 Metadata Working Group

## **Meeting #8 Minutes, 25 February 2021**

## Attendees

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| ORGANISATION | REPRESENTATIVE |
| AAD  | Dave Connell |
| ABS | Shaun Copley |
| ACT Government | Angkana Whiley |
| ANU  | Lesley WybornKelsey Druken |
| ARDC | Melanie BarlowMingfang WuRowan Brownlee |
| CSIRO | Simon Cox (W3C)Vincent FazioCarsten Friedrich |
| Curtin University | Ivana Ivanova |
| Department of Agriculture, Water and the Environment (DAWE) | Ian MullerDavid Drynan |
| Department of Defence | Shanti RowlisonLeila Hernandez |
| DELWP Victoria | Craig Sandy *ICSM Chair Elect*George MansourJacqueline LeLievreKaustuv Dahal |
| Flinders University | Jacqueline Stephens |
| Geoscience Australia (GA) | Irina Bastrakova *MDWG Chair*Jenny LongKane OrrMargie SmithShane CrossmanSusannah Bacon |
| IP Australia | Andrew Peyton |
| Landgate WA | Anthony EastcottJenny SmithViet Dong |
| LINZ | Anna MaissnerJeremy PalmerJack Reyneke |
| National Archives Australia (NAA) | Marco Wallenius |
| NSW Transport Department | Ross Johnson |
| Northern Territory Government | Phil Rudd |
| OpenWork NZ | Byron Cochrane (OGC) |
| Queensland Resources Dept | Ian Beitzel |
| Services Australia | Michelle Guerin |
| AURIN/University of Melbourne | Michael Rigby |
| TERN/University of Queensland | Jenny MahuikaGuru SiddeswaraAnusuriya Devaraju |
| IMOS/University of Tasmania | Natalia Atkins |
| Independent | Chris Body (ISO/OGC/Standards Australia)Evert Bleys (ISO)Ivan Widjaja |

### Opening and welcome

Irina invited Craig Sandy, who is incoming ICSM Chair to open the meeting.

Craig thanked Irina for the opportunity to attend the meeting, noting that the work being undertaken by MDWG is vital to the ANZLIC strategic plan and roadmap:

* to achieve standardisation of foundation spatial data;
* leading collaboration and coordination on spatial data opportunities; and
* support accessible, innovative and integrated spatial data and capabilities.

There are also opportunities for MDWG in the 2030 Space and Spatial Industries growth map, for spatial information to be interoperable, there is a need for metadata and standards to support this. The events of the last 12 months have highlighted the need for the ability to access authoritative data, for rapid decision making in response to emergency and recovery measures.

Ensuring machines can read and access data requires quality backend metadata, and it is through the commitment of this group to enable that to occur. Our data has to be processed and readable by a computer without loss of semantic meaning.

At the moment we are developing digital twins, smart cities and want to modernise our Foundation Spatial Data Framework, all of this is underpinned by data that can be accessed by both individuals and machines, and needs to have consistently structured and content rich metadata. From the recent survey, one action was to improve machine action-ability of metadata, discovery and analysis and work is being undertaken to improve this.

There are current work projects to improve profiles for Emergency Services Australia and also working with EDIWG. Craig believes that this is the key role of MDWG, to have the structured data and to define and create standards, but equally important is to communicate this to other ICSM Working Groups and support them, so their data adheres to these standards.

Craig noted that work is being undertaken to replace the ANZLIC metadata tool, to support users to deliver quality metadata, this is essential for use of spatial data being available and accessible for decision makers.

### Progress of Technical Group activities – Irina Bastrakova

Completed:

* Promotion:
	+ Reports to ICSM and ICSN MDWG website
	+ Participation in metadata related activities and feedback: UN GGIM, TC211, etc
	+ Presentations and Newsletters: OGC, eResearch, AGU, NEESFF, etc.
* Metadata best practice user guide ([ICSM ISO 19115-1 Metadata Best Practice Guides](https://icsm-au.github.io/metadata-working-group/))
* Publishing reference documentation from ICSM MDWG GitHub

In progress:

* Metadata tool (replacement of ANZMet Lite)
* Development of metadata community profiles:
	+ Emergency Management Australia (EMA)
	+ ICSM Elevation, Depth and Imagery WG (EDIWG)

### Standards – OGC, ISO/TC 211 – Chris Body

There has been substantial activity by Australia and New Zealand representatives contributing knowledge and information to create international standards that the UNGGIM have endorsed as their primary standard for geospatial information. The importance of OCG, ISO and IHO standards flows back to the industries and technical geospatial companies servicing their clients worldwide, and improving interoperability of software systems.

