

Attendees:

Tasmania	Michael Giudici	<i>ICSM Chair</i>
Australia – civilian	Simon Costello	<i>ICSM Deputy Chair</i>
Australia – civilian	Gary Johnston	
Australia – Defence (AHS)	Zarina Jayaswal	
Australia – Defence (AGO)	Maree Wilson	
Australian Capital Territory	Ron Jarman	
New South Wales	Narelle Underwood	
New South Wales	Wayne Patterson	
Northern Territory.....	Rob Sarib	
Queensland	Russell Priebbenow	
South Australia	Michael Burdett	
Victoria	Craig Sandy	
Western Australia.....	Annaliese Walster	

Apologies:

Australia – Defence (AHS)	Brett Brace
New Zealand.....	Mark Dyer

Invitees

ANZLIC	Brian Sloan
Spatial Data Policy, PM&C	Judi Dawton
CRCSI	Phil Collier
PSMA	Michael Dixon

Minutes

ICSM Executive Officer	Lesley Waterhouse
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1. Opening

1.1 Welcome and Apologies

Jeff Brown (Surveyor-General, ACT) welcomed ICSM to Canberra and thanked everyone for travelling across Australia to attend. He acknowledged all the work, and extra time devoted by Ron Jarman in organising the venue, catering, dinner bookings and telecommunication arrangements, in order to make the meeting run smoothly. Jeff looked forward to attending parts of the meeting and catching up with everyone at dinner later. Jeff's attendance at the PCC meeting yesterday, gave him an appreciation of the importance of a national meeting of all jurisdictions in ensuring a co-ordinated approach was adopted in the spatial industry.

Michael Giudici paid respects to the Ngunnawal people, on whose lands we were meeting. Michael also noted that due to commitments at LINZ, that Mark Dyer (and Anselm Haanen) was unable to join this meeting. He also welcomed Rob Sarib (NT) Zarina Jayaswal (AHO), who was deputising for Brett Brace; and Brian Sloan and Judie Dawton who were observing from Spatial Data Policy Section, Prime Minister & Cabinet.

1.2 Previous Minutes

The minutes from Brisbane and two teleconferences were confirmed and accepted as correct. Moved by Russell Priebbenow, seconded by Craig Sandy.

1.3 Actions

September teleconference:

01/09 – Carry over

02/09 – Completed.

03/09 - Completed

04/09 – Simon was still waiting from some jurisdictions to forward their data – Tasmania, Victoria, NSW, Northern Territory and Western Australia

05/09 – Michael had a discussion with John Dawson and established that Simon had been reimbursed for his work by Geoscience Australia, once CRCSI funds were exhausted.

July teleconference:

01/07 – Closed.

02/07 – Ongoing.

03/07 – Completed.

Brisbane Meeting:

01 – Completed, next meeting in Melbourne on 21 November.

03 – This is a new consumer right, whole of government, including States and Territories to have national data custodian, and will be going to cabinet soon, hopefully by the end of November. There is still a lot to be done at data management level. A policy already exists by National Archives on retention of public records. They are expecting BAU approach to be taken. Close this action, a new action to have report from Brian at next meeting. This flows into the action by Simon of PCTI co-ordinated custodianship. There should be an extended data custodianship model based on the Geofabric one.

ANZLIC and ICSM are seen by government as mature data custodians and is happy for this to continue.

Action Cbr 01: Brian Sloan to provide a report at the May 18 meeting on data custodianship from the Federal government

04 – Closed.

05 – Ongoing, Joe Abhayaratna has written a paper on value of Standards to government, which will be discussed at upcoming Standards meeting in New Zealand.

Action Cbr 02– *Brian Sloan to circulate Abhayaratna standards to government paper.*

06 - A new working group has been stood up to work on international standards for API development, particularly addressing.

07 – Closed.

08 - ANZLIC contact officers represent the entire jurisdiction and are a point of contact for ANZLIC matters.

Action Cbr 03– *Brian Sloan to circulate reference paper.*

09 – Closed, to be further discussed during meeting.

10 – Ongoing, to be further discussed during meeting.

11 – Closed.

12 – Closed

13 – In progress.

14 – Ongoing.

15 – Closed.

16 – Closed, ongoing. Michael Burdett added that South Australia is about to go to tender for software refresh. ICSM will host on behalf of South Australia; Western Australia currently holds the IP, but South Australia is going to improve on technology. WA and SA to sign IP to ICSM, this is possibly the last time this will need to be done.

17 – Completed.

18 – Closed.

19 – Closed.

