

Trusted Data Transaction — Part 1: Concepts, terminology, and mechanisms

ICS:

CCMC will prepare and attach the official title page.

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16 European foreword

17
18 This CEN Workshop Agreement has been developed in accordance with the CEN/CENELEC Guide 29
19 “CEN/CENELEC Workshop Agreements – A rapid prototyping to standardization” and with the relevant
20 provisions of CEN/CENELEC Internal Regulations - Part 2. It was approved by a Workshop of
21 representatives of interested parties on YYYY-MM-DD, the constitution of which was supported by CEN
22 following the public call for participation made on 2023-02-10. However, this CEN Workshop Agreement
23 does not necessarily include all relevant stakeholders.

24
25 The final text of this CEN Workshop Agreement was provided to CEN for publication on YYYY-MM-DD.

26
27 The following organizations and individuals developed and approved this CEN Workshop Agreement:

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54

55 1. Introduction

56 Data is now the backbone of the digital economy, enabling economic growth and competitiveness,
57 fostering innovation, improving public services or advancing scientific research. Seamless and secure
58 cross-border and cross-industry data flows, within and across data spaces or data ecosystems, have
59 become crucial for businesses and individuals worldwide. As technologies such as artificial intelligence
60 (AI) and internet of things (IoT) continue to evolve and spread, the importance of data exchange, data
61 sharing and data flows will only become more significant.

62 The main powers of the economic world are now focusing their efforts on the creation of sustainable and
63 dynamic data ecosystems, driven by the initiatives engaged by European and international policy-
64 makers.

65
66 The legal environment around data exchanges and data transactions plays an essential role in the
67 development of data ecosystems, bringing a trust framework for all stakeholders involved in the
68 exchange of data. In Europe some of the key regulations are:

- 70 • The General Data Protection Regulation (EU) 2016/679 (GDPR) set the path with a set of
71 measures aiming at protecting data and privacy in the European Union (EU) and the European
72 Economic Area (EEA), which rapidly became a model for many other laws across the world.
- 73 • The Data Governance Act (DGA), entered in force in the EU in June 2022 and is in application since
74 September 24, 2023. The DGA is a cross-sectoral instrument that aims to make more data
75 available by regulating the re-use of publicly/held, protected data, by boosting data sharing
76 through the regulation of data intermediaries and by encouraging the sharing of data for altruistic
77 purposes. Both personal and non-personal data are in scope of the DGA, and wherever personal
78 data is concerned, the General Data Protection Regulation (GDPR) applies. In addition to the
79 GDPR, inbuilt safeguards will increase trust in data sharing and re-use, a prerequisite to making
80 more data available on the market.
- 81 • The Data Act - on November 27, 2023, the text was adopted, and will enter into force 20 days after
82 Official Journal publication, and become applicable 20 months after entering into force. Some
83 provisions of the Data Act will have different application dates.

84 While the Data Governance Act creates the processes and structures to facilitate data sharing, the Data
85 Act clarifies who can create value from data and under which conditions and provides legal clarity for
86 businesses as regards the use of data. The Data Act aims to facilