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Maturity Model V2

DATA SPACES SUPPORT CENTRE

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DATA SPACES SUPPORT CENTRE

Content

Introduction

The development of Common European Data Spaces is a key enabler of the EU's vision for a trusted and sovereign data economy and the cornerstone of the European Union's data strategy, aimed at fostering a trusted and interoperable data-sharing environment across sectors. Data spaces are "interoperable frameworks based on common governance principles, standards, practices and enabling services, that enable trusted data transactions between participants[1]" . The Data Act provides the legislative foundation for this transformation, promoting fair access to and use of data while ensuring that data holders and users can operate within a harmonised legal framework.

In support of this, the European Commission's standardisation request has mobilised key stakeholders to define common methodologies and frameworks that underpin the operationalisation of data spaces. One of the central standardisation efforts is being led by CEN-CENELEC Joint Technical Committee 25 (JTC 25), which focuses on data, services, and systems interoperability. Within JTC 25, the working item JT025003: "Maturity assessment of Common European Data Spaces" [2] is of particular relevance to Data Space Initiatives (DSIs). This initiative aims to establish a standardised maturity assessment model that enables data space initiatives to evaluate their progress, identify gaps, and benchmark their development against a common European framework.

[1] DSSC Glossary: https://dssc.eu/space/BVE2/1071251781/1+Key+Concept+Definitions

[2] https://standards.cencenelec.eu/dyn/www/f?p=205:110:0::::FSP_PROJECT,FSP_LANG_ID:81130,25&cs=1674BC02FAA0737D350C06CDD090CA13D

This report presents the DSSC Maturity Model, a framework designed to assess the functional capabilities of data space initiatives. This is the final report of a series of three documents produced by DSSC on the topic of maturity of data spaces and builds on the previous two iterations to refine the maturity model. The model presented here is aligned with the Blueprint Version 2.0 (March 2025), which outlines the business, governance, and technical principles for data spaces. The maturity model translates these foundational elements into a set of measurable indicators that reflect the essential capabilities required for a data space to function effectively and sustainably.

The maturity model serves four main purposes:

- To provide a common reference for assessing the progress of data space initiatives.
- To support self-assessment and benchmarking, enabling initiatives to identify strengths and areas for improvement and guide their journey to excellence.
- To inform strategic planning and capacity building, helping initiatives align with shared European objectives and best practices.
- To increase transparency by providing data spaces with a common reporting structure that enables stakeholders to understand their structure and operations.

The assessment method includes a set of closed-ended questions and scoring criteria. It is designed to be easy to use and applicable across sectors and stages of development. In addition, the model incorporates DSSC's development cycle stages (from exploratory to scaling), helping initiatives understand where they are now and what is needed to move forward.

The maturity model builds on key concepts that underpin the design and operation of data spaces, including:

- Data Sovereignty: Ensuring participants retain control over their data and how it is used.
- Interoperability: Enabling systems and organisations to work together across technical, semantic, and organisational boundaries.
- Trust: Establishing mechanisms that ensure secure, transparent, and accountable data sharing.
- Governance: Defining roles, responsibilities, and decision-making processes within the data space.
- Business: Ensuring that data products and services offered within the data space provide added value to stakeholders, following a financially viable business model.

These concepts are embedded in the model's indicators and assessment logic, ensuring that the evaluation reflects both the organisational and technical dimensions of maturity.

Methodology

1.1 Development of the maturity model

The DSSC Maturity Model was developed through a structured process that ensures alignment with the Blueprint V2.0. The development process included:

- Blueprint mapping: Each maturity indicator is derived from key components (i.e. building blocks) of the Blueprint, ensuring consistency with DSSC guidance.

Indicator definition: Indicators were defined to capture capabilities across the building blocks and the degree of alignment with the elements prescribed in those building blocks.

- Survey instrument design: For each indicator, a set of closed-ended questions was developed to enable structured self-assessment by data space initiatives.

To ensure the maturity model remains relevant and adaptable over time, it has been designed with modularity in mind. Each indicator is mapped to a specific Blueprint building block, allowing for new indicators to be added or existing ones refined without disrupting the overall structure as the Blueprint evolves. When updates are made, care will be taken to maintain comparability over time, for example by clearly documenting changes and ensuring that core indicators remain stable to support trend analysis and benchmarking.

1.2 Assessment approach

The DSSC Maturity Model uses a hybrid assessment approach that combines quantitative scoring with qualitative stage-specific criteria. This approach is designed to be practical, repeatable, and user-friendly, supporting both diagnostic insights and developmental guidance for data space initiatives. It combines two complementary elements:

1. Percentage-based scoring by indicator and dimension (for learning, benchmarking, and visualisation)

The maturity model is structured around the core pillars and building blocks defined in the DSSC Blueprint 2.0 (see picture below). To provide a more comprehensive view of data space readiness, a n additional dimension, operational, has been added, which is not a building block or a Blueprint

element. This dimension captures indicators such as participation levels and data transactions, which are essential for assessing the actual usage and scalability of a data space.

