

NCEI/ESIP-DSC Data Use and Services Maturity Matrix (MM-Serv)

The MM-Serv Working Group

BACKGROUND

The NCEI (National Centers for Environmental Information) and ESIP-DSC (Data Stewardship Committee) joined forces and developed a rough draft of a data use and services maturity matrix (MM-Serv). The development has been undertaken by the MM-Serv Working Group, adopting the approach of the NCEI/CICS-NC Data Stewardship Maturity Matrix (DSMM) (Peng et al. 2015, doi:10.2481/dsj.14-049).

This poster aims to facilitate the ESIP-wide review of the MM-Serv to ensure and improve its quality.

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MM-Serv Key Components and Component Leads

Key Component (Not final)	Leads	Co-Leads
Discoverability	Duerr	Jones
Data Use	Arndt	Peng
Data Services	Ansari	Baldwin
Services Accessibility	Baldwin, Peng	Ansari
Services Usability	Hou	Downs
Data Monitoring	Arndt	Peng
Data Impact	Downs	Brewer
Customer Services	Brewer	Houston
Customer Engagement	Brewer	Houston

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MM-SERV KEY COMPONENTS AND MATURITY LEVEL CRITERIA

Key Component	Data Discoverability
Brief Description	The state of dataset being easily found
Maturity Scale	Criterion
Level 1	Information not published for public discovery; Internal or person-to-person sharing information exchange only
Level 2	Minimal product information published for public users; Product findable on local product website
Level 3	Product described with standards-based discovery metadata and published to discovery catalogs
Level 4	Level 3 + Metadata attributes included in HTML/other objects for indexing by web search engines (e.g., schema.org metadata); Product granules described with standards-based discovery metadata and published to discovery catalogs
Level 5	Level 4 + Web services supporting product are described with standards-based rich metadata and published to discovery catalogs a searchable resource; Product relationships (e.g., lineage or provenance) described with standards-based metadata and published to discovery catalogs

Key Component	Services Accessibility
Description	The state of services being accessible
Maturity Scale	Criterion
Level 1	Service is not guaranteed to be available.
Level 2	Non-standard service without 24*7 availability; information about availability publicly available.
Level 3	Level 2 + Service is standards-based, available from enterprise systems
Level 4	Level 3 + is available 24/7 on a best effort basis.
Level 5	Level 4 + Service is available 24/7 with automatic fail overs; stable and secure with available online status.

Key Component	Data Impact
Brief Description	The state of data product impact assessment being publicly available
Maturity Scale	Criterion
Level 1	No identified users or decision making based on the data or derived products (Note: mentioned the importance of dependency)
Level 2	Identified users access and use data or derived products; but no identified decision making processes.
Level 3	Level 2 + identified use in decision making process but customers haven’t demonstrated an understanding of data/product appropriate uses and limitations.
Level 4	Level 3 + Customers demonstrate an understanding of data/product appropriate uses and limitations.
Level 5	Level 4 + data/product is the primary driver in customer decision making.

Key Component	Data Use
Brief Description	The state of a data product’s use, usability and understandability
Maturity Scale	Criterion
Level 1	No use or usability metadata/documentation is available to help users understand and use the data
Level 2	Use or usability metadata/documentation is available from local systems (e.g., product website)
Level 3	Standard-based use/usability metadata/documentation is available from enterprise systems
Level 4	Enterprise systems include online use/usability support services (online help, hints, etc.)
Level 5	Enterprise systems include advanced use/usability support service such as interactive visualizations of relationships (e.g., to papers, other products, researchers, etc.)

Key Component	Services Usability
Brief Description	The state of services being easy to use
Maturity Scale	Criterion
Level 1	Information about the service is not available. Basic service description is available on local system; but may be highly technical; Ad hoc internal usability evaluation conducted.
Level 2	Complete service description has been written for novice, perhaps not technical users; Routine internal usability evaluation conducted.
Level 3	Level 3 + services provide standards-based service descriptions; External usability evaluation conducted.
Level 4	Level 4 + services provide self-help, easy navigation, auto-complete prompting, etc. to help users actually using the service; Formal external usability evaluation conducted.
Level 5	

Key Component	Customer Service
Brief Description	The state of subject experts and customer service being available to users
Maturity Scale	Criterion
Level 1	No service and support available
Level 2	Point-Of-Contact information (phone number or/and e-mail address) online. Help desk available but not trained. SME identified but not available.
Level 3	Custom service reps trained for this product. Detailed steps for obtaining customer support & service online. SMEs identified and available.
Level 4	Level 3 + 24/7 support availability & on-demand; Customer service reps highly trained.
Level 5	Level 4 + customized & on-site promptly if requested.

Key Component	Data Service
Brief Description	The state of data product being available and distributed
Maturity Scale	Criterion
Level 1	Information about the product is not available; and neither is the data product
Level 2	Basic data service is available (e.g., ftp or http access); Information about that service/product may not be available.
Level 3	Level 2 + complete information about service/product is available.
Level 4	Level 3 + standards-based data service available (e.g., W*S, OpenDAP, etc.)
Level 5	Level 4 + advanced data services (e.g., on-the-fly reproductions, dynamic data processing, etc.)

Key Component	Data Monitoring
Brief Description	The state of data product being utilized for direct and indirect monitoring
Maturity Scale	Criterion
Level 1	None
Level 2	Level 1 + Basic state relays; Community-based temporal and spatial coverage and extent metrics
Level 3	Level 2 + long-term (record length) average or normal & variation (temporal and spatial from selected/defined prior periods)
Level 4	Level 3 + putting variability into context using domain-based metrics
Level 5	Level 4 + recurring basis with reports online or in the literature

Key Component	Customer Engagement
Brief Description	The state of customer engagement for the dataset
Maturity Scale	Criterion
Level 1	No engagement
Level 2	One-way communication (users -> customer service reps/SMEs). Passive.
Level 3	Level 2 + Two-way communication; Information-based. Customer-engagement interaction is available but sporadic
Level 4	Level 3 + Customer interaction is routine and collaborative. Tactical and problem solving collaboration.
Level 5	Level 4 + customer is fully engaged & potentially involved in providing requirements for new products or improvements to existing products or data. Strategic collaboration.