

Maturity Model Domain Expert Evaluation Form (by Salah et al. [1])

Expert Information

Date:

11-06-25

Name:

Organization/Institute:

Position:

Email:

<u>Criteria</u>	Strongly Disagree	Slightly Disagree	Neither Disagree nor Agree	Slightly Agree	Strongly Agree
<u>Maturity Levels</u>					
The maturity levels are sufficient to represent, all maturation stages of the domain (Sufficiency)					X
<u>Concepts and Dimensions</u>					
The concepts and dimensions are relevant to the domain (Relevance)					X
Concepts and dimensions cover all aspects impacting/involved in the domain (Comprehensiveness)				X	
Concepts and dimensions are clearly distinct (Mutual Exclusion)				X	
Processes and practices are correctly assigned to their respective maturity level (Accuracy)					X
<u>Maturity Model</u>					
<u>Understandability</u>					X
The maturity levels are understandable					X
The assessment guidelines are understandable					X
The documentation is understandable					X
<u>Ease of Use</u>					
The scoring scheme is easy to use					X

The assessment guidelines are easy to use					X
<u>Usefulness and Practicality</u>					
The maturity model is useful and conducting assessment					X
The maturity model is practical for use in industry					X

Q1. Would you add any maturity levels? If so, please explain what and why?

For a good initial assessment and looking at the current industry landscape, the maturity levels are sufficient. Additional levels might be added based on further assessments or to guide the data ecosystems further.

Q2. Would you update the maturity level description? If so, please explain what and why?

The descriptions reflect the maturity levels and do not need refinement in the current state. However, specific metrics might be needed in the future to gauge the state of the data space correctly and also to comparatively analyze a data space over years of implementation and maturity.

Q3. Would you add any concepts or dimensions? If so, please explain what and why?

Business Model:
Use Case Development:
Data Space Offering:
Intermediaries and Operators:

Organizational Form and Governance Authority:
Participant Management:

Regulatory Compliance:
Contractual Agreement:

Q4. Would you remove any of the concepts or dimensions? If so, please what and why?

Business Model:
Use Case Development:
Data Space Offering:
Intermediaries and Operators:

Organizational Form and Governance Authority:
Participant Management:

Regulatory Compliance:
Contractual Agreement:

Some of the dimensions might not be relevant for all data sharing initiatives and this also depends a lot on the strategic goals defined by the initiative or data space. Overall all dimensions are important for a data space to reach full maturity.

Q5. Would you redefine/update any of the concepts or dimensions? If so, please explain what and why?

Business Model:

Use Case Development:

Data Space Offering:

Intermediaries and Operators:

Organizational Form and Governance Authority:

Participant Management:

Regulatory Compliance:

Contractual Agreement:

As data spaces gain momentum, some of these dimensions may be updated or reviewed. There is also some overlap in few of the dimensions, particularly with data space offering, participant management, regulatory compliance and contractual framework.

In reality, a few components can fulfil multiple dimensions like a Trust Framework can provide legal and operational coverage for the data space. A connector can help fulfil a few of the above dimensions, although its prime purpose would be fulfilling technical building blocks. Standardization and regulations might also require refinement of the dimensions to reflect a changing landscape especially with digital product passports, verifiable credentials, etc.

Q6. Would you suggest any updates or improvements related to the scoring scheme? If so, explain what and why?

Automated scoring would make the model more convenient to use. This would require more refinements. As the industry grows and more information on data space is available, it would be easier to gauge specific standards and also what affects the scalability and sustainability of data spaces. This would mean for convience, automated scoring would provide feedback more readily.

Q7. Would you suggest any updates or improvements to the assessment guideline? If so, please explain what and why?

The guideline could reflect actual components that are used for the building blocks being assessed. With the current level of maturity, this is not easy but with future developments, should be a possibility.

Q8. Would you like to elaborate on any of your answers?

Q9. Could the model be made more useful? How?

Q10. Could the model be made more practical? How?

[1] Dina Salah, Richard Paige, and Paul Cairns. 2014. An evaluation template for expert review of maturity models. In Product-Focused Software Process Improvement: 15th International Conference, PROFES 2014, Helsinki, Finland, December 10-12, 2014. Proceedings 15. Springer, 318–321.