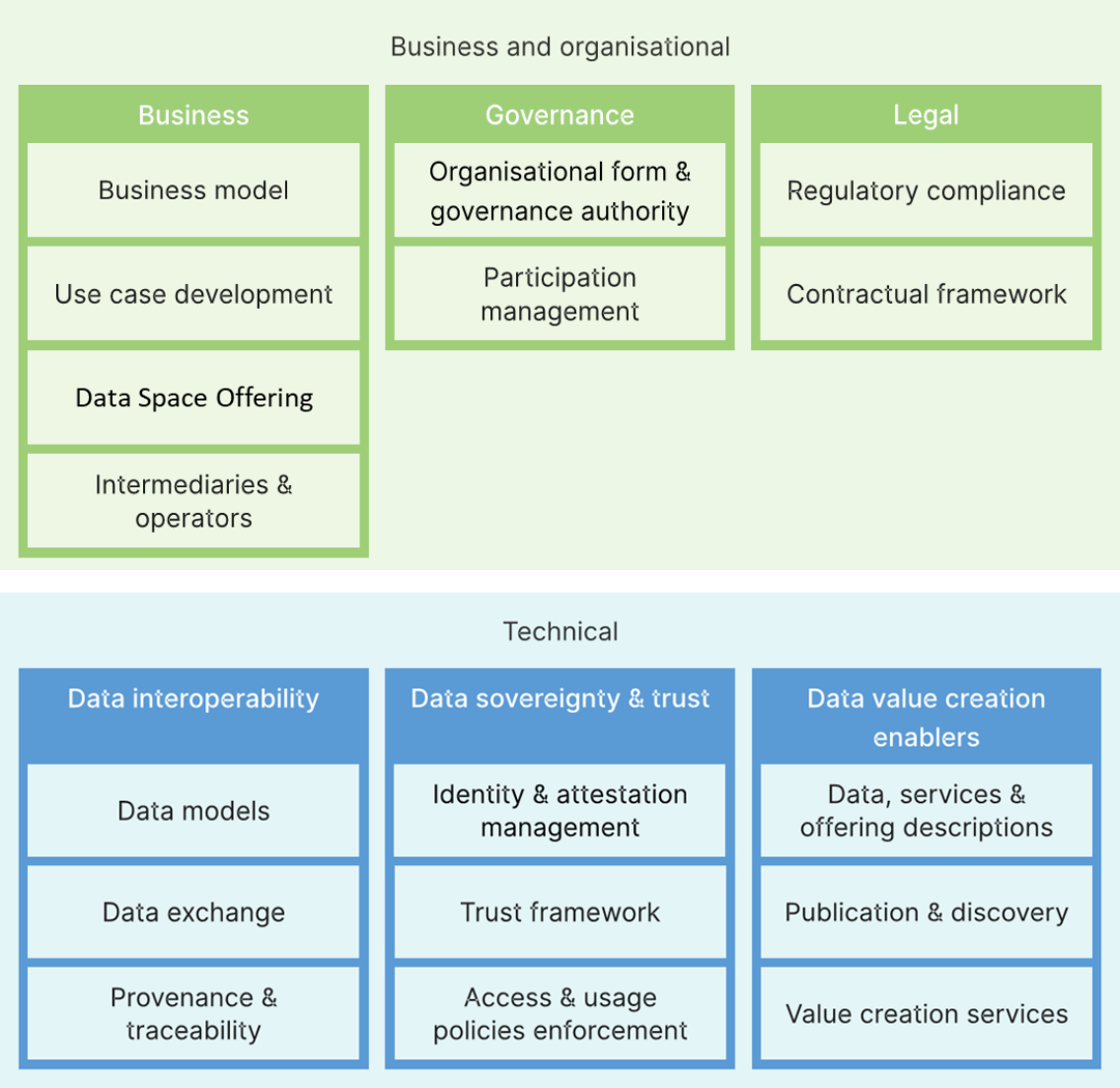

Figure 1: DSSC Blueprint V2.0 – Overview of the Building blocks

Each indicator represents a specific capability or requirement and is grouped under one of the core dimensions listed above. The assessment includes:

- **Closed-ended questions**: Each indicator is assessed through one or two structured questions which encompass several elements of assessment.
- **Scoring criteria**: Responses are scored using predefined values (e.g. 0–3 or 0–5).
- **Percentage calculation**:

- A percentage score is calculated for each indicator, reflecting the level of maturity achieved for that specific capability.
- These are then aggregated into a percentage score per dimension, providing a high-level view of maturity across the core areas.

These scores serve multiple purposes:

- **Identify strengths and areas for improvement**: By analysing both indicator-level and dimension-level scores, data space initiatives can pinpoint where they are performing well and where they could implement improvements.
- **Support internal learning and dialogue**: The results can be used to facilitate discussions among stakeholders, align priorities, and guide capacity-building efforts.
- **Enable visual benchmarking**: The dimension-level percentages are visualised using **radar charts**, offering an overview of maturity across the key dimensions. This supports comparison over time or across initiatives, without aggregating into a single overall score.