Chris noted that some participants of this meeting were members of Standards Australia and New Zealand committees and he encouraged everyone to contribute or participate on these committees and to contact him if you wish to do so.

ISO/TC 211 Standards are endorsed as part of the Australian and New Zealand stack and published as Australian and New Zealand standards, which gives confidence to communities as well as being cheaper to purchase.

Increased collaboration and coordination with other committees requiring spatial or positioning knowledge and information –

* Building Information Modelling;
* Intelligent Transport System; and
* Smart Cities/Digital Twin.

There is a need to broaden the knowledge of positioning information beyond the spatial community so they appreciate and understand the impact on their industry of the difference of uncertainty of ±2cm compared to ±a few metres.

Sweden is about to step down as Chair of ISO/TC 211 at the end of the year, the UK (Ordnance Survey, Peter Parslow) will be taking over. Sweden is keen to hold a meeting at the end of 2021, but it is expected that this will be a hybrid meeting with many still unable to undertake international travel. A number of advisory groups have been formed to assist TC 211 to address specific issues of Smart Cities, land cover & land use, and ISO registers.

Chris would encourage ICSM and ANZLIC to be more involved in the Geographic Information standards by providing feedback and use cases. These are the standards that will filter down to be implemented, if there are errors or changes in technology or policy, ICSM and ANZLIC need to be active in providing feedback, or risk being out of step with UNGGIM and industries that supply software based on these standards.

The standards are developed and updated over 5 year rolling cycle, and it is at this time that they are reviewed.

As part of the current work program, positioning standards were amended, and there has been leadership by Nick Brown and the ICSM Geodesy Working Group to identify some errors that needed correction, and their work is feeding back into the ISO standards.

There needs to be better coordination from Australia and New Zealand concerning input in the Land Administration Domain Model (LADM), as well as providing feedback on modernising the cadastre.

UNGGIM have endorsed a Centre for Geodesy in Germany and starting some work programs which Australia would like to be engaged with, particularly on the geodetic register.

Chris will send to Irina further details of the OCG standards that have been recently released. There have been meetings held on Urban Digital Twins, with further details <https://www.locationpowers.net/events/2101urbanvirtual/> .

### W3C DCAT – Dr Simon Cox

W3C manage DCAT (Dataset catalogues) as an ‘evergreen standard’ with continuous updates and enhancements.

Several years ago, the web browser and search engine community released a vocabulary [Schema.org](https://schema.org/) to provide guidance for people to use the right tags to ensure their web pages were high up in search order. The vocabulary being used is RDF in a single namespace. It has a community maintenance process through [Github](https://github.com/schemaorg/schemaorg/issues).

Schema became more significant two years ago when Google released their datasets search tool, in order to have your dataset included in this search tool, it was necessary to have a web page which had the Schema.org metadata embedded. This included Australian research data from government agencies, universities, CSIRO and data.gov.au. Although the Schema.org vocabularies may have up to 2,000 terms, Google will only pick up ~20 tags, so if a tag is only used once or in 100 datasets, that is nothing compared to the millions of web pages being indexed, and decisions are made for commercial reasons.

There is a Github repository for conventions of using Schema.org for scientific data <https://github.com/ESIPFed/science-on-schema.org/issues>

### Standards for data quality – Dr Ivana Ivanova

ISO 19157-1 standard for Geographic Information – Data Quality, is currently under review and Part 1 General requirements, is being led by Dr Ivanova and Standards Australia in collaboration with Swedish Institute for Standardisation. It is now in the committee draft stage and went to ballot a few weeks ago. If the process runs to plan, the new standard will be published in December 2022. The terms and definitions were updated and harmonised with other relevant standards, the quality model was updated, and set of requirements, recommendations and permissions were introduced. The biggest improvement was to transform the data quality measures from 70 page PDF full of tables and converted this to a searchable web based register.