20 – Completed. On meeting agenda.

21 – Completed.

22 – Completed.

23 – Completed.

24 – Completed.

25 – Completed.

26 – Completed.

27 – Completed.

28 – Completed.

2. Stakeholder Relations

2.1 ANZLIC – Brian Sloan

Brian Sloan reported that Chris McRea (Vic) is about to retire and a new Victorian member will be appointed shortly. Steve Jacoby took over as Chair from Mike Bradford in July.

The PSMA reform has been taking up a large part of ANZLIC's time and focus recently.

Steve Jacoby has set the agenda on what ANZLIC should be achieving, particularly delivery of the relevance of spatial information to government programs, and ongoing funding for such programs.

The next ANZLIC meeting will be held in Wellington, NZ on 30 November where the prospectus is to be finalised, for the new entity of the CRCSI.

ANZLIC members are highly interested in shared communications on such projects as SBAS and other joint government projects. There is a high level of interest of how to address metadata at a national level. There is focus on linked data, and in future national datasets will be less aggregated data and more source of truth from jurisdictions.

2.2 Standards

Andrew Jones will be retiring shortly, so there is a need to appoint a new representative on ISO/TC211.

Action Cbr 04: *Michael Giudici to contact Chris for more information on indoor GML for circulation to ICSM, and discuss definition of 'smart cities'.*

Simon Costello queried what is expected of the person who will sit on ISO/TC211, are they expected to be across every standard, or have multiple people specialising in a few standards.

Action Cbr 05: *Discussions to be held with Andrew Jones and Chris Body on expectations of the role, and how to best fill this position.*

2.3 CRCSI – Phil Collier

Phil spoke how the CRCSI is on the cusp on creating a new entity, that will not be Commonwealth funded. Phil has seen enormous change in his 38 years in the spatial industry and now that rate of change is accelerating. Over the last few years there has been a revolution in the spatial industry and the dependence on spatial information by many services and other industries. It has moved from a very niche specialist group, to being mainstream and ubiquitous. The change has been from expert knowledge to mainstream knowledge at everyone's fingertips. People now understand their dependence on spatial information. The significant change is that people presume and demand accuracy, that the information is timely, interoperable, fit for purpose and easy to use.

The best demonstration of merging of technology and spatial is the advance and implementation of autonomous vehicles. The spatial industry is transforming to underpin such capability. Large corporations are now driving the capability and technology of spatial information. It is unprecedented, the reliance people now have on spatial information.

The CRC been existing for 15 years, and has delivered a lot of practical, useful and driven outcomes in this time. It has provided support for GDA2020 and ATRF, with research providing technical underpinning for implementation, the Ausgeoid solution now has an uncertainty layer included. In collaboration with Geoscience Australia, the height datum is being reviewed and modernised. They are working on National Positioning Infrastructure, providing real time solutions. The CRCSI is also working in SBAS testing with GA and LINZ, they are collaborating with the PCC with 3 cadastre projects. They are continuing work in spatial knowledge infrastructure, urban BIM, flood mitigation, and many other projects.

The CRC have funded about half of all program of CRCSI. The CRCSI can no longer access CRC funds, so have sought new partners to continue research as a new entity. There is a new era of opportunity with bigger gains and bigger impact than in the previous 15 years. They will continue to build relationships to share problems, share investment and leveraging research and collaboration to benefit all.

GA, DEWLP, Spatial Services (NSW), DNRM (Qld), LINZ and WA Health have delivered letters of support and promised funding. Also RMIT, Curtin University, University of Canterbury (NZ), QUT will continue support for research. There is no private sector support as yet. Some other organisations have also promised letters of support, but are waiting for contracts to be exchanged to confirm.

Foundation partners are on the steering committee to guide new entity to be chaired by Steve Jacoby, along with existing board. The board will formally approve and announce transition shortly. Phil would like to ultimately see all ICSM jurisdictions participate and collaborate in the new entity.

There is a Benefit Statement available for jurisdictions that have not yet signed up, to assist in putting up a business case to participate.

2.4 PSMA – Michael Dixon

A lot of PSMA's focus has been on the delivery and improvement of the Geoscape product.

There has been a focus on working with Commonwealth agencies, especially on how addresses are used. PSMA is seeking to enhance GNAF location use, to provide better context and real addresses.

PSMA would like to be more involved with CRCSI and 3D developments and research, to gain a better understanding of the value of addressing.

3. Committee Reports

3.1 Permanent Committee on Cadastre (PCC)

Russell gave a quick overview of the meeting and discussions held prior to ICSM, for those not present, in particular the reports on the various research proposals and the programs already underway.