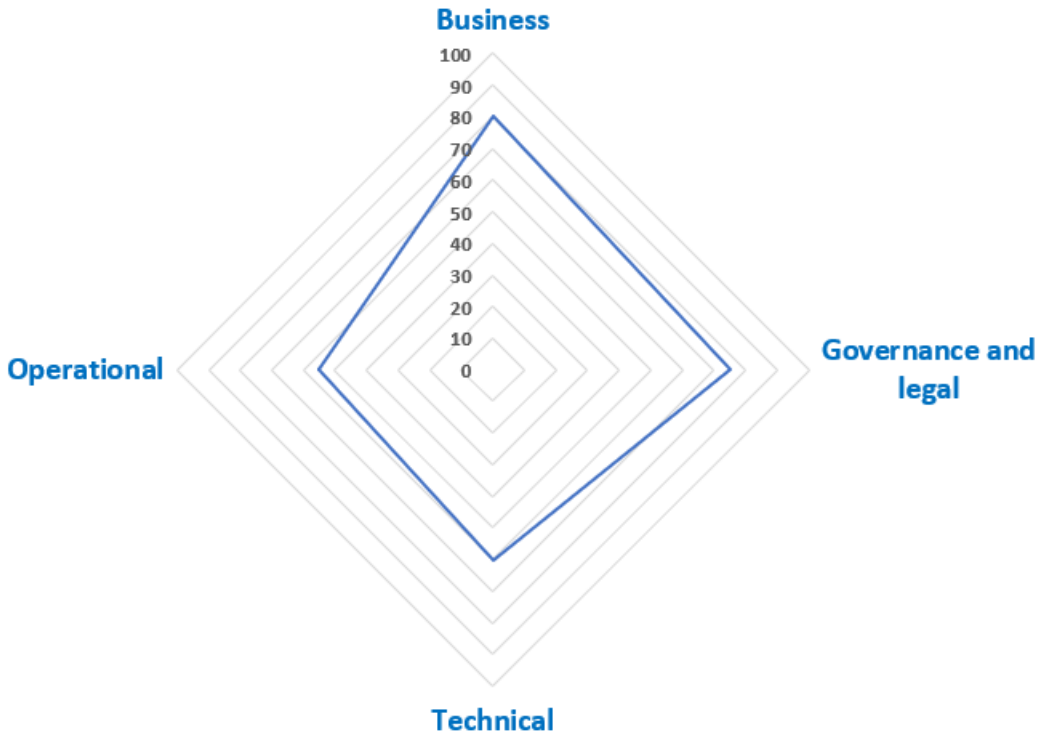

Figure 2: Example radar chart for visual benchmarking

2. Stage-specific criteria (for development cycle progression)

In parallel, the DSSC defines a set of development cycle stages that describe the typical evolution of a data space initiative: **Exploratory** → **Preparatory** → **Implementation** → **Operational** → **Scaling**

To support structured development, the model includes qualitative, stage-specific criteria that must be met to transition from one stage to the next. These criteria are:

- **Defined per dimension**: Business, governance and legal, technical, and operational.
- **Qualitative and threshold-based**: Focused on the presence of essential capabilities and not on scores.
- **Used independently from the percentage scores**: Development cycle progression is determined by whether the initiative meets minimum expectations in each dimension, not by overall maturity percentages.

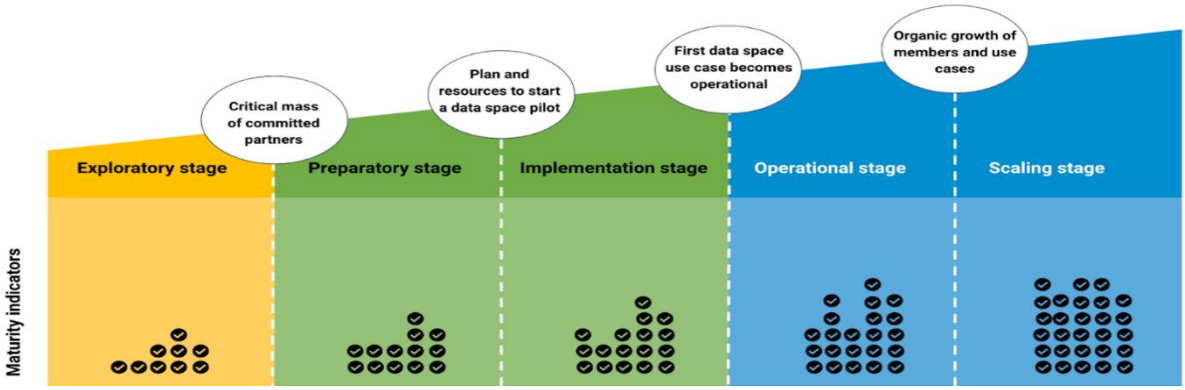

Figure 3: Visualisation of stage-specific criteria for development cycle progression

This dual approach ensures that the model is both:

- **Diagnostic**: Radar charts and benchmarking provide a diagnostic snapshot that helps initiatives understand their current maturity level.
- **Developmental**: Through development cycle criteria, it provides a structured path for growth and alignment with European data space objectives.

Indicators and metrics

This section presents the indicators used to assess the maturity of data space initiatives across four key dimensions: business, governance and legal, technical, and operational. These indicators reflect the key aspects expected within each area and serve as the foundation for evaluating readiness.

The following tables provide an overview of the specific indicators considered under each dimension.

Table 1: Indicators for the business dimension

Business indicators	
Business model development	• Definition of business objectives, growth, and profit goals (if applicable). • Definition of value proposition for the data provider, data consumers, intermediary services (if applicable). • Specification of revenue generation mechanisms and funding mechanisms. • Mechanisms in place for monitoring and evolving the business model. • Evidence of market validation.
Use case development	• Data space has use cases where two or more participants create business, societal or environmental value from data sharing, which respond to the needs and parameters of the business model.
Data space offering	• Priority data products and services that support current and future use cases are identified. • The processes and mechanisms for the onboarding and the management of the offerings are set up. • Governance rules that apply for the data products and services are identified and enforced. • The data space supports participants in developing and maintaining high-quality data products and services.
Intermediaries and operators	• If applicable, the roles, service types, and procurement models of intermediaries/operators are clearly defined and documented. • If applicable, the governance framework includes mechanisms to manage intermediaries/operators (e.g., about rulebook commitment, exclusivity, auditing, business conditions).