The Standard was split into two parts, the first to define the data quality measure concept, the second to set up a standard-compliant data quality measures register. This will be a pilot for the first ISO/TC211 compliant register to be established.

One question was how to describe data quality, particularly in relation to community metadata profile for elevation data that has many elements in their requirements and specifications for LiDAR.

### Publication of ISO Code lists as SKOS Vocabularies – Evert Bleys

[Presentation by Evert](https://geoscienceau.sharepoint.com/sites/icsm/Shared%20Documents/ICSM%20Meetings/2021/Feb/Metadata/5%20-%20Update%20on%20publication%20of%20ISO%20Code%20lists%20as%20SKOS%20Vocabularies.pdf)

### National Archives – Building trust in public record policy – Marco Wallenius

The policy aims to drive improved information and data management capabilities, including metadata management capability, and maturity across the Australian government. It is also trying to support the application of standardised metadata and to push some maturity around other topics of interest to MDWG, like data management, preservation and interoperability.

The purpose of the policy is to improve how Australian government agencies create, count, collect, manage and use information assets. Effective information management facilitates delivery on government objectives to better support protecting community and serve the Australian Community now and in the future.

The first part of the statement regarding management of information assets strategically with appropriate governance and reporting. This places an emphasis on governance to help inform a coordinated, strategic, and enterprise-wide approach to develop and maintain information management coding capability, and aligned with specialised business needs for information and metadata for government agencies and communities. The second statement is regarding fit for purpose data and information management systems with adequate and standardised descriptive information of metadata, facilitating business use and data sharing, and ensuring the context and content of data is known can be verified and can be understood. The last part of the policy statement about reducing information management inefficiency and risk, and managing information assets.

Progress is still to be made towards the targets of digital continuity, and there is a gap in the maturity of metadata management from a survey conducted across government agencies. As of 2018, less than half of the agencies had adopted relevant metadata standards.

There are 17 actions for Australian government agencies to implement, with three mandatory actions. Throughout many of these actions, metadata is a key to enabling many of them and the overall objectives of the policy for general information management, and maturity improvement.

The strategic actions promote a coordinated approach, to link the metadata capture to its role in information management, back to the enterprise-wide business needs. The strategic actions ensure there is capability, professionalism and engagement with senior managements to support and maintain metadata management standards.

The NAA will support and engage with agencies to support implementation of this policy, as well as engaging with communities of practitioners to inform products and implementation advice.

<https://www.naa.gov.au/information-management/information-management-policies/building-trust-public-record-policy>

### Road map – Irina Bastrakova

As part of preparation of the road map a survey was circulated in April 2020 and had responses from 22 organisations. The purpose of the survey was to identify challenges and progression of adoption of ISO 19115-1 (or -3). The results of this survey found that MDWG had been effective in addressing issues raised from the first survey conducted.

MDWG Roadmap 1 - Major achievements

* MDWG work was effective in addressing issues
* Trust in the group, level of expertise and quality of advice has increased
* Recognised usefulness of produced communication and support materials
* The groups is at a more mature/advanced stage
* Shift in thinking: more focus on implementation, transformation paths and ability to influence technical decisions
* Looking for utilising expertise and improving governance
* Improved collaboration with other ICSM working groups, e.g. Geodesy WG, Elevation Imagery & Depth WG.

This indicates that the first roadmap actually resulted in the changes we wanted to see

The priorities raised in the second survey for the next road map are:

* Support for transformation pathways
* Development data specific profiles and implementation examples
* Metadata creation/editing and validator tools
* Improving governance.

Current activities include:

**Tools:**

* Creation of metadata entry/export tool as replacement of ANZMet Lite
* Creation metadata templates for EMA (data and services)

**Transformation pathways:**

* Development of metadata community profiles: EMA and Elevation
* Provision of advice on implementation and use of the metadata
* Provision of feedback to the ISO 19115-1 (-3)

**Education:**

* Continue publication of developed by the Technical MDWG resources
* Participation in development of:
	+ UN-GGIM Guide on the Role of Standards, including implementation and use examples
	+ Development of International Community Guidelines for Sharing and Reusing Quality Information of Individual Earth Science Datasets
	+ APS Metadata Management and Data Interoperability Project

There will be a focus on semantic web issues as part of this roadmap, and contributions of use cases from this group.