Don Grant gave a report on his project, the functions and benefits of the spatial cadastre. There is a move away from 'survey accurate' to a 'fit for purpose' cadastre. Don would like to see the terminology standardised. He has also conducted several workshops across the jurisdictions and these are 80% completed. A decision point was reached at yesterday's meeting as to whether the project would continue, which the PCC agreed to. A workshop is to be held in Melbourne to finalise consultation, give feedback from the key stakeholders (including PCC members) that will lead to the wrap up of this project. Don is also proposing to write a paper for international publication on this project as he believes it has not been addressed until now.

Some of the issues identified include:

- Who is the spatial cadastre (DCDB) mainly for?
 - Surveyors, lawyers, registrars, land agencies, other government agencies, utilities, asset managers, landowners, general public?
- What are the most valuable functions served?
 - Boundary re-establishment by surveyors?
 - Land administration functions by agencies?
 - Reliable guidance for landowners & right holders?
- Coordinated cadastres - Terminology / Concepts
 - Should DCDB be indicative / authoritative / legal?
 - Should coordinates match the boundary or vice versa?
- Accuracy: How defined? Relative to what?
 - Positional uncertainty in terms of datum & other data
 - Survey / local uncertainty?
 - What accuracy is needed for the principal functions?
- Pathways for spatial accuracy improvement
 - Fit for purpose approach

The second project, being led by Maurits van der Vlugt and Adrian White, is still in the planning and initial stakeholder interview stages, examining procedures and tools to transition the cadastre to a dynamic datum. One of their first findings, was with the introduction of GDA2020, that to 'do nothing' was not an option. However there are some barriers that prevent such adoption, foremost of which is lack of support in COTS software and variable levels of user understanding.

The interviews have also demonstrated a need to manage people's expectations, to be done by education and raising awareness.

A third project was to use high definition imagery to extract data, has been delayed as the company that was to supply the imagery was bought by Fugro, so now they are seeking to source different imagery over a new test site. It was also identified that ESRI has some tools in their suite, that would assist this project instead of engaging a research assistant.

All these projects will be completed by June 2018, to coincide with the end of the CRCSI. There are some other project proposals that have not started, that are waiting for approval to commence.

The definition of property to be conducted by Bill Hirst, was approved recently by the CRCSI Program 3 Board, with ICSM to give in principle as well as in kind support. Previously, ICSM had approved \$20,000 financial support for phase 1. Phase 2 will require further funding and in kind contributions (workshops).

Resolution 17/11/01: *ICSM resolves to approve funding for definition of property project.*

There were some further ePlan proposals, two with CRCSI and two with Melbourne University. These projects will cover some of the goals outlined in Cadastre2034. Phil Collier identified from the PCC meeting that 3D and its visualisation, was the most important aspect to define. Phil will submit a draft document concerning this shortly.

The PCC is conducting a large body of research, which highlights the need for the CRCSI to assist in such research as we do not have capacity within ICSM alone.

Action Cbr 06: *The PCC is to better align its reporting (noting obvious logistics of the PCC meeting schedule) to ICSM.*

The State Border cartographic representation project is still progressing, there is an agreement in principle from NSW to adopt the Queensland interpretation of the border. The next step will be to add this to the DCDB.

Action Cbr 08: *Wayne Patterson to update NSW DCDB to incorporate the state borders with Queensland and Victoria.*

3.1.2 ePlan – Craig Sandy

Craig reported that the group is still focussing on three key areas, including ePlan and LandXML. There have been developments in various jurisdictions that are considering the various international standards being adopted and their impact on ePlan. The group is identifying how to make it easier for users to not only capture data, but have it more useable for other purposes and to integrate into a full data cycle.

The ePlan work is becoming more aligned with the DCDB, although there is no current driver to combine the groups at the present time.

There was also discussion regarding the privatisation of land registries, which may affect the membership with commercial concerns overriding previous co-operative and collaborative relationships, with some aspects now becoming 'commercial in confidence'. There is also a concern that conflicts of interests will now emerge, and there will be less government to government discussions. However there is still some motivation by private companies to leverage work flows with digitised processes becoming more prevalent.

3.1.3 DCDB – Ron Jarman

Simon Costello, Brian Sloan and Ron met to identify the gaps in the DCDB program with regard to the FSDF, which has contributed to a path forward for the group. There is a process in place for work flows from capture to final out-put for clients. With the similarities of gaps in DCDB and ePlan, it may be worth considering merging the groups to work on these aspects, particularly in the smaller jurisdictions that have the same membership, or at the very least, joint meetings of the groups. The DCDB has a more technical focus to resolve PCC technical issues.

