consensus oriented, accountable,

transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law (UNESCAP¹). It is also responsive to the present and future needs of society.

In Australia, there is a lack of governance supporting climate services, with no central strategy or 'roadmap' for developing, resourcing and coordinating a national climate service capability. This has created a market with:

- A supply side that is fragmented and uncoordinated, with a proliferation of climate service platforms delivered by a variety of sources that have mixed credibility, relevance, quality assurance and utility.
- A demand side that is rapidly emerging and hungry for access to core and differentiated products and services tailored to a variety of user needs and capabilities. New and emerging users of climate knowledge, including Traditional Owners, present novel challenges and opportunities around climate services based on the development of traditional knowledge.

There are significant strengths within the Australian science community and its offerings, but the challenge of bringing these to users has several facets: how to draw on, translate and make available the results of decades of research investments to inform services and enhance utilisation, and how to break down existing silos (platforms targeting different science domains, sectors and decision types) to equip decision makers with coherent and complementary knowledge and decision support tools.

On this latter point, the expressed need by workshop participants was having access to seamless and consistent (spatially and temporally) quality information from federal, state and local authorities and professional organisations. This should include a clearly articulated handshake between resilience, adaptation and general awareness-raising targeted platforms, as well as delivering consistent guidance and capacity building efforts to facilitate user applications.

It was suggested that addressing this challenge would require active and agile governance that enables stakeholder engagement and elevates users within the governance structure. Such governance would need to be inclusive and harmonised across multiple stakeholders and address the existing fragmentation (within organisations, across organisation and at different levels of government). As such, some form of interjurisdictional-participatory governance mechanism is required.

A particular aspect of this challenge is supporting the establishment of the required governance arrangements. It was suggested that the governance process may need to evolve and, at least initially, there may be a need for government(s) to support core services, followed by a deliberate and timely shift to include broader engagement and co-investment from the private sector and other third-party sectors. In parallel, support for differentiated services targeting specific applications could be provided by public-private partnerships and the private sector. This is discussed further under '2.2.2 Business models'.

An essential element of the required governance is leadership. It was suggested that governance should not just rely on organisational leadership and that there was a requirement for overarching, convening leadership that reflects the need to drive agreement on the development of a web-based

¹ <https://www.unescap.org/sites/default/files/good-governance.pdf>

platform ecosystem. Elements of leadership do exist, including within the user community, but the challenge is to identify and establish that leadership in a more explicit and structured manner.

It was suggested that one critical need is to map and engage the diverse range of stakeholders (providers, purveyors, funders and users), including Traditional Owners and existing platforms. Such an effort would provide a number of benefits; first and foremost a clear and comprehensive understanding of current capabilities and activities across Australia. This understanding would then provide the basis for exploring how existing capabilities are, and could be better, linked. In addition, as new initiatives are considered, existing mapping would increase the likelihood of greater coherence, encourage synergy and avoid duplication of effort, thereby maximising the return on investment for such efforts. As such, this mapping is underway and is expected to provide the foundation on which the future vision for web-based platforms in Australia can be built.

2.2.2. Business Models

The challenge here is to identify the most appropriate business models and how to stimulate and enable innovations in these models that are consistent with the existing and evolving platform ecosystem. The expressed need is for business models supporting both public and private-facing web-based platforms and the associated capabilities, services and products, and facilitating access to funds to support the core infrastructure and sciences on which they rely. On this latter point there was a call for a commensurate and financially-supported roadmap for scientific research and innovation, data collection and tool/resource development.

Characteristics that were particularly noted were:

- Business models need to be flexible so that they can enable the development of strategic alliances with critical sector organisations and consultancies which would bring additional intelligence, capabilities and capacity from their respective sectors to scope and create appropriate opportunities. Such an approach recognises that the landscape is constantly evolving but provides an opportunity to start with something doable.
- Looking to 2030, the vision is that there will be a decision-driven and science-informed climate service capability within Australia which that efficiently and effectively meets the needs of both private and public users as well as new and emerging stakeholders such as Indigenous communities. It was noted that users in the private sector tend to be more focussed on services with rapid response times, often provided by consultants rather than research agencies or university providers. A business model that enables partnering with consultants and the third sector could provide a way forward to address these needs specifically.