Table 2: Indicators for the governance and legal dimension

Governance and legal indicators	
Organisational form and governance authority	• Data space has defined the organisational form (e.g., legal personality, profit/non-profit status, place of establishment, member involvement in governance). • Data space has decided on the governance authority's form, mandate, composition, authority level, governance

	model (centralised, federated, delegated), and how it is constituted. • Existence of a rulebook that operationalises the governance framework, including internal rules and policies applicable to all participants. • Specification of the roles and responsibilities of the governance authority in managing and operating the data space. • Established processes for governance execution, including mechanisms for monitoring, review, and continuous improvement.
Participation management	• Roles and responsibilities of participants are clearly defined and managed. • Onboarding processes are clearly defined and implemented, including terms, identity verification, attestation, technical onboarding, and data protection policies. • Offboarding processes are clearly defined and implemented, including exit procedures, data deletion, compliance checks, and support.
Regulatory compliance	• The data space has mechanisms to identify and monitor regulatory compliance triggers (e.g., based on data type, participant role, or domain context). • The data space has identified and documented applicable general and sector-specific legal frameworks. • The data space has implemented measures to ensure compliance with the identified legal and regulatory frameworks.
Contractual framework	• The data space has institutional agreements in place that define general terms and conditions for participation and provide the legal basis for operations. • The data space has data sharing agreements in place that govern data transactions among participants. • The data space has service agreements in place for the provision of services (e.g., identity management, trust services, data-related services).

Table 3: Indicators for the technical dimension

Technical indicators

Data interoperability	**Data models** • The data space has defined and/or adopted (a) shared and agreed data model(s) that is/are consistently used across participants and across various abstraction layers (vocabulary, ontology, application profile, data schema). • The data model(s) is/are based on a meta-standards or a formal schema that enable semantic interoperability and machine-readability (e.g. SKOS, RDF, OWL, UML, JSON schema, XML Schema). • If applicable, your data model(s) refer(s) to one or more reference datasets (such as the ISO country code list) to ensure consistency and alignment in data representation. • The data space has established processes and responsibilities for maintaining, evolving, and governing the data model(s) over time (i.e. documented governance, issue management and maintenance, user support etc). • The data model(s) and datasets are expressed in open standards (DCAT) to be discoverable across ecosystems, supporting cross-sector integration. **Data exchange** • A common data exchange protocol is defined and implemented, covering both the control plane and the data plane. • Standardised APIs are available that allow participants to query, create, update, and delete data. • The data space supports data exchange with other data spaces in a federated environment. **Provenance and traceability** • Mechanisms are defined and implemented to track the sharing and usage of actual data (provenance). • Mechanisms are defined and implemented to monitor and manage data-sharing contracts (observability). • The data space reuses existing standards and guidelines for provenance and traceability (e.g., PROV-O, PIDs, ISO/IEC 27560).
Data sovereignty and trust	**Identity management and attestation** • The Data Space Rulebook is provided in a structured, machine-readable format to enable automated compliance checks and interoperability.

	• The data space leverages W3C Verifiable Credentials for tamper-evident and cryptographically verifiable digital attestations, including identity. • The data space leverages credential exchange protocols such as the Decentralized Claim Protocol (DCP) and OID4VC, enabling participants to share verifiable credentials securely while maintaining data sovereignty. **Trust framework** • The Data space governance is technically enforced through a trust framework, which defines, together with the rules, semantic models for trusted information exchange, processes for compliance verification, and technical standards for interoperability. • The data space adopts/implements clear guidelines for establishing trust anchors and other entities (e.g., trust service providers, conformity assessment bodies) that are recognised to issue attestations on identities or other attributes. • Every participant and service within the data space can be systematically verified against the data space rulebook's requirements, ensuring adherence to governance standards. • The data space offers mechanisms (via the data space registry) to store the data space rulebook, lists of accredited trust anchors (including revoked ones), and the data space schemas used to assess compliance. **Access and usage policies enforcement** • Access and usage policies are defined, transformed into machine-readable formats, and implemented using policy engines. • The data space supports machine-readable policy negotiation and enforces agreed terms during data access and usage. • Mechanisms are in place to monitor and log data transactions to verify compliance with access and usage policies and provide enforcement evidence.
Data value creation enablers	**Data, Services, and Offerings Description**

	• Clear, structured description of data products and services, including metadata, license terms, usage conditions, and access mechanisms. • Use of machine-readable metadata to describe offerings for both human and software agents. • Use of standardised vocabularies (e.g., DCAT v3 or other relevant formats) and policy frameworks (ODRL) to describe datasets, services, and usage constraints. (or shorter: The data space enables human and machine discovery of offerings through structured, standardised, and accessible descriptions). **Publication and discovery** • Participants can publish, update, and remove data and service offerings through a catalogue system. • Participants can search, filter, and discover offerings based on metadata, terms, and conditions. • The catalogue supports access control mechanisms to manage visibility of offerings. **Value creation services** • A taxonomy of value creation services is in place, distinguishing between core services, data handling services, value-added services, infrastructure integration services, application integration services, and business enablement services. • A service management system is implemented that supports the provisioning, delivery, use, trusted execution, monitoring, scalability, and maintenance of value creation services.

Operational indicators	
Participation levels	• The participation level is measured through the number of data providers and data consumers within a data space at a given time and its evolution on a yearly basis.
Volume of data transactions	• The transaction volumes are measured through the number and volume of data transactions enabled by the

	data space at a given time and its evolution on a yearly basis.

Assessment method and scoring

This chapter presents how the maturity of data space initiatives is assessed using a structured set of 19 closed-ended questions, grouped under the four dimensions: business, governance and legal, technical, and operational. Each question corresponds to a specific indicator and is designed to capture key aspects of readiness. For each question, a short explanation is provided to clarify how responses are scored. Most questions use predefined response options, while a small number require numerical input (number of participants and transactions). Together, these elements form the basis for calculating the percentage scores explained in section **¡Error! No se encuentra el origen de la referencia.** and for identifying strengths and areas for improvement.