3.2 Permanent Committee on Geodesy (PCG) – Gary Johnston

There is an ongoing discussion between PCG and PCTMSL regarding the disconnect between the onshore and offshore datums, this is to be formally included in the upcoming AusHydroid document, but both groups would like guidance from ICSM in terms how to settle the accountability issue.

The National Measurement Institute has formally gazetted the control reference points, meaning that GDA2020 is now the recognised datum for Australia. There was a delay in NMI gazetted this, due to staff changes who did not understand the process.

The official transformation parameters have been released in the GDA2020 Technical Manual, with some spreadsheet software and sample data. The FME cloud installation has been stood up to transform data, so we should be able to move robustly between GDA94 and GDA2020. A new version of AusPos has also been released that is GDA2020 compatible, and also works with GDA94.

GeodesyML is also still being developed to collect and move GNSS data in a machine to machine way. GeodesyML has been endorsed by the International GNSS Service as the recommended way to transfer GNSS metadata via web services.

Geoscience Australia has continued its work on the National Positioning Infrastructure Capability (NPIC) Strategy. Gary sees the NPI as being part of the Datum Modernisation work, with NPI letting users have access to information in near real time. There is a lot of background work continuing to harmonise the CORS network, to provide ubiquitous and uniform information to the public.

3.3 Geodesy Modernisation Implementation Working Group (GMIWG) – Michael Giudici

Simon Fuller was originally contracted using CRCSI funding of approximately \$15,000 to develop distortion grids. This work is nearly completed, with extra costs to complete this work, beyond the CRC funding, being provided by Geoscience Australia.

Narelle Underwood hosted a teleconference of the committee in October, now that the geodesy problems are resolved, data managers to start to implement. There are various tools being developed including the online forum, software tools and fact sheets. Michael is meeting with Nick Brown and Alex Ravenswood (GA communication manager) to coordinate the Minister's announcement and other promotional and communication details.

Hayden Asmussen (Victoria) is coordinating with CORS providers and he is also working with agricultural groups.

We are on the cusp of the next phase to have the tools and software to implement the new datum. This is a significant milestone and ICSM would like to properly recognise all those who have contributed over the years to reach this point, particularly in providing technical solutions.

Action Cbr 07: *ICSM to formally recognise the contributions made by all, to achieve GDA2020 and its implementation.*

There has arisen a need to form a new sub-group to address any legislation issues that may arise as a result of the gazettal and implementation of GDA2020, to advise jurisdictions on any issues.

Wayne said that it should not be underestimated how engaged local governments are with the implementation of GDA2020, and what requirements are needed for them to comply with GDA2020. Most jurisdictions have implementation plans, but now that we are close to gazettal, some will need a little refinement. Russell asked what engagement had occurred with software vendors? It has been variable as they have been waiting for the parameters to be published. They are not all necessarily ready, but are certainly aware of the upcoming change. ESRI will have to rebuild their entire data structure for several reasons, one of which is to include height, etc. The USA is also moving to a new datum, so there is further pressure for software vendors to update.

3.4 Permanent Committee on Topographic Information (PCTI) – Simon Costello

There was a face to face meeting held in Darwin in August, with most of the discussion of the establishment of a new strategic plan to cover the next three years. The new plan ties in with two focus areas of the ICSM Strategic Plan: implementing linked data and roads data project. It is still to be fleshed out a little more before asking ICSM for endorsement.

ELVIS continues to grow and is now better able to identify users and make contact with them. The statistics show that so far, NSW has the most downloaded data, as well as demonstrating a breakdown of industry sectors which has been very useful to custodians to understand why, how and who is using the data. It has shown that, surprisingly, two users were the urban design and hospitality communities.

The Elevation2030 strategy is underway and comments on the same would be welcome. It is partly based on the US elevation strategy which captured all levels of government and built use cases on the value of such data and importantly, its continued maintenance.

NSW and the Northern Territory are ahead of other jurisdictions with user needs for elevation benefits, and will share lessons learnt with the rest of the committee.

PCTI will also connect with PCG on the next vertical datum.

The historic aerial photography project is progressing well, GA is still digitising images, and will then be looking to georeference them. NSW is working with Bentley and not only georeferencing, but looking at producing 3D images.

Action Cbr 09: PCTI to connect Elevation2030 strategy with work being done by PCG on next vertical datum.

