



# An Introduction to the NCEI/ESIP-DSC MM-Serv

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MM-Serv Working Group, presented at ESIP summer meeting,  
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# Outline

- What is the MM-Serv?
- Maturity Scale
- Components

# What is the MM-Serv?

- NCEI/ESIP-DSC Data Use & Services Maturity Matrix
- A consistent maturity assessment model that can be applied to individual datasets and their services
  - By services we DO NOT merely mean web services; but any kind of service (automated or not)
- Key Components

Discoverability	Service Accessibility	Data Impact
Data Use	Services Usability	Customer Service
Data Services	Data Monitoring	Customer Engagement

# Maturity Scale

Level 1	Level 2	Level 3	Level 4	Level 5
AD HOC	MINIMAL	INTERMEDIATE	ADVANCED	OPTIMAL
Not Managed	Limit-Managed	Managed	Well-Managed	Level 4 +
	Not Defined	Defined	Well-Defined	
		Partially Implemented	Fully Implemented	
				Measured, Controlled, Audited



# Maturity Scale

**Level 1:** Practices or performance are ad hoc. There is no procedure or process defined, documented or in place. Often information about what has been done to the dataset is not publicly available.

**Level 2:** Efforts have been made to move the dataset to a managed state. However, procedures or processes are not documented and are not compliant with established national or international standards. Service performance tends to be minimal.



# Maturity Scale

**Level 3 and up:** Procedures and/or processes are defined and use defined requirements or standards. Good domain practices are utilized and service performance is reliable and stable at an intermediate level.

**Level 4:** Well-defined procedures or processes are fully compliant with national or international standards and are fully implemented using community best practices.



# Maturity Scale

**Level 5:** In addition to satisfying all the criteria in lower levels, a procedure needs to be in place and documented to quantitatively monitor the performance of the defined processes and services. In some cases, Level 5 may require an internal or external audit be performed.

# Key Component - Data Discoverability

<b>Maturity Scale</b>	<b>Criteria</b>
<b>Level 1</b>	<b>Information not published for public discovery; Internal or person-to-person sharing information exchange only</b>
<b>Level 2</b>	<b>Minimal product information published for public users; Product findable on local product website</b>
<b>Level 3</b>	<b>Product described with standards-based discovery metadata and published to discovery catalogs</b>
<b>Level 4</b>	<b>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</b>
<b>Level 5</b>	<b>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</b>

# Key Component - Data Use

<b>Maturity Scale</b>	<b>Criteria</b>
<b>Level 1</b>	<b>No use or usability metadata/documentation is available to help users understand and use the data</b>
<b>Level 2</b>	<b>Use or usability metadata/documentation is available from local systems (e.g., product website)</b>
<b>Level 3</b>	<b>Standard-based use/usability metadata/documentation is available from enterprise systems</b>
<b>Level 4</b>	<b>Enterprise systems include on-line use/usability support services (on-line help, hints, etc.)</b>
<b>Level 5</b>	<b>Enterprise systems include advanced use/usability support service such as interactive visualizations of relationships (e.g., to papers, other products, researchers, etc.)</b>

# Key Component - Data Service

<b>Maturity Scale</b>	<b>Criteria</b>
<b>Level 1</b>	<b>Information about the product is not available; and neither is the data product</b>
<b>Level 2</b>	<b>Basic data service is available (e.g., ftp or http access); Information about that service/product may not be available.</b>
<b>Level 3</b>	<b>L2 + complete information about service/product is available.</b>
<b>Level 4</b>	<b>L3 + standards-based data service available (e.g., W*S, OpenDAP, etc.)</b>
<b>Level 5</b>	<b>L4 + advanced data services (e.g., on-the-fly reproductions, dynamic data processing, etc.)</b>

# Key Component - Usability

<b>Maturity Scale</b>	<b>Criteria</b>
<b>Level 1</b>	<b>Information about the service is not available.</b>
<b>Level 2</b>	<b>Basic service description is available on local system; but may be highly technical; Ad hoc internal usability evaluation conducted.</b>
<b>Level 3</b>	<b>Complete service description has been written for novice, perhaps not technical users; Routine internal usability evaluation conducted.</b>
<b>Level 4</b>	<b>L3 + services provide standards-based service descriptions; External usability evaluation conducted</b>
<b>Level 5</b>	<b>L4 + services provide self-help, easy navigation, autocomplete, prompting, etc. to help users actually using the service; Formal external usability evaluation conducted.</b>

# Key Component - Data Monitoring

<b>Maturity Scale</b>	<b>Criteria</b>
<b>Level 1</b>	<b>None</b>
<b>Level 2</b>	<b>Level 1 + Basic state relays; Community-based temporal and spatial coverage and extent metrics</b>
<b>Level 3</b>	<b>Level 2 + long-term (record length) average or normal &amp; variation (temporal and spatial from selected/defined prior periods)</b>
<b>Level 4</b>	<b>Level 3 + putting variability into context using domain-based metrics</b>
<b>Level 5</b>	<b>Level 4 + recurring basis with reports online or in the literature</b>

# Key Component - Data Impact

<b>Maturity Scale</b>	<b>Criteria</b>
<b>Level 1</b>	<b>No identified users or decision making based on the data or derived products (Note: mentioned the importance of dependency)</b>
<b>Level 2</b>	<b>Identified users access and use data or derived products; but no identified decision making processes.</b>
<b>Level 3</b>	<b>Level 2 + identified use in decision making process but customers haven't demonstrated an understanding of data/product appropriate uses and limitations.</b>
<b>Level 4</b>	<b>Level 3 + Customers demonstrate an understanding of data/product appropriate uses and limitations.</b>
<b>Level 5</b>	<b>Level 4 + data/product is the primary driver in customer decision making.</b>

# Key Component - Customer Service

<b>Maturity Scale</b>	<b>Criteria</b>
<b>Level 1</b>	<b>No service and support available</b>
<b>Level 2</b>	<b>Point-Of-Contact information (phone number or/and e-mail address) online. Help desk available but not trained. SME identified but not available</b>
<b>Level 3</b>	<b>Custom service reps trained for this product. Detailed steps for obtaining customer support &amp; service online. SMEs identified and available.</b>
<b>Level 4</b>	<b>Level 3 + 24/7 support availability &amp; on-demand; Customer service reps highly trained.</b>
<b>Level 5</b>	<b>Level 4 + customized &amp; on-site promptly if requested.</b>

# Key Component - Customer Engagement

<b>Maturity Scale</b>	<b>Criteria</b>
<b>Level 1</b>	<b>No engagement</b>
<b>Level 2</b>	<b>One-way communication (users -&gt; customer service reps/SMEs). Passive.</b>
<b>Level 3</b>	<b>Level 2 + Two-way communication; Information-based. Customer-engagement interaction is available but sporadic</b>
<b>Level 4</b>	<b>Level 3 + Customer interaction is routine and collaborative. Tactical and problem solving collaboration</b>
<b>Level 5</b>	<b>Level 4 + customer is fully engaged &amp; potentially involved in providing requirements for new products or improvements to existing products or data. Strategic collaboration.</b>



# Questions? Comments?

Put them in our session's Google Doc!

**<https://tinyurl.com/y9qmvdrrj>**