Maturity Model Domain Expert Evaluation Form (by Salah et al. [1])

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Date:

June 6th 2025

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<u>Maturity Model</u>					
<u>Understandability</u>					
The maturity levels are understandable				X	
The assessment guidelines are understandable			X		
The documentation is understandable			X		
<u>Ease of Use</u>					
The scoring scheme is easy to use				X	

The assessment guidelines are easy to use				X	
<u>Usefulness and Practicality</u>					
The maturity model is useful and conducting assessment			X		
The maturity model is practical for use in industry			X		

Q1. Would you add any maturity levels? If so, please explain what and why?

I would add the maturity used in a transaction or proven. Was the implementation ever tested with a real transaction against an implementation before it is managed or optimized.

Q2. Would you update the maturity level description? If so, please explain what and why?

I believe maturity should be linked to whether the implementation led to a result, in the case of a data space to actual data transactions. There is so much many available currently in the market for setting up data spaces without an actual need for making money that people could reach maturity level 5 where it was never tested if this has led to an actual implementation.

Q3. Would you add any concepts or dimensions? If so, please explain what and why?

Business Model:
Use Case Development:
Data Space Offering:
Intermediaries and Operators:
Organizational Form and Governance Authority:
I miss effectiveness, how quickly can it execute a desired change
Participant Management:
Manage exceptions. Every ecosystem will have its special sauce. How do you manage specials?
Regulatory Compliance:
Contractual Agreement:

Q4. Would you remove any of the concepts or dimensions? If so, please what and why?

Business Model:
Adaptation, Monitoring and Role .. could be two
Revenue Model Diversity is part of Financial Stability
Use Case Development:
Process Structure, why would this be goal on itself to have templates?
Data Space Offering:
Intermediaries and Operators:
I believe this while chapter should be part of the business model
Organizational Form and Governance Authority:
Participant Management:

Do intermediaries and operators support standardized, interoperable data exchange? Why name this group explicitly. Everybody should do this?

Regulatory Compliance:

How rigorous and frequent is the monitoring of regulatory compliance within the data space? – Would not add this to maturity as it might fit the ecosystem need to check with a certain frequency to optimize the business model. I would say it is capable to perform inline with required business model.

Contractual Agreement:

Interoperability, how can you check? And is this the purpose of an ecosystem? I would change this to be flexible to cooperate with other.

Q5. Would you redefine/update any of the concepts or dimensions? If so, please explain what and why?

Business Model:

Use Case Development:

Collaboration Effectiveness, this is not how you measure effectiveness

Change Management, I would go with effective and flexible

Scalability, what is complex and why would this be required to scale?

Data Space Offering:

Engagement, this is too broad. You want to create data products that people will really use.

As such this is market research. Now any involvement, could be without the user, would count.

Intermediaries and Operators:

Organizational Form and Governance Authority:

Participant Management:

Policy Alignment, this is impossible to ask. Would add for the scope of the Ecosystem

Regulatory Compliance:

Contractual Agreement:

Flexibility, what does this mean?

Q6. Would you suggest any updates or improvements related to the scoring scheme? If so, explain what and why?

The scale should result in providing guidance for an action. In some cases for example the end goal is described as 100% perfect for the whole company. Focus this more on the domain/scope of the market you are addressing with the data space.

Q7. Would you suggest any updates or improvements to the assessment guideline? If so, please explain what and why?

Set the scene. To allow the data space to do ... we need ... and then ask the question so it is understood why this matters.

Q8. Would you like to elaborate on any of your answers?

Maturity should be measured by results. Just the achievement of designing a proces, putting it on paper and evaluate on feedback is not enough. The design should be validated by real transactions, real feedback and implemented evaluations should result in more value.

Q9. Could the model be made more useful? How?

Help prioritize what matters more in what stage. This is a lot to deal with from the start. If you could state: If you want to be able to do the following .. focus on the following questions.

Q10. Could the model be made more practical? How?