When identifying an effective business model, there is a need to consider what a model should look like to achieve the necessary transitions, and how it might evolve towards improving efficiency, building capability and enhancing capacity across the provider/purveyor communities considering the current fragmentation. There was some discussion regarding whether a 'one-stop-shop' model such as that provided by Climate-ADAPT in the EU may be appropriate within the Australian context, but the advantages and disadvantages of this and other business models need to be assessed.

Innovative business models are recognised both in Europe and Australia as being critical to success. This shared interest includes exploring private-public and public-public (different levels of

government) partnerships and various means of financing the underlying science and infrastructure that are key to supporting the evolving nature of climate action.

Business models also require a better understanding as to what are core (typically public value) and differentiated (often private-for-profit) products and services, and the means of identifying and resourcing the underlying infrastructure. Establishing and sustaining these core products, services and the underlying infrastructure and science can be challenging if the business model is dominated by seeking revenue or public value is minimised in favour of private benefit. Deliberations recognised that a business model that values both public good and private benefit is needed to enhance collaboration and coordination across these two domains.

In terms of identifying and establishing business models for such knowledge platforms, it was suggested that there was a critical need to establish the value proposition for climate services. This could include identifying the costs and benefits of climate risk with and without adaptation and more generally without a scientific risk-based approach to climate action and associated decision-making.

When considering both governance and business models together, an option that received particular attention was a 'shopping centre' analogy in which the platform ecosystem (shops with a concierge at the front) recognises and reflects the different needs and capacities of users, providers and purveyors (basic superstores vs. specialist outlets). Features associated with this analogy include:

- It should be based on a partnership model - a concentric ecosystem of integrated shops with agreed standards and supply chains.
- It should not aim to create a one-size-fits all capability, but provide a well-connected ecosystem that recognises differing capabilities and needs and can tailor services accordingly for target users.
- It should offer the potential for more communication between providers and purveyors by interlinking among and between these communities.

A challenge noted with this option is the need for an effective way of converting users and funders to this 'shopping centre' approach, particularly in the absence of appropriate governance to coordinate and develop the requisite business model(s).

2.2.3 User Engagement

Co-design and co-development are concepts that are generally not well understood and differentially applied within the existing user-provider nexus in Australia. Particularly challenging is enhancing the willingness and ability of both users and providers to invest time and effort throughout the product and service development process and in the broader development of the associated platform (e.g. governance); considering various operational constraints for users, developers and funders. One means of addressing this challenge would be to build capacity and engender innovations in stakeholder engagement, including the use of a broader range of different engagement strategies and methods (considering what works where, when and why).

There is a clear recognition that user engagement is critical, particularly in terms of considering and reflecting on the users' journey when designing, developing and subsequently evaluating web-based platforms. Such engagement stimulates 'user pull' for such platforms and the products and services

they provide, and growing this pull through targeted engagement helps develop demand and build user capability and trust. The current focus on engagement between the science community and the finance/investment sector in Australia is a case in point. This sector in Australia is leading the way in looking to meet its climate physical and transitional risk management, reporting and adaptation/mitigation requirements, and has expressed a willingness to be engaged in future developments. This sector is actively talking to government and could provide a powerful partner in facilitating the development of the required platform ecosystem, including by articulating and demonstrating the value of any investment in services.

A key advantage in Australia is the potential for the active engagement of Traditional Owners in developing information and knowledge supporting climate action. Benefits include embedding traditional knowledge to enrich that provided by the science community, and enhancing the engagement of these communities in local through to international climate action initiatives.

A particular aspect for which co-design and co-development is seen as being critical is in efforts related to defining and developing standards and QA/QC approaches, as the lack of such standards and approaches is limiting acceptance of outputs by industry and government regulators. The need for transparency, comparability, traceability and credibility calls for user engagement to inform the process, but also a central authoritative body to establish (potentially through a phased approach) and maintain agreed processes.

It was also suggested that existing nationally relevant case studies demonstrating the results and value of user engagement in Australia, along with a broader set of enablers such as knowledge-brokering and communities of practice can provide learning and capacity building opportunities. Such case studies should be based on the experiences of the user community (rather than just the scientific community) to promote peer-to-peer learning.