4.1 Business

Business model development

Q1. To what extent has your data space defined and operationalised the following aspects of its business model? (Matrix)			
Element	**Answers**		
Objectives, growth and profit goals are documented	Fully	Partially	Not yet
Value propositions for data provider, data consumers, intermediaries (if applicable) are articulated and documented	Fully	Partially	Not yet
Revenue generation and/or funding mechanisms are documented	Fully	Partially	Not yet

A monitoring strategy is in place to keep track of the necessary changes in the business model	Fully	Partially	Not yet
The business model has been tested or validated through stakeholder feedback, pilots, or real-world use	Fully	Partially	Not yet
Scoring For each element, points are attributed as follows: Fully (1 point), Partially (0.5 points), Not yet (0 points).			

Use case development

Q2. To what extent has your data space developed and operationalised use cases? (Matrix)		
Element	**Answers**	
Have you identified specific use cases?	Yes	No
If yes, have you assessed whether the use cases are in line with the needs and parameters of the business model?	Yes	No
If yes, have the use cases been documented and has implementation for at least one of them been initiated?	Yes	No
If yes, are any of the use cases currently operational?	Yes	No
If yes, do you have a process to continuously improve, to expand or to	Yes	No

identify improvement opportunities for use cases?		
Scoring For each element, points are attributed as follows: Yes (1 point), No (0 points).		

Data space offering

Q3. To what extent has your data space developed a strategy and governance approach for its data space offering? (Matrix)			
Element	**Answers**		
Data space offering (data products and services) has been identified and aligned with current/future use cases	Fully	Partially	Not yet
Governance rules, mechanisms and processes are defined and enforced for onboarding, managing, and maintaining offerings	Fully	Partially	Not yet
Participants are supported in developing and offering high-quality data products (e.g., templates, onboarding guides, quality criteria)	Fully	Partially	Not yet
Scoring For each element, points are attributed as follows: Fully (1 point), Partially (0.5 points), Not yet (0 points).			

Intermediaries and operators

Q4. To what extent has your data space defined the roles and service models of intermediaries and operators, and established governance mechanisms to manage them (if applicable[3])? (Matrix)				
Element	**Answers**			
The roles, service types, and procurement models of intermediaries/operators are clearly defined and documented.	Fully	Planned or partially defined	No	Not applicable
The governance framework includes mechanisms to manage intermediaries/operators (e.g., rulebook commitment, exclusivity, auditing, business conditions)	Fully	Planned or partially defined	No	Not applicable
Scoring For each element, points are attributed as follows: Yes (1 point), Partially (0.5 points), No (0 points). If 'Not applicable', the question is not considered in the readiness assessment.				

[3] If the DSI is not currently using or intending to use operators/intermediaries, please select Not applicable. The question will not be scored in this case.

4.2 Governance and legal

Organisational form and governance authority

Q5. To what extent has your data space defined and operationalised the following elements of the governance framework? (Matrix)			
Element	**Answers**		
The data space has chosen an organisational form (e.g. legal personality, profit vs non-profit status, place of establishment, level of involvement of the members in the management and operation of the data space)	Fully	Partially	No yet
The data space has decided on the form (e.g. legal entity, committee, consortium), , of the governance authority	Fully	Partially	Not yet
Has the data space decided on the composition of the governance authority (who is part of it and how are they selected?)	Fully	Partially	Not yet
The roles and responsibilities of the governance authority in managing and operating the data space have been specified	Fully	Partially	Not yet
The data space has a rulebook (bylaws, terms of use or similar) that operationalises the governance framework (including rules and policies applicable to all data space participants)	Fully	Partially	Not yet
The data space has established processes through which the governance authority	Fully	Partially	Not yet

should perform their duties (including mechanisms for monitoring, review, and continuous improvement).			
The governance framework been reviewed and adapted based on operational experience, if applicable[4].	Fully	Partially	Not yet
Scoring For each element, points are attributed as follows: Fully(1 point), Partially (0.5 point), Not yet (0 points). The last element will only be scored if the DSI is already in operational stage.			

Participation Management

Q6. To what extent have the following participation management aspects been defined and implemented in your data space? (Matrix)	
Element	**Answers**

[4] This question is only scored if the DSI is already operational, based on other characteristics measured through the model. If the DSI has no operational experience, the question will not be considered.

Roles and responsibilities of participants	Fully defined and implemented	Defined but not yet implemented	Not yet defined
Onboarding processes (e.g. joining rules, identity verification, attestation; technical onboarding; data protection policies; etc.)	Fully defined and implemented	Defined but not yet implemented	Not yet defined
Offboarding processes (e.g. exit procedures, data transfer and deletion protocols; verification of compliance; offboarding support, periodic framework reviews)	Fully defined and implemented	Defined but not yet implemented	Not yet defined
Scoring For each element, points are attributed as follows: Fully defined and implemented (1 point), Defined but not yet implemented (0.5 points), Not yet defined (0 points).			

Regulatory compliance

Q7. Does your data space have mechanisms in place to monitor compliance with all relevant regulations and legal requirements? (Matrix)		
Element	**Answers**	
Have you identified triggers or events within your data space that prompt a review of regulatory compliance? (info box: (triggers= Elements, criteria or events (e.g. data type, nature of participant or domain) that have occurred in a particular context of a data space and signals that a	Yes	No

specific legal framework must or should be applied.)		
Do you carry out a recurring review of all the triggers and applicable regulations to consider whether the data space is still fully compliant with the regulatory framework?	Yes	No
Have you identified and analysed the general EU legal frameworks and sector-specific legislation applicable to your data space?	Yes	No
Have you implemented measures to ensure compliance with the identified legal and regulatory frameworks?	Yes	No
Scoring For each element, points are attributed as follows: Yes=1 point, No=0 points.		