Action Cbr 14: All jurisdictions to forward to Maree Wilson (AGO) and Simon Costello (GA) their forward imagery/LiDAR capture plans to identify any gaps, overlaps or projects needing extra funding.

3.5 Permanent Committee on Place Names (PCPN)

Resolution 17/11/02: ICSM endorsed the new office bearers of Susan Birtles (Qld) as Chair, Peter Birkett (WA) as Deputy Chair and Rafe Benli (Vic) as Secretary.

The new UNGEGN arrangements and funding proposal were noted, and that Bill Watt will be continuing as Chair for another two years. Bill is in a unique situation being a State government employee funded by ICSM to travel to UN meetings. Other UN representatives (with links to ICSM) are Commonwealth officers, and their federal departments financially support their attendance at such meetings. DFAT have already refused to fund such travel costs. Once Bill finishes as Chair, another option is that only Commonwealth officers from PCPN attend UNGEGN to be federal funded, rather than by ICSM. However other models need to be investigated for future attendance by PCPN.

Action Cbr 12: PCPN to identify other models for funding participation in UNGEGN.

PCPN would like to approach Google to have it accept the National Gazetteer as the authoritative source for place names. Russell said it would be useful to have discussions with PSMA and learn from their interactions with Google. Google usually do not like using open data, but they were indicating otherwise at their presentation at UNGEGN.

ICSM agreed that PCPN should approach Google to use the National Gazetteer.

PCPN and PCA would like to continue to hold their meetings back to back as there is some common membership and to make it easier for delegates to attend.

3.6 Permanent Committee on Addressing (PCA) – Wayne Patterson

The PCA was reformed in August 2017, with a meeting in Sydney to set the work program. The Chair is Greg Windsor (NSW) and Deputy Chair Rafe Benli (Vic). The Terms of Reference were agreed to, and discussions held on the work plan. Also considered was how the committee could assist the FSDF geocoded addressing theme deliver its goals and commenced an addressing issues register to inform guidelines for the Standard review.

One issue they studied was the relationship between geocoded addressing and place names. In particular, emergency markers (Victorian program) should have an address (such as in the middle of a national park, a particular lat/long, etc). Place names were to look at points of interest.

Wayne noted that Michael Dixon's contributions from PSMA perspective, gave valuable input to the group discussions. However Australia Post did not send a representative, and they are being contacted to do so in the future. A representative from the NBN will also be asked to join.

Resolution 17/11/03: ICSM noted the Terms of Reference and Simon Costello moved to endorse them, seconded by Craig Sandy.

Judi Dawton added that the Commonwealth Government may change its mind in the future about continuing to fund open GNAF licensing, is this a sustainable model, and at what point does GNAF get disrupted in the future.

Simon said that the March 2018 release of the new composite Gazetteer of Australian Place Names will be a new process to compile and deliver this product, with GA not touching or aggregating the data supplied by the jurisdictions. This will be a demonstrator on how to bring data together in a new way and could potentially be a disrupter to some PSMA products.

Wayne said the NSW government creates its database to enable addresses to be validated. They are working with PSMA to have a number of web based services hosted for a number of different datasets. This all comes at a cost, to geocode addresses and maintain systems to provide such services.

Wayne presented the work program for consideration by ICSM, one of which is using What3Words in addressing, or other location databases. Simon said that PSMA and ANZLIC look to ICSM to provide advice on the use of such applications.

Resolution 17/11/04: *ICSM endorsed the PCA work plan, Terms of Reference and Chair Greg Windsor (NSW) and Deputy Chair Rafe Benli (Vic).*

Simon then spoke to the code lists supplied by PSMA concerning the work being done on GNAF. PSMA's view is that it is not their role to regulate and define such lists, rather to use them in their operational developments. PSMA is looking to ICSM to take over such regulatory role, with PSMA to retain the role as maintainer of such lists. The current code lists are extracted from GNAF. Michael Giudici would like PCA to review and investigate this request further, and to advise ICSM on what action should be taken.

Action Cbr 10: *PCA to advise ICSM on PSMA code list regulatory role and provide risk register.*

3.7 Permanent Committee on Tides and Mean Sea Level (PCTMSL) – Zarina Jayaswal

PCTMSL has taken the lead on creating a business case for the need of a national Hydroid model. This will enable hydrographic data and ellipsoidal charts to be easily merged. PCTMSL is working jointly with PCG on this project.

The current Tides Manual (SP9) only covers permanent deployments, they are looking to create standards to also include temporary ones. SP9 is being continually updated to maintain its currency.