2.3 Other challenges and opportunities for knowledge exchange

As is the case in Europe, there are similarities and difference between the scope, governance, business models, content and functionalities of web-based climate knowledge platforms comprising the current landscape in Australia. For the most part, these reflect similarities and differences in the contexts within which the platforms are being developed and operating. Coincident with this is the significant capacity and enthusiasm within the science, service and user communities (as demonstrated during this EU-Australia BKE event and during earlier events within Europe) to deliver a coherent and coordinated capability at the national, sub-national and sectoral levels. Together, these could be seen as offering opportunities for shared learning and for developing a deeper understanding of how to enhance contributions from web-based knowledge platforms to supporting climate action (resilience, adaptation and mitigation).

The following points refer to specific areas where the deliberations during and reflections following the EU-Australia BKE workshop suggest potential areas for increasing understanding and mutual learning:

- The EU-Australia BKE event illustrated the greater focus in Australia on providing climate data and resources to support disaster risk reduction and climate resilience and on supporting the private sector (e.g. the financial and investment sector to meet requirements

of TCFD reporting). In comparison the European focus for such platforms is primarily on supporting national and European climate change adaptation policy requirements. These differences could provide opportunities for improving the value of web-based platforms, including means of enhancing linked action on climate adaptation, disaster risk reduction and on supporting activities that could stimulate cooperative links with the private sector and sustainable financial investment.

- Sharing challenges related to enhancing the pull for climate services and maintaining both policy and practice relevance through the offerings on the platform.

Exploring a network style of governance that is more than a transactional activity but based on wider framing that considers the associated social architecture is preferred. It would also be best for this design to be based on a participatory governance system involving users, providers, purveyors and funders.

Deliberations within this BKE event highlighted other challenges that warrant further consideration:

- Identifying an appropriate digital (web-based) and domain (people-based) balance. Although not discussed in detail, it was behind a number of the discussions reflecting concerns about the limits of web-based platforms and the roles of user relationships. Having a respected, quality on-line resource is necessary but often insufficient in terms of enabling action.
- Exploring means of reconciling challenges posed by differences between users' expectations and science capabilities with respect to spatial and temporal granularity of outputs, and by the need to merge with non-climate data/information (e.g. exposure and vulnerability) when identifying and assessing risk and adaptation/resilience responses.
- Exploring means of positioning new and existing platforms in an opportunity framing. Adopting and implementing an adaptive approach up front to ensure platforms can evolve to build resilience both now and into the future as needs and other salient circumstances inevitably change.

Although not dealt with in detail, there was an additional area for knowledge exchange that is worth highlighting. In Australia there is a considerable focus on supporting project level actions. It was suggested that this focus is a result of the primary drivers, the expressed needs of the user communities and the revenue-dependent business model often underpinning these projects, but potentially also the limited national policy pull. It has been suggested that project-level support can provide opportunities for enhancing private investment and support for web-based adaptation platforms; the advantages and disadvantages of such an approach warrant further investigation where national level outcomes might be possible.

3. Themes

A theme-based summary (see Annex 2) has been developed within the KE4CAP project drawing on the experience and expertise within the KE4CAP team built up through engagement with the web-based climate knowledge platform community over the past decade. The themes draw on the challenges and lessons learnt as identified by the KE4CAP team and partner countries, and by the platform community within Europe (e.g. those reflected in the European Environment Agency (EEA)

Report 'Overview of climate change adaptation platforms in Europe' and more recent discussions within the EEA).

The overall aim with this theme-based summary is two-fold. First, it is intended to provide a snapshot summary of the knowledge exchange contributions from each event – which themes were considered and the results from a KE4CAP perspective. Secondly, it provides a means to view which and how themes have been addressed and where there are other perspectives or gaps that need to be further explored. Together, these should provide a pathway to enable the KE4CAP team to track thematic progress over the project lifetime and also inform subsequent events and activities.

The themes are not prioritised nor seen as either comprehensive nor mutually exclusive. As the KE4CAP project progresses, the aim is to update the themes and content to reflect the interests of engaged countries. As such, we have deliberately adopted a flexible, iterative approach when identifying the themes, recognising that this will likely evolve as the community increases and we gain experience through KE4CAP events and other activities.

4. Lessons learnt with implications for subsequent KE4CAP activities

This section draws on deliberations during the EU-Australia BKE event, and subsequent reflections by KE4CAP team members, with the aim of highlighting lessons learnt from delivering this event and the implications in the context of the nature and scope of future KE4CAP activities.