Contractual framework

Q8. Does the data space have a contractual framework in place, including the following elements? (Matrix)		
Element	**Answers**	
Institutional agreements (i.e., Founding agreements; General Terms and Conditions for participation)	Yes	No
Data sharing agreements (legal basis for data transactions)	Yes	No

Service agreements (all agreements for the provision of services to the data space – e.g. data-related services, agreements for the provision of trust framework services, and agreements for the management of identities.)	Yes	No
Have you done an assessment of the applicable law and which courts have jurisdiction with regards to the agreements?	Yes	No
Is the enforcement of the agreements supported by the implementation of smart contract technologies?	Yes	No
Scoring For each element, points are attributed as follows: Yes (1 point), No (0 points).		

4.3 Technical

Data interoperability (data models)

Q9. To what extent has your data space implemented the following capabilities related to data models? (matrix)			
Element	**Answers**		
Your data space has defined and adopted (a) shared and agreed data model(s) across various abstraction layers (vocabulary, ontology, application profile and data	Fully implemented	Planned or defined, but not yet adopted/implemented	Not yet

schema) used consistently across participants.			
The data model(s) user in your dataspace is/are stored and published in a vocabulary service to enable discoverability throughout a data space.	Fully implemented	Planned or defined, but not yet adopted/implemented	Not yet
The data model(s) is/are based on a formal schema, or metamodel standards that enable semantic interoperability (such as SKOS, RDF, OWL, UML, JSON Schema, XML Schema etc).	Fully implemented	Planned or defined, but not yet adopted/implemented	Not yet
Your data space uses reference datasets for consistency.	Fully implemented	Planned or defined, but not yet adopted/implemented	Not yet
Processes and responsibilities for maintaining and evolving the data model(s) over time are established (such as documented governance, issue management and maintenance user support etc).	Fully implemented	Planned or defined, but not yet adopted/implemented	Not yet
The data model(s) and datasets used are expressed in DCAT to allow discoverability across data spaces.	Fully implemented	Planned or defined, but not yet adopted/implemented	Not yet
Scoring			

For each element, points are attributed as follows: Fully (1 point), Planned or defined, but not yet adopted/implemented (0.5 points), Not yet (0 points).

Data interoperability (data exchange)

Q10. To what extent are standardised data exchange protocols implemented in your data space? (matrix)			
Element	**Answers**		
A common protocol has been defined and implemented in your data space for data exchange, covering both the control plane and the data plane.	Fully	Planned or defined, but not yet implemented	Not yet
Standardised APIs are available in your data space that allow participants to query, create, update, and delete data	Fully implemented	Planned or defined, but not yet implemented	Not yet
Your data space can exchange data with participants in other data spaces as part of a federation.	Fully implemented	Planned or defined, but not yet implemented	Not yet
Scoring For each element, points are attributed as follows: Yes (1 point), Planned or defined but not yet implemented (0.5 points), No (0 points).			

Data interoperability (provenance and traceability)

Q11. To what extent are the following elements for provenance and traceability defined and/or implemented in your data space? (matrix)			
Element	**Answers**		
Mechanisms to track the sharing and usage of actual data (provenance)	Fully implemented	Planned or defined, but not yet implemented	Not yet
Mechanisms to monitor and manage data-sharing contracts (observability)	Fully implemented	Planned or defined, but not yet implemented	Not yet
Use of standardised models or protocols for provenance and traceability	Fully implemented	Planned or defined, but not yet implemented	Not yet
Scoring For each element, points are attributed as follows: Fully implemented (1 point), Planned or defined but not yet implemented (0.5 points), Not yet (0 points).			

Data sovereignty and trust (identity management)

Q12. To what extent has your data space implemented identity and attestation management functions? (Matrix)			
Element	**Answers**		
The data space rulebook is provided in a structured, machine-readable format to enable automated compliance checks and interoperability across data spaces.	Fully implemented	Planned or defined, but not yet implemented	Not yet

Identity and attestation mechanisms are implemented using standardised approaches, including W3C Verifiable Credentials.	Fully implemented	Planned or defined, but not yet implemented	Not yet
The data space leverages credential exchange protocols such as the Decentralized Claim Protocol (DCP) and OID4VC, enabling participants to share verifiable credentials securely while maintaining data sovereignty.	Fully implemented	Planned or defined, but not yet implemented	Not yet
Scoring For each element, points are attributed as follows: Fully implemented (1 point), Planned or defined but not yet implemented (0.5 points), Not yet (0 points).			

Data sovereignty and trust (trust framework)

Q13. To what extent has your data space implemented mechanisms and infrastructure to enable trust through accredited entities and registry-based trust management? (Matrix)			
Element	**Answers**		
The data space adopts/implements clear guidelines for establishing trust anchors and other entities (e.g., trust service providers, conformity assessment bodies) that are accredited to issue	Fully implemented /adopted	Planned or defined, but not yet adopted/implemented	Not yet

attestations on identities or other attributes			
The data space governance is technically enforced through a trust framework, which defines, together with the rules, semantic models for trusted information exchange, processes for compliance verification and technical standards for interoperability	Fully implemented /adopted	Planned or defined, but not yet adopted/implemented	Not yet
Every participant and service within the data space can be systematically verified against the data space rulebook's requirements, ensuring adherence to governance standards	Fully implemented /adopted	Planned or defined, but not yet adopted/implemented	Not yet
The data space offers mechanisms (via the data space registry) to store the rulebook, lists of accredited trust anchors (including revoked ones), and the schemas used to assess compliance.	Fully implemented /adopted	Planned or defined, but not yet adopted/implemented	Not yet
Scoring For each element, points are attributed as follows: Fully implemented/adopted (1 point), Planned or defined but not yet adopted/implemented (0.5 points), Not yet (0 points).			