See previous

[1] Dina Salah, Richard Paige, and Paul Cairns. 2014. An evaluation template for expert review of maturity models. In Product-Focused Software Process Improvement: 15th International Conference, PROFES 2014, Helsinki, Finland, December 10-12, 2014. Proceedings 15. Springer, 318–321.

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<u>Understandability</u>					
The maturity levels are understandable				X	
The assessment guidelines are understandable				X	
The documentation is understandable				X	
<u>Ease of Use</u>					
The scoring scheme is easy to use					

The assessment guidelines are easy to use				X	
<u>Usefulness and Practicality</u>					
The maturity model is useful and conducting assessment					X
The maturity model is practical for use in industry				X	

Q1. Would you add any maturity levels? If so, please explain what and why?

No.

Q2. Would you update the maturity level description? If so, please explain what and why?

No.

Q3. Would you add any concepts or dimensions? If so, please explain what and why?

Business Model:

Use Case Development:

Data Space Offering:

Intermediaries and Operators:

Organizational Form and Governance Authority:

Participant Management:

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Contractual Agreement:

Q4. Would you remove any of the concepts or dimensions? If so, please what and why?

Business Model:

Use Case Development:

Data Space Offering:

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Regulatory Compliance:

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Q5. Would you redefine/update any of the concepts or dimensions? If so, please explain what and why?

Business Model:

Use Case Development:

Data Space Offering:

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Contractual Agreement:

Q6. Would you suggest any updates or improvements related to the scoring scheme? If so, explain what and why?

Q7. Would you suggest any updates or improvements to the assessment guideline? If so, please explain what and why?

I think it would be nice to have an explanation of the relationship between the concept and its corresponding dimensions. An illustration (e.g., a conceptual model) providing an overview of the assessment model would also help to understand the relationship between the various components: building blocks, concepts, and dimensions.

Q8. Would you like to elaborate on any of your answers?

I have some more specific comments:

1. Some of the dimensions of the assessment for the Use Case Development building block cannot be generalized. Aspects like effectively collaboration of participants and the formalization of agreements may be different and use case dependent.

2. Maybe it is better to have one dimension specifically for the FAIR principles.

3. The combination Data Product/Accessibility appears twice. Is that correct?

4. The assessment of "to what extent are data products designed and structured to support" seems to be not feasible. Or the scale/scoring for this dimension needs to be reviewed. Maybe, we should consider using % of data products. But, still, how can you evaluate the data products concerning this specific aspect?

5. Maybe it would be better to split this type of question in two, i.e. question with an "AND".

"How transparent and aligned are the business models of intermediaries/operators with the data space's objectives, **AND** to what extent do they drive ecosystem growth?"

6. Maybe, in this case (Q7 – Table 6) , you need to evaluate the % of intermediaries/operators that can be classified in each one of the proposed levels. I don't

see how to make an assessment that covers the whole set of intermediaries/operators at once.

7. Questions that concern a set of data products, intermediaries/operators or agreements should be evaluated considering the % for each one of the proposed levels.

8. This question (Q9-Table8) should be divided in two or it should be rephrased (avoid the use of AND). I think you should consider the % of participants in each level.

9. I think you should consider the % of intermediaries and operators in each level for the following questions: Q11-Table 8, Q8-Table 10, Q9-Table 10, Q10-Table 10, Q12-Table 10 and Q13-Table 10.

10. How to evaluate the flexibility of a data sharing agreement (Q6-Table10)? What do you mean by flexibility in balancing data sovereignty and interoperability? Again, we should consider the % of data sharing agreements in each one of the proposed levels.

Q9. Could the model be made more useful? How?

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Q10. Could the model be made more practical? How?

I think that it would be nice to have a way to calculate a final score for the maturity of the data space instead of having to depend on the researcher to provide the final evaluation.
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<u>Maturity Model</u>					
<u>Understandability</u>					
The maturity levels are understandable				x	
The assessment guidelines are understandable					x
The documentation is understandable					x
<u>Ease of Use</u>					
The scoring scheme is easy to use					x

The assessment guidelines are easy to use					x
<u>Usefulness and Practicality</u>					
The maturity model is useful and conducting assessment				x	
The maturity model is practical for use in industry				x	

Q1. Would you add any maturity levels? If so, please explain what and why?