- The benefits of a BKE are likely to be enhanced if the event is delivered as part of either a newly-established or an existing capacity-building and knowledge exchange process within the host country. The appropriate timing of an event within the host country's overarching schedule is crucial to maximising engagement and impact.
- Focusing specifically on host country concerns and lessons learnt and common challenges with the EU enhances the value and impact of the BKE event (i.e. a truly bilateral activity). Broadening the scope to include multiple countries would likely limit in-depth discussions, divert attention and diminish the overall impacts of the event. Priority user communities, and hence priorities for services, can also expect to differ markedly between countries.
- The programme structure and content should reflect where the host country is in their journey; focusing on knowledge exchange relative to challenges and issues that are critical to the country making progress, but that are also of interest to the EU countries.
- Opportunities for participants to better understand the national and European capabilities represented in the room is crucial. This can be reflected in the programme through presentations and/or demonstrations but also by providing pre-workshop information to all participants (recognising time limitations during the event) and exploring innovative means of knowledge exchange by sharing more than just that available from a limited set of presentations.
- It is important that the programme enables flexibility in delivering the BKE event. This includes scheduling opportunities for participants to reflect on learning at the end of each day and including a willingness to rapidly adjust the on-going programme in light of progress

and outcomes during past sessions. Being agile with respect to the programme can increase the participants' continued interest and energy, and maximise overall benefits.

- Getting the right people in the room, and also recognising communities who are not present, is critical to the success of the event and also to the longer journey. Broad engagement is important, but so is the need to get on with knowledge exchange and building capacity. For example, engaging users, including Indigenous communities, can offer huge advantages; in diversity of thinking, demonstrating respect and engendering trust. The fact that this event is (and is seen as) part of a broader national knowledge exchange process / journey means that there should be future opportunities to engage those not in the room for this event.
- There is a need to recognise, both by reflecting in the programme and including in discussions, the spectrum of data, information and supportive resources that comprise web-based platforms (more than just data and projections). This includes recognising the differences in the scope and content of web-based platforms relative to participants interests and reflecting an appropriate balance within the programme.
- There is value in capturing the results independently from both the host and the KE4CAP perspectives. Consistency and complementarity in reporting is critical as both reports are part of continuous learning-to-improve processes, but their respective scope and content reflect their different targeted audiences and specific aims (informing a national process versus informing a multi-national knowledge exchange process). A good working relationship between those preparing the reports and a shared set of notes can help strengthen consistency and linkages.
- The use of an agreed set of overarching 'Themes' can be beneficial for informing both the national journey and the KE4CAP pathway. The value of such a set has been recognised by the Australian hosts and within KE4CAP as providing an effective basis for capturing learning and helping to focus the way forward on critical issues and challenges.
- A background paper summarising relevant user needs, policy drivers, research, climate service capabilities and web-based platforms could be distributed prior to the workshop to prime the discussion.

Supported by:



This publication was produced with the financial support of the European Union's Partnership Instrument. Its contents are the sole responsibility of University of Oxford and do not necessarily reflect the views of the European Union.

Annex 1. EU-Australia BKE Agenda

Knowledge Exchange: Services and Science Supporting Climate Action

An EU-Australia bi-lateral workshop on developing and using web-based resources to enhance climate intelligence and support climate action.