Data sovereignty and trust (access and usage policies enforcement)

Q14. To what extent has your data space implemented mechanisms and infrastructure to enable trust through accredited entities and registry-based trust management? (Matrix)			
Element	**Answers**		
Access and usage policies are defined, transformed into machine-readable formats, and implemented using policy engines.	Fully implemented	Planned or partially implemented	Not yet
Machine-readable policies are negotiated and enforced during data access and usage.	Fully implemented	Planned or partially implemented	Not yet
Data transactions are monitored and logged to verify compliance with access and usage policies and provide enforcement evidence.	Fully implemented	Planned or partially implemented	Not yet
Scoring For each element, points are attributed as follows: Fully implemented (1 point), Planned or partially implemented (0.5 points), Not yet (0 points).			

Data value creation enablers (data, services, and offerings descriptions)

Q15. Are your data products and services discoverable and described using standardised, machine-readable formats? (Matrix)		
Element	**Answers**	
Is there a comprehensive and user-friendly catalogue or discovery mechanism in place, so that potential users can discover the	Yes	No

available data products and services within your data space? **(or shorter: Is there a user-friendly catalogue or discovery mechanism?)**			
Does your data space use machine-readable metadata (to describe data products, services, data licenses, usage terms) enabling discovery by both humans and software systems?	Yes		No
Does your data space use standardised vocabularies (e.g. the Data Catalog Vocabulary DCAT v3) to describe datasets, services and offerings?	Yes, we use DCAT v3	Yes, but we use other formats – please specify	No
Does your data space use standard policy frameworks (ODRL)?	Yes, we use ODRL	Yes, but we use other formats – please specify	No
Scoring For each element, points are attributed as follows: Yes (1 point); Yes, but with other formats (1 point if the formats presented are relevant); No (0 points).			

Data value creation enablers (publication and discovery)

Q16. To what extent has your data space implemented mechanisms and infrastructure to enable trust through accredited entities and registry-based trust management? (Matrix)	
Element	**Answers**

Participants can publish, update, and remove data/service offerings using a catalogue system.	Fully implemented	Planned or partially implemented	Not yet
Participants can search, filter, and discover offerings based on metadata, terms and conditions?	Fully implemented	Planned or partially implemented	Not yet
The catalogue support s management of access control mechanisms to manage visibility of offerings.	Fully implemented	Planned or partially implemented	Not yet
Scoring For each element, points are attributed as follows: Fully implemented (1 point), Planned or partially implemented (0.5 points), Not yet (0 points).			

Data value creation enablers (value creation services)

Q17. To what extent has your data space implemented the following types of value creation services and supporting capabilities? (Matrix)			
Element	**Answers**		
Your data space has a taxonomy of value creation services, distinguishing between core services, data handling services, value-added services, infrastructure integration services, application integration services, and business enablement services.	Fully implemented	Planned or partially implemented	Not yet

A service management framework is in place that supports the provisioning, delivery, use, trusted execution, monitoring, scalability, and maintenance of value creation services.	Fully implemented	Planned or partially implemented	Not yet
Scoring For each element, points are attributed as follows: Fully implemented (1 point), Planned or partially implemented (0.5 points), Not yet (0 points).			

4.3 Operational indicators

Q18. What is the current and projected participation in your data space?		
Sub-questions	**Answers**	
Q18.1 Does your data space actively monitor the level of participation (number of data providers and consumers)?	Yes	No
Q18.2 If yes, what is the current number of data providers and data consumers?	Numerical box (for providers) Numerical box (for users)	
Q18.3 What is the expected number of potential participants to join within one year?	Numerical box (for providers) Numerical box (for users)	
Scoring		

For the questions 18.2+18.3, the scoring will be based on the ratio for each category, users and providers (current/expected) and attributed as follows: If ratio=0 no points, if 1-20% = 1 point, 21-40% = 2 points, 41-60% = 3 points, 61-80% = 4 points, 81-100% = 5 points.

Q19. What is the current and projected volume of activity in your data space?			
Sub-questions	**Answers**		
Q19.1 You are currently tracking and monitoring transaction volumes over time. (logging and analysing data exchange activity - e.g. number and volume of transactions). Implementation could involve logs, analytics dashboards, transaction registries, billing systems.	Yes	Monitoring framework has been planned or defined, but not yet active	Not yet
Q 19.2 What was the number of transactions in the past year?	Numerical box		
Q 19.3 What is the expected number of transactions in the next year?	Numerical box		

Q19.4 What was the volume of transactions in the past year?	Numerical box
Q19.5 What is the expected volume of transactions in the next year?	Numerical box
Scoring For the question 19.1: Yes – 1 point; Planned or defined -0.5 points; Not yet – 0 points For the questions 19.2+19.3, and 19.4+19.5 the scoring will be based on the ratio for each category, number of transactions (current/expected) and attributed as follows: If ratio is 0 = no points, if 1-20% = 1 point, if 21-40% = 2 points, if 41-60% = 3 points, if 61-80% = 4 points, if 81-100% = 5 points.	

Development cycle stages

This final section will introduce the DSSC development cycle stages, which describe the typical progression of a data space initiative from exploratory to scaling stage of development. Each stage is defined by a set of qualitative criteria that reflect the maturity required across the business, governance and legal, technical, and operational dimensions. These stage-specific checks provide a practical reference for assessing maturity and identifying what needs to be in place before transitioning to the next phase. These criteria are directly linked to the assessment indicators and questions defined in chapter 3 and 4.