Funding support will be required from ANZLIC and ICSM to progress these activities, and feedback is essential to evaluate the effectiveness of resources we develop and to target future activities and priorities.

### Development of metadata community profiles – Irina Bastrakova and Kane Orr

This is one of the priorities for the second roadmap. The current focus is emergency management and elevation metadata profiles. The methodology for development of community metadata profiles:

* 1. Identify relevant participants
	2. Identify existing documentation and/or conduct a workshop
	3. Develop analysis of specification requirements
	4. Develop the profile draft: Map requirements to a Standard(s) elements
	5. Evaluate and improve the profile draft
	6. Develop the final draft and implementation guideline, including xml template
	7. If required, develop an implementation template

EMSINA have been running their metadata project for a couple of years, and are helping MDWG to progress our understanding of their requirements, priorities and tools. EMSINA have been active in identifying the process flows and work flows from their perspective and identifying their requirements for metadata components to give them a better understanding of metadata. EMSINA have developed a preliminary portal view of 19115-1 classes and elements as part of their profile. Feedback is being sought from both side to improve and progress this work.

Kane Orr said that the Emergency Management sector needs to have information simplified, however it also needs to be ISO compliant, which has been exemplified during the recent bushfire Royal Commission having to justify the data and information provided for decision making.

Development of EM-Link which is Australia’s Emergency Management catalogue is currently done manually through Drupal. It is hoped to move this to an automated system that relies 100% on metadata. If metadata is not ISO compliant, it will be rejected immediately. To be able to do this requires delivery by MDWG of the tools that are being developed. Currently, there is ESRI developer working at GA to refine and improve metadata processes.

The EMSINA community use a web service <https://www.emsina.org/metadata-standards> to assist them to compile correct, ISO Standard compliant, metadata. It articulates why metadata statements are necessary and takes users through all the basics to create compliant metadata. It includes articles and communications from the MDWG website. EMSINA would like to contribute to MDWG with their own communication tools that could be used by all sectors to improve metadata.

Another question has been who to contact in jurisdictions to assist in developing metadata statements, and encourage the states to develop this responsibility. A lot of the metadata content developed for the EMSINA web page, is generic and could be migrated to the ICSM MDWG web pages, to reduce duplication and make it easier for everyone to use and create their metadata statements. In developing this resource, it became immediately apparent the importance of vocabs in metadata, and the need to have this better understood and enable vocabs to be categorised and searchable.

EMSINA has a meeting on 30, 31 March at which they would like to invite participation from MDWG, and they would welcome feedback on the material they have developed.

MDWG has been working with EDIWG to progress the Elevation metadata profile, and following workshops, from which a matrix was constructed to bring all the elements together and initial mapping was done from their requirements and specifications to ISO 19115-1. Some of the elements would probably fit better with data quality standards and it would be appreciated if Ivana could assist to improve the mapping of these elements.

The specifications for elevation data is quite comprehensive and there is a need for machine readability to be part of the profile. A lot of information about data quality is currently stored in a structured way in the lineages statements as a text, it is possible to divide into separate elements to provide the structured approach to machine readability, but this needs to be further discussed with EDWIG to improve this profile.

The next profile to be developed will be geodesy profile with assistance from Ivana.

### Development of new metadata tool – Byron Cochrane

Byron is creating an ICSM Metadata Capture tool to replace for ANZMetLite, based on Geonetwork. This work is being built on the requirements of EMSINA, but they want it to be applicable for all users. Byron is focussing on bug fixes, workflow improvements and UI improvements and hopes to have this completed by June.

Aaron Sedgmen (GA) created a code list for Service types that was previously endorsed by MDWG, and published on Research Vocabulary Australia website. There were no objections or comments raised about using this list resolve one of the outstanding issues.

Byron walked through the various steps of the tool.

### Close

Irina thanked the 49 attendees and presenters for contributing to the meeting. The next meeting is scheduled to be held in August. Irina would like others to consider hosting the next meeting.

Irina has been chairing this group for the past 2½ years and is calling for others to nominate as Chair and Deputy Chair of the group at the next meeting.