Melbourne, Victoria

Tues 3rd March: Australian Perspective / EU Reflections

Time	Item					Notes
08:15 onwards	Registration					
09:00 – 09:15	Acknowledgement of Traditional Owners Welcome – Workshop Objectives & introductions					
09:15 – 09:30	The KE4CAP initiative – need for, and benefits from EU – Australia bilateral exchange on supporting climate action					Roger Street, Oxford University/KE4CAP
09:30 – 10:00	Session 1: National Climate Services Capability Project					Geoff Gooley, NESP ESCC Hub
10:00 – 10:30	Session 2: CSIRO Navigating Climate Change Mission					Helen Cleugh, CSIRO Climate Science Centre
10:30 – 11:00	Session 3: Bureau of Meteorology 2020-30 R&D Plan: Toward a Seamless Environmental Weather-Climate Service					Gilbert Brunet, Science and Innovation BOM
11:00 – 11:30	Coffee					
11:30 – 12:00	National Case Studies: CMSI/ASFI, ESCI, NHP and NDRISC					CMSI, ESCI, NHP, NDRISC
12:00 – 12:45	Session 4: Australian ‘Climate Intelligence’ Platform Capability: Panel discussion involving CCiA, CoastAdapt and other national/state-based platforms)					Facilitator/Moderator + Jean Palutikof/John Clarke & other panel members
12.45 – 13:30	Group photo and Networking Buffet Lunch					
	Parallel Group Discussion: National Challenges and Potential Solutions					
13:30 – 14:30	Session 1: Standards and QA/QC	Session 2: Linking, integrating & coordinating	Session 3: Linking science & services	Session 4: Business models & IP	Session 5: Traditional knowledge & science	Discussion Group Leaders/Rapporteurs
14:30 – 15:00	Coffee					
15:00 – 15:30	Plenary Feedback from Parallel Session					Rapporteurs from parallel groups 1 -5
15:30 – 16:30	Panel Discussion of key outcomes from small Group Discussions					Facilitator with panel
16:30 – 17:00	Initial reflections to Day 1/Group discussions from an EU perspective					KE4CAP/EU Partners

17:00 – 18:30	Networking reception with platform demonstrations	CCiA, INDRA and other national/state-based platforms
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Wed 4th March: EU Perspective / Shared Challenges

Time	Item					Notes
						Facilitator: Kevin Hennessy
09:00 – 09:30	EU1: Climate Services – EU web-based platform landscape and next steps					Roger Street, Oxford University/KE4CAP
09:30 – 10:00	EU2: Copernicus					Carlo Buontempo, Copernicus Climate Change Service, ECMWF
10:00 – 10:30	EU3: Transnational Services Climate-ADAPT					Sergio Castellari, European Environment Agency
10:30 – 11:00	EU4: National Services – Climate Ireland					Barry O’Dwyer, University College Cork/Climate Ireland/KE4CAP
11:00 – 11:30	Coffee					
11:30 – 12:00	EU5: End User Perspectives					David Dodd, Dublin Metropolitan Climate Action Regional Office
12:00 – 12:30	EU6: Mapping User Expectations to Current Climate Adaptation Support					Jeremy Gault, University College Cork/Climate Ireland/KE4CAP
12:30 – 13:00	Open Forum Q&A/EU Panel Discussion					Kevin Hennessy + EU/KE4CAP panel members
13:00 – 13:45	Networking Buffet Lunch					
	Parallel Group Working: Shared Challenges and Potential Solutions					Facilitator: Neil Plummer
13:45 – 14:45	Session 1: The value proposition	Session 2: Engagement (co-design, development, production)	Session 3: Integrating 3rd-party knowledge	Session 4: Governance & resourcing	Session 5: Evaluation & review	Discussion Group Leaders/Rapporteurs
14:45-15:15	Coffee					
15:15 – 15:45	Feedback from Parallel Session					Rapporteurs 1-5 Facilitator
15:45 – 16:45	Panel Discussion					Facilitator with panel of 5 session leaders + Rapporteurs
16:45 – 17:15	Reflections on Day 2					ESCC Hub/CSIRO/BOM
18:00 – 19:30	Workshop dinner and networking					

Thurs 5th March: Roadmap and collaboration

Time	Item	Notes
09:00 – 09:45	Value proposition: resilient Australia by 2030 with significant social, economic & environmental benefits	Facilitator: Geoff Gooley
09:45 – 11:15	Parallel Group Working: Roadmap for climate services	
	Session 1: Government Session 2 Private sector Session 2 Research Session 3 Indigenous	Facilitators/ Rapporteurs
	Key questions <ul style="list-style-type: none"> • Governance & strategy development • Business model(s) & partnerships • Barriers & enablers 	
11:15 – 11:45	Coffee	
11:45 – 12:15	Feedback from Parallel Session	Rapporteurs 1-4 Facilitator
12:15 – 13:00	Panel Discussion	Facilitator with panel comprised of 3 Rapporteurs plus three (e.g. one additional member from each theme) – mixture of members
13:00 – 14:00	Networking Buffet Lunch	
14:00 – 15:30	Realising Future Collaboration based on Key Outcomes / Identified Shared Opportunities, including next steps/taking the learning and challenges forward within KE4CAP	Facilitator
15:30	Workshop Close	



National Environmental Science Programme



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This event has been organised with the financial support of the European Union's Partnership Instrument. The opinions expressed are the sole responsibility of the speakers and do not necessarily reflect the views of the European Union.