The tides workshops continue to be held and are very successful. The workshop material is being updated to be in line with the new syllabus released by IHO for hydrographic surveyors competency.

An identified risk is that the AusHydroid is currently unfunded, but they are looking to Hydrographic Scheme Partnership Program to fund data collection and future stages.

Resolution 17/11/05: *ICSM resolved to endorse the PCTMSL work plan.*

4. Other Activities

4.1 UNGEGN report – Bill Watt

Bill Watt spoke to a presentation outlining the work being done by UNGEGN. Bill also presented the way in which UNGEGN is structured and the methods applied to adopt resolutions and standards to assist local place naming groups. UNGEGN is one of the technical expert groups of ECOSOC.

Simon Costello asked what was the future of UNGEGN in respect of possible merger with UNGGIM. Bill said a much closer relationship is being developed between the two groups, as GGIM establishes strategic initiatives for spatial recognition, that UNGEGN responds to. However, there are no plans to amalgamate or to make UNGEGN a standing committee of UNGGIM, but there is recognition of the need to work closely together.

4.2 FSDf theLINK update – Graham Logan, Andrew Whiting

Graham Logan said that the road maps were coming to an end and that the next phase of FSDf was being developed. The FSDf Journey paper was for noting, this paper highlighted all the key points, decisions and documents of the last five years. The 'Blue Sky' paper was initiated by Steve Jacoby asking what an SDI would look like if we built it from scratch now. The future strategy contains two main elements to move forward, one is metadata, the other is what needs to happen to web services.

Simon said that the conclusion of the road maps showed what had been achieved over the last three years, with the goals that were not achieved being overtaken by changes in technology or circumstances. The document will be submitted to ANZLIC for noting, as well as noting by ICSM.

Andrew presented on the future strategy proposed for the FSDf. A focus is consumability of the data, including access and discoverability. Part of this will be ensuring that metadata is complete and complies with ISO standards. However this aspect is very complicated with ISO standards being frequently updated and changed.

Craig said whatever we need to do, we need to make it easier for the consumer to use.

Andrew said the workshops included data custodians and those managing the technology to deliver such data. There are many inconsistencies in delivery and application of standards to metadata, which has hampered ingestion and access in web services such as theLINK.

Expert users can easily manipulate data and symbology to suit their needs, however there is a large and growing amount of general users who are unable to do such manipulations when viewing through globes or similar web services. An example was the inconsistencies of data when viewed through National Map, in order to see NT cadastre, 3D has to be turned on, but then can't see other jurisdictions that are in 2D and vice versa. There are many other such examples of data not being seamless or even easily joined.

The challenge is how to make data capture autonomous and fit for ingestion in FSDf, that is also metadata compliant, discoverable and accessible. Many jurisdictions are not aware of the 'ripple effect' of the uses that their data is having, particularly using 'out of the box' COTS software, without any modifications. The data custodians in particular, are mostly unaware of discoverability and consumability of their data. There is a disconnect within jurisdictions between data managers and catalogue managers.

It is proposed to form a new working group/permanent committee to concentrate on metadata and standards, in particular to build a new ANZLIC profile, to enable jurisdictions to adopt more standard and uniform approach. Jurisdictions have been asking the PMO for guidance and assistance on metadata catalogues and standards. This group would bring together data managers (already part of ICSM) and catalogue managers, that until now have not been included in these processes.

Craig asked why did the previous ANZLIC standard fail, we need to learn from past mistakes. It was not updated and no global software vendor supported it, which made it unsustainable. There were too many elements, from which jurisdictions picked only a few elements, there was no uniformity, which is why data cannot be shared easily today. Graham added that when the standard was developed, it was considered 'job done', rather than viewing it as needing ongoing maintenance.

The technical specialists need to create systems or standards, that the general user can understand and adapt for their own purposes. Instead of a separate working group, can each existing one be directed that they adopt more consistency in symbology and standards. Zarina said this is exactly the same concept that the IHO is discussing, in adopting standards and ensuring the appropriate communities are sharing such knowledge.

Craig suggested that each Permanent Committee have standards as a key element in their Terms of Reference. Graham said that a separate group that brought catalogue managers into the discussions would be more useful and have greater impact to harmonise metadata, ontologies, symbology and standards *as well as* directing the committees to include standards in their work. Michael Giudici agreed, that getting the right people talking to each other was the key issue, there is no lack of executive support for this initiative.