Rather than relying on numeric thresholds, the model uses qualitative descriptors (e.g. "planned/defined," "implemented," "tested") to assess readiness. This allows for flexibility and accommodates the diverse contexts of data space initiatives.

Table 4: Stage-specific criteria for development cycle progression

Dimension	Exploratory → Preparatory	Preparatory → Implementation	Implementation → Operational	Operational → Scaling
Business	*Business objectives and value proposition explored; initial use cases identified and aligned with the business plan*	*Business model documented and partially tested or validated through stakeholder feedback, pilots, or real-world use; at least one use case documented, and implementation initiated*	*At least one use case operational; value proposition validated with stakeholders*	*Business model validated through real-world use and stakeholder feedback; Use cases are delivering value and there is a process in place to continuously improve or expand them*
Governance and legal	*Organisational form and governance model under discussion*	*Governance authority defined; rulebook drafted; onboarding and offboarding processes defined; regulatory triggers identified*	*Governance processes implemented; participation management aspects implemented; compliance mechanisms operational; contractual framework in place*	*Governance processes reviewed and adapted based on operational experience; participation management aspects implemented; compliance mechanisms operational; contractual framework in place*
Technical	*Data model and exchange protocols defined; identity and trust mechanisms planned*	*Data model and exchange protocols defined; identity and trust mechanisms planned*	*Data model and exchange protocols implemented; provenance and traceability in place; identity, trust, and policy enforcement operational; metadata, catalogue, and service management implemented*	*Technical infrastructure supports cross-data space interoperability*
Operational	*Not applicable. Operational activities are not yet relevant*	*Planned monitoring of participants and transactions*	*Active monitoring of participants and transactions*	*Growth in participation and transactions; targets met or exceeded*

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Transition: Exploratory → Preparatory

Dimension	Criteria	Linked to assessment question
Business	Business objectives and value proposition explored; initial use cases identified	Q1: Business objectives and value proposition at least partially defined Q2: Use cases identified and aligned with the business plan
Governance & Legal	Organisational form and governance model under discussion	Q5: Organisational form is partially or fully defined
Technical	Data model and exchange protocols defined; identity and trust mechanisms defined. These technical capabilities have been explored by DSIs for the purpose of cost assessment, technical feasibility and elaboration of the business model	Q9: Data model is planned or defined Q10: Protocols/API are planned or defined Q12–Q14: Identity/trust/policy mechanisms are planned or defined
Operational	Not applicable. Operational activities not yet relevant	N/A

Transition: Preparatory → Implementation

Dimension	Criteria	Linked to assessment question
Business	Business model is documented and partially tested or validated through stakeholder feedback, pilots, or real-world use; at least one use case is documented and implementation has been initiated	Q1: Business model drafted with partial validation Q2: At least one use case is documented and implementation has been initiated

Governance & Legal	Governance authority is defined; Rulebook is drafted; Onboarding and offboarding processes defined; Regulatory triggers are identified.	Q5: Governance authority's composition, as well as roles and responsibilities are defined and rulebook is drafted Q6: Onboarding/offboarding are defined Q7: Regulatory triggers are identified
Technical	Data model and exchange protocols are defined; Identity and trust mechanisms are planned	Q9: Data model is planned or defined Q10: Protocols/API planned or defined Q12–Q14: Identity/trust/policy mechanisms are planned or defined
Operational	Monitoring framework for the participation and volume of activity has been planned or defined	Q19.1: Monitoring framework is planned or defined

Transition: Implementation → Operational

Dimension	Criteria	Linked to assessment question
Business	Value proposition is validated with stakeholders. At least one use case is operational;	Q1: Business model is validated with stakeholders Q2: At least one use case is operational
Governance & Legal	Governance processes are implemented;	Q5: Governance processes are defined Q6: Roles and responsibilities of participants are fully implemented, Onboarding/offboarding are fully implemented Q7: Compliance measures are

	Participation management aspects are implemented; Compliance mechanisms are operational; Contractual framework is in place.	implemented Q8: Contracts are in place
Technical	Data model and exchange protocols are implemented; Provenance and traceability is in place; Identity, trust, and policy enforcement are operational; Metadata, catalogue, and service management are implemented.	Elements in Q9 to Q14 are fully implemented, but in Q9 interoperability with /discoverability for external data spaces is not yet required.
Operational	Active monitoring of participants and volume of activity.	Q18–Q19: Active monitoring of participants and volume of activity (number and volume of transactions)

Transition: Operational → Scaling

Dimension	Criteria	Linked to assessment question
Business	Business model is validated through real-world use and stakeholder feedback; Use cases are delivering value and there is a process in place to continuously improve or expand them	Q1: Validation through stakeholder feedback, pilots, or real-world use Q2: Process to continuously improve, to expand or to identify improvement opportunities for use cases

Governance & Legal	Governance processes is reviewed and adapted based on operational experience; Participation management aspects are implemented; Compliance mechanisms are operational; Contractual framework in place.	Q5: Governance framework has been fully reviewed and adapted based on operational experience. Q6: Roles and responsibilities of participants are fully implemented, Onboarding/offboarding processes are fully implemented Q7: Compliance measures are fully implemented Q8: Contracts are in place
Technical	Technical infrastructure supports cross-data space interoperability.	Q9: Interoperability with (discoverability for) external data spaces = Yes
Operational	Growth in participation and transactions;	Q18–Q19: Growth in participation and transaction activity (number and volume of transactions);