Between 'initial' and 'repeatable' lies in my opinion a long process of defining, building, testing, proving, etc. I could see an extra maturity level here.
The difference to 4 and 5 is sometimes not so clear.

Q2. Would you update the maturity level description? If so, please explain what and why?

I would expect the maturity levels to include something about how participants are using the ecosystem. In level 1/2 I would expect to find POC, pilots, test use cases, etc. In level 3-4 production use. In level 5 well integrated and heavily dependent production use.

Q3. Would you add any concepts or dimensions? If so, please explain what and why?

Business Model:
Use Case Development:
 You could add a dimension about how much participants are depending on the functioning of the ecosystem. Has it become the standard way of doing certain business or are there still alternatives? That would be a good sign of maturity of an ecosystem.
Data Space Offering:
Intermediaries and Operators:

Organizational Form and Governance Authority:
Participant Management:
Regulatory Compliance:
Contractual Agreement:

Q4. Would you remove any of the concepts or dimensions? If so, please what and why?

Business Model:
Use Case Development:
Data Space Offering:
Intermediaries and Operators:

Organizational Form and Governance Authority:
Participant Management:
 Q11 & Q12 I find not well related to Participant Management. Hard to find a different category though.
Regulatory Compliance:
Contractual Agreement:

Q5. Would you redefine/update any of the concepts or dimensions? If so, please explain what and why?

Business Model:

Use Case Development:

Data Space Offering:

Intermediaries and Operators:

Organizational Form and Governance Authority:

Participant Management:

Q13 I find the Assessment Question not really in line with the term 'Inclusivity'.

Regulatory Compliance:

Contractual Agreement:

Q6. Would you suggest any updates or improvements related to the scoring scheme? If so, explain what and why?

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Q7. Would you suggest any updates or improvements to the assessment guideline? If so, please explain what and why?

-

Q8. Would you like to elaborate on any of your answers?

-

Q9. Could the model be made more useful? How?

It would help to explain certain dimensions by providing examples and to explain which options an ecosystem has to increase scoring on a particular category, concept or dimension. But this could also be the point where a consultant could help out.

Q10. Could the model be made more practical? How?

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June 22, 2025

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The scoring scheme is easy to use				X	

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The maturity model is practical for use in industry				X	

Q1. Would you add any maturity levels? If so, please explain what and why?

Might consider extension to full TRL schema – which goes beyond “conceptual planning” to various stages of implementation, adoption (initial and general use)

Q2. Would you update the maturity level description? If so, please explain what and why?

Q3. Would you add any concepts or dimensions? If so, please explain what and why?

Business Model:
Use Case Development:

- This should be expanded to consider use cases, not just as ideas of implementation, but mappings of real world user groups, within the context of the data space, whose governance and business needs may differ from those of the data space as a whole.

Data Space Offering:
Intermediaries and Operators:

Organizational Form and Governance Authority:
Participant Management:

Regulatory Compliance:
Contractual Agreement:

It is unclear where to put these concepts, but they are “buried” rather than explicit:

- Management of Data Visibility/Access and Use
- Rules for combination of different kinds of data
- Explicit consideration of the data plane and control plan, not just as technical concepts, but also concepts that can be used to organize the scope of all of the above issues, as well as the need for a Trust Framework (not just a technical concept) that enables data providers to trust their data with data consumers.

Q4. Would you remove any of the concepts or dimensions? If so, please what and why?

Business Model:
Use Case Development:
Data Space Offering:
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Organizational Form and Governance Authority:

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Participant Management:

Regulatory Compliance:

Contractual Agreement:

Q6. Would you suggest any updates or improvements related to the scoring scheme? If so, explain what and why?

Ideally the scoring would be illustrated with specific examples from the relevant building block – i.e. score X would be achieved by the presence of A, B, or C. Score X+1 would require at least 2 of these mechanisms. However, I understand this would be complex.

Q7. Would you suggest any updates or improvements to the assessment guideline? If so, please explain what and why?

Q8. Would you like to elaborate on any of your answers?

Q9. Could the model be made more useful? How?

Q10. Could the model be made more practical? How?

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