Simon said they are starting a pilot project with roads data, to then be able to promulgate the methodology to other data sets, as well as to data custodians and managers. It is trying to reduce duplication for different purposes, but gaining consistency across jurisdictions to get the right data to the right people for the right purpose.

Recommendations to ICSM:

- 1) Establish a Metadata Working Group – Terms of Reference and work plan to be developed before ICSM endorse same.
- 2) Endorsement of new road maps
- 3) Endorsement of completed road maps.

Resolution 17/11/06: ICSM **resolved** to endorse the new FSDF road maps.

Resolution 17/11/07: ICSM **resolved** to endorse the completed FSDF road maps.

Action Cbr 11: All working groups and permanent committee include standards in their Terms of Reference.

Michael Burdett suggested that the new group have continuous discussions with Standards Australia and OGC, and this be in their Terms of Reference. Someone from this group could potentially replace Andrew Jones as the ICSM standards representative.

4.3 SBAS – John Dawson

SBAS testing has improved GPS positioning accuracy and integrity and the success of this test bed project can be used to build a benefits case for further funding, to fully implement the project. The funding required is a few hundred million dollars, so the benefits to the broader economy need to dwarf this amount.

The test bed is testing three technologies. Generation 1 SBAS which gives about 0.5 metre accuracy, which is only catching up to what northern America and Europe are already using, there are a range of applications that are now emerging which is taking advantage of this more precise positioning. There are some world firsts as part of test bed, one is to superimpose some precise corrections on to a conventional SBAS signal, which is creating about 10cm accuracy. Second generation SBAS is being tested for aviation purposes, which allows for challenging atmospheric conditions and provides high availability and enables an operational system to be deployed with a lesser amount of ground infrastructure.

Aviation is an important stakeholder in the testing and they use the LPV200 standard which is used for instrumented landings. SBAS provides certification to that standard, allowing aircraft to descend to 200ft on instruments, and this is Australia wide, which is particularly valuable to remote and rural aerodromes to now have access to such instrument guidance.

There is a problem of convergence time issues which can be from 20 to 120 minutes. A few workarounds are being tested to bring these times down.

Several projects are to be announced early next year and there is interest from jurisdictions to leverage knowledge from these programs. One project is automated farming, with virtual fencing by forcing cattle to graze in particular paddocks to increase productivity and decrease muster costs. Also involved is the shipping industry with precise under keel clearances, close quarter navigation in ports and container tracking at terminals. There is a suite of road projects including fully automated vehicle trials scheduled in Melbourne as well as intelligent transport and heavy vehicle testing. Here Maps are creating accurate 3D digital mapping of roads for use by intelligent transport. Air Services Australia and Airways New Zealand are investigating approach procedures and vertical guidance in the landing phase, which is allowing helicopters to operate safely in bad weather when transporting patients from an accident scene to hospitals. Rail and mining industries are using it for personal safety and vehicle tracking. Private companies are making substantial contributions to these projects.

Michael thanked John for the presentation and the wide range of projects being undertaken. It will be interesting to watch this progress.

4.4 National Positioning Infrastructure – Gary Johnston

The NPI is the broader positioning agenda, which includes the SBAS test bed and making it operational. The third part is related to conventional positioning which will include upgrading and densifying the AuScope network, building an open GNSS data model across the country and full multi-GNSS real time analysis capability. All this will contribute to precise sub-metre positioning.

Gary noted there are still opportunities to become involved with the projects and to contact John Dawson to do so.

5. Administration

5.1 Finance

It was agreed to leave the subscriptions unchanged, with CPI increases to continue.

5.2 Website

ICSM agreed to the extra budget cost of upgrading the development site to V8.4 of Drupal. There is still some work to be done before the new site is sent live.

Action Cbr 13: Link to new site to be sent to ICSM for checking of content, links, etc.

5.3 Committee Officers

The DCDB Chair will need to be appointed upon Ron's retirement next year.

Russell said that it makes sense that the PCC Chair and Sponsor remain as is, but he would like to have a Deputy Chair appointed.

5.4 Strategic Planning

Simon said it can be difficult to track progress on the Strategic Plan. The work being achieved in GDA2020, onshore and offshore work is not being properly reported and publicised. Michael Giudici noted it is being reported to ANZLIC in his reports, but understood Simon's point. Maree said the working groups were reporting to ICSM on the strategic plan, but there was no overarching report against the plan. It is difficult to match a particular activity to the focus areas.

Action Cbr 16: Michael Giudici to consider an Executive Committee report against the ICSM strategic plan.

Action Cbr 17: Michael Burdett to detail risk of commercialisation of land registries and national data sets, to be added to Risk Plan. To be highlighted to ANZLIC.