Annex 2. Themes

	2nd ICCAP meeting, Dublin, October 2019	EU-Australia BKE, March 2020
Themes	Key messages	Key messages
Sustainability Governance Resources		
The value proposition		<p>There is not yet a clear value proposition for an overarching climate services platform. This needs to be established working with stakeholders to ensure legitimacy and credibility, and be supported by the science community.</p> <p>The value proposition needs to be framed as: What, why and how? There will likely be different value propositions depending on the stakeholder group; all will benefit from demonstration of the on-going operational need and value for such a platform.</p> <p>Looking towards achieving, for example, a 'Climate Resilient Australia by 2030' with discussions focussed on how best to deliver knowledge, information and data to all Australians to provide an enhanced national climate service capability. This goes beyond recognising the need for action towards supporting pathways for action.</p> <p>Recognise any necessary limitations: looking for something that covers 80% of socio-economic activity, assuming remaining 20% is too diverse to cover.</p>
Business models		<p>Need innovative business models to initiate and sustain climate services for public and private use. Should be coordinated and well-connected which will also help ensure access to govt and private funds to support core and outreach infrastructure and services.</p> <p>BMs need to evolve to reflect user landscape - one approach is to initially use government to support core infrastructure, science and services, and then shift to include co-investment by the private sector (public-private partnerships).</p> <p>The challenge is finding a model that overcomes a fragmented and uncoordinated supply side whilst meeting the needs of a rapidly evolving demand side.</p>

		<p>In the short-term (2/3 years), consider developing strategic alliances with a small number (e.g. 4-5) key professional bodies/consultancies who have knowledge to help scope problem and start creating an effective model.</p> <p>In the longer-term (out to 2030), aim for a science-to-service transition which is faster than the current 10-12 years, as needed by both policy and practice. Improve efficiency and build capacity and capability (requires different BM and governance).</p> <p>Consider the role of organisations, consultancies, NGOs etc. as part of the BM, for example in driving innovative ways of providing tailored, differentiated products.</p> <p>Consider 'shopping-centre' analogy - need both providers of basic items and more specialist providers but all linked together by a common architecture, standards and governance.</p>
Funding requirements		<p>Recognise that resources are limited; start by avoiding unnecessary duplication and enhancing synergies and complementarities. It is possible even with limited resource to make a difference through a targeted and phased approach.</p>
Human resource requirements		
Lifecycle planning		
Interoperation of platforms		<p>There are a number of sector- and state-specific platforms already available within Australia, and a recognition that there is always going to be a need for a suite of platforms; the challenge is to improve connectivity, to cross-link data sources and to enhance overall comparability and transparency. Not an easy proposition giving the varying capabilities, user needs etc of existing platforms.</p> <p>Drivers could be a national agreement on a common set of scenarios so users understand more easily what is being used and why; and working with the DRR community to deliver coherent advice on climate resilience and adaptation.</p>
User needs and relevance		
Understanding (evolving) users + user needs	<p>Findings show that engagement approaches by adaptation platforms were wide ranging, from online provision of climate and adaptation information to dialogue between users and providers.</p>	<p>Closely linked to the value proposition. The user landscape is complex with different jurisdictions having different drivers and levels of complexity, but all have the common overarching need to improve</p>

	<p>The primary aim of engagement was to increase the relevance of the information contained on the platform, to increase the reach of the platform (grow audience) and for evaluation purposes. A number of challenges to engaging with users were identified as part of workshop activities and included: Defining adaptation platforms (Are platforms online or more boundary services), the number of adaptation platforms developed and in development (which is the best platform), issues with common language both between adaptation platforms and between adaptation platforms and other service employed by the users. Maintaining users was also identified as a challenge due to the requirement to provide for existing and new users.</p>	<p>resilience. Recent events (bush fires/flooding/drought) mean there is now a window of opportunity to demonstrate the value of adaptation and resilience especially to the policy community e.g. by highlighting examples of end-user use and support. There is an immediate need to map and engage the diverse range of stakeholders (understanding needs) and knowledge platforms (understanding scope and content) within Australia.</p>
<p>Policy / decision-maker needs</p>		<p>Want to deliver support for informed decision-making for all Australians based on high-quality information. Look towards a network-style interjurisdictional governance model that recognises co-design etc. Current signals from government stress the need for adaptation and resilience - look towards providing e.g. a Resilience Agency which recognises the value of sustained knowledge support as an enduring long-term solution to help drive climate action.</p>
<p>Private sector needs</p>		<p>Business tend to focus on action; can use consultancies/boundary organisations as intermediaries to link with climate science. Look at partnership models to provide a central analytics capability linked to specialist outputs. Start building strategic links with several key business sectors as a first step towards demonstrating viable approaches.</p>
<p>Sector-specific needs</p>		
<p>Indigenous peoples' needs</p>		<p>In-person input from representatives of the indigenous communities was crucial in highlighting potential links and interdependencies. Questions arose about how to best to engage at grass-roots level, how to reach communities without internet (an appropriate digital-domain balance) and how platforms can promote greater representation of Indigenous communities in other fora e.g. at CoP. Australia is taking a lead in building dialogue and engagement with indigenous people; one target should be the routine involvement of such communities in the provision of climate intelligence at all stages.</p>

Remote and rural community needs		
Undertaking user testing - timing within the design, development and operational processes	Co-design, co-production, co-evaluation was considered pre-requisite in developing the platform but also as a source of dialogue to understand user needs but is also challenging due to resource constraints.	
Enhancing policy and practice relevance Providing policy framing		Discussions highlighted the desire to see seamless and consistent information from across federal, state and local levels, and also across time. Focus on framing the overarching pitch e.g. what is needed by 2030 and work backwards.
Retaining relevance (scientific, policy and practice)	Retaining relevance to users was identified as a challenge due to increasing capacities of existing users while also supporting new users.	
Guidance development and updating		
Platform design and technical and structural features		
(information) architecture		Needs to reflect both existing platforms and systems, and the need to integrate at the national level: hub and spoke model, shopping-centre model etc.
functionality and features		
navigability and accessibility		
Integrating innovations to enhance utility:		
visualisations		
GIS data (e.g. risk/hazard maps)	GIS data were considered a priority, particularly in the context of more advanced users (i.e. those with some experience of adaptation planning and who seek to go beyond awareness raising). It is essential that these data are integrated and should support both climate and non-climate information to allow for vulnerability and risk mapping	
timeseries data (e.g. climate)		
storylines and narratives		
Integrating different knowledge types (once user needs known)		

Co-learning co-development approaches	Very important and in understanding user requirements - climate adaptation is learning by doing, the same might be said of developing climate adaptation platforms.	Clear recognition that science input and user engagement are critical but that co-design and co-development not well understood or systematically applied. Challenges include limited willingness to invest appropriate resources beginning at the design stages and lack of standards and QA/QC to help build trust and acceptance of outputs. Case studies would be particularly useful to promote peer-to-peer learning.
Integrating and linking to other data and information - socio-economic, etc.	Considered essential for the development of adaptation actions and going beyond awareness raising, data should be delivered through GIS functionality that aligns with existing user systems.	
Linking science and service Inclusion of different content types	Tailored services are required by users and to meet their specific aims and objective. Currently, online platforms tend to try and be all things to all people. Tailored services provided by platforms are provided but generally on a one-to-one ad offline basis, resource intensive in nature.	Discussions focussed around improving the science-to-service transition enhance the relevance, usability and credibility of that on offer. There was consideration of learning from Copernicus: how to present complex/simple information, how to avoid unnecessary details, how to improve communications etc. Education of users is a current issue, guidance is needed on choosing data/projections etc., and there was agreement that professional knowledge brokers and translators are needed to customise the messages. How can platforms be standardized / harmonized to enhance use and avoid confusion?
Integrating third-party knowledge	Essential as third-party knowledge provides framing for employment of climate data within decision making processes.	Current platforms do not tend to incorporate 3rd party information well, and what is available tends to be very siloed with little integration across state/sector. The aim is to facilitate co-design through sustained engagement and to provide comparable and coherent knowledge and data across jurisdictions to allow seamless decisions-making. Need to give attention to ownership and provenance of information (IP etc).
Integrating Traditional Local Indigenous knowledge		Western science and indigenous stories are complementary and need to be brought together to enrich the overall offer. Australia is taking the opportunity to share dialogues around climate change and climate services. Traditional owners knowledge systems are recognised but could be better incorporated in platforms e.g. for ground-truthing the science. Integration needs to start at the beginning of the process to allow full co-design and co-development of services. Need to accept a broader definition of authoritative. Issues also need to be addressed on