6. Closing – Michael Giudici

Michael thanked Ron Jarman for all his work in hosting the meeting, providing venues, catering and dinner locations. This will also be Ron's last meeting for ICSM, as he will be retiring in early 2018, and Michael added further thanks for all his contributions as Chair of DCDB and ICSM member for many years.

Michael thought that the time allowed for deeper conversations on FSDF and SBAS in particular, very valuable. There are new collaborations opening with Defence which will be exciting to see come to fruition.

Finally he extended thanks to the various organisations and departments for supporting ICSM members to attend.

6.1 Next Meeting

The next meeting will be held in Adelaide, the week beginning 14 May 2018.
The PCC will be held day prior in conjunction with CRSBANZ meeting.

7. Actions, Resolutions and Agreements:

No.	Canberra Actions	By:	Completed/ Due Date
02/07/17	Craig Sandy to investigate the project propositions further with Melbourne University and Phil Collier.	Craig Sandy	Ongoing
01/09/17	Simon to circulate PCTI data custodianship proposal/statement for endorsement	S Costello	
04/09/17	Jurisdictions to forward their border data to Simon asap.	Tas, Vic, NSW, NT, WA	
Cbr 01	Brian Sloan to provide a report at the May 2018 meeting on data custodianship from the Federal government (following on from Brisbane 03 action)	Brian Sloan	
Cbr 02	Brian Sloan to circulate Joe Abhayaratna (PSMA) standards to government paper.	Brian Sloan	.
Cbr 03	Brian Sloan to circulate ANZLIC reference paper (contact officer role).	Brian Sloan	
Cbr 04	Michael Giudici to contact Chris Body for more information on indoor GML for circulation to ICSM, and discuss definition of 'smart cities'.	Michael Giudici	
Cbr 05	Discussions to be held with Andrew Jones and Chris Body on expectations of the Standards role, and how to best fill vacancy.	Michael Burdett, Simon Costello	
Cbr 06	The PCC is to better align its reporting (noting obvious logistics of the PCC meeting schedule) to ICSM.	Russell Priebbenow	
Cbr 07	ICSM to formally recognise the contributions made by all, to achieve GDA2020 and its implementation.	Michael Giudici & ors	
Cbr 08	Wayne Patterson to update NSW DCDB to incorporate the state borders with Queensland and Victoria.	Wayne & Craig Sandy	
Cbr 09	PCTI to connect Elevation2030 strategy with work being done by PCG on next vertical datum.	Simon and Gary Johnston	
Cbr 10	PCA to advise ICSM on PSMA code list regulatory role and provide risk register.	Wayne Patterson	
Cbr 11	All working groups and permanent committee include standards in their Terms of Reference.		
Cbr 12	PCPN to identify other models for funding participation in UNGEGN.		
Cbr 13	Link to new site to be sent to ICSM for checking of content, links, etc.	Lesley Waterhouse	
Cbr 14	All jurisdictions to forward to Maree Wilson (AGO) and Simon Costello (GA) their forward data capture plans to identify any gaps, overlaps or projects needing extra funding.	All ICSM	
Cbr 15	Michael Burdett to supply ICSM with Treasury website link detailing changes to Land Services.	Michael Burdett	
Cbr 16	Michael Giudici to consider an Executive Committee report against the ICSM strategic plan.	Michael Giudici	
Cbr 17	Michael Burdett to detail risk of commercialisation of land registries and data sets to be added to Risk Plan. To be highlighted to ANZLIC.	Michael Burdett	
Cbr 18	All ICSM to reply to Simon Costello on coordinated custodianship.	All ICSM	

No.	Canberra Resolutions
17/11/01	ICSM resolves to approve funding for definition of property project.
17/11/02	ICSM resolves to endorse the new office bearers of Susan Birtles (Qld) as Chair, Peter Birkett (WA) as Deputy Chair and Rafe Benli (Vic) as Secretary.
17/11/03	ICSM resolves to endorse the updated Permanent Committee on Addressing Terms of Reference.
17/11/04	ICSM resolves to endorse the Permanent Committee on Addressing work plan, Terms of Reference and Chair Greg Windsor (NSW) and Deputy Chair Rafe Benli (Vic)
17/11/05	ICSM resolved to endorse the PCTMSL work plan.
17/11/06	ICSM resolved to endorse the new FSDF road maps.

No.	Canberra Agreements
A17/11/01	ICSM agreed that PCPN should approach Google to use the National Gazetteer.