		embedding cultural frameworks, obtaining continual consent, IP and improving traceability to increase value.
Outreach communications/engagement models		
User engagement	Primary aim is to increase reach of platform, increase the relevance of information contained on platforms and for evaluation	Discussion focussed on how to achieve co-design, co-development and co-delivery. There is a need to explain what this involves, to establish some best practice and to demonstrate the benefits of co-design etc. across different sectors/disciplines. When considering how much information is needed to start the conversation, it was recognised that there is current appetite, but that barriers include limited funding, the resource intensive nature of co-design, and the need for suitable approaches to drive progress (legislation?). Showcase successful co-designed projects to promote greater engagement.
Eliciting user needs	Co-design, co-production, co-evaluation is considered essential but challenging due to resource constraints.	Linked to stakeholder mapping. Propose doing a national review of users to help drive investment, change the utility of platforms, inform MELR etc. Would need to be tailored to different communities, sectors etc.
Elliciting input from science		
Balancing online and offline - digital-domain balance	There is a requirement for offline activities, particularly in introducing users to platforms and increasing user capacities to employ services offered by adaptation platforms	
Building and supporting networks		
Encouraging/supporting peer-to-peer communication/networking - communities of practice		

Monitoring, evaluation and learning Effectiveness		
The evaluation process (co-evaluation) and the role of feedback mechanisms	Evaluation is essential to develop business models but difficult due to a need for metrics, beyond web stats.	The immediate barrier is how to do meaningful MELR in the absence of a strategic basis. This links to the requirement for an agreed governance structure within which any review should be undertaken. Evaluation must be user-led and independent and may also need to be sector-specific. Best evaluations are based on a temporal assessment and require an agreed set benchmarks.
Performance measures / metrics		
Need for and role of Standards and QA/QC		Need to have a central trusted authority to maintain and update standards across states and sectors
Learning from and responding to effectiveness and viability assessments		No point in evaluating if there is not a mechanism or the willingness to use the results; need to include this as an explicit stream within good governance.
Interoperability Linking of platforms Quality assurance		
Standards and QA/QC		The current state is recognised as broken, with projection shopping to give the answer a user wants. To enable decision-making, transparency, credibility and comparability all need to be improved. The suggestion was for a trusted central authority (user-owned) to provide oversight and to agree a process to establish, maintain and update standards, including as new data, knowledge and resources become available. This is a critical process but needs to be started even if there is not full agreement.
Connecting platforms Strengthening connections Content sharing/connecting		Many platforms already operating across states/sectors. Need to recognise their value whilst looking to improve connectivity, cross-link underpinning data sources etc.
Governance – linkages and understanding relationships and relative roles (complementarities)		Australia is currently lacking any formal governance for a national climate services capability, suggesting a need to self-organise into a more viable community with effective governance and clear objectives and mechanisms to achieve them. What governance would allow the community to work with current resources to deliver the support required and put forward a compelling argument for investments from public and private funding sources?

		<p>Leadership is crucial. Need to identify those individual/groups who can operate above organisational limits.</p> <p>In terms of sustaining the required governance, it was recognised that users must be engaged in governance with service providers and researchers to provide the required capability and expertise. The governance system needs to be adroit and responsive to maintain appropriate climate intelligence capabilities and to deliver in response to evolving user needs.</p> <p>Initial steps could include Identifying pathways through private sector organisations and government agencies to reach intended targets, looking to collate resources from a range of sources (state, federal and private), working on cost/benefit analyses to illustrate the value of adaptation/resilience. and identifying and demonstrating the value added by web-based adaptation platforms.</p>
Enhancing the user experience	Users want interactive feature that are graphical and easily consumable for their current decision-making processes	
Enhancing provider capacities	User engagement is a win-win and increases capacities of providers to meet user needs thus enhancing the offering	
Shared technologies/approaches		
Application Programming Interfaces		
Taxonomy/ontology		
Roles of platforms and content		
Data provision		
Decision-support tools and resources		
Awareness, capacity building and education		
The potential of supporting MELR at the national and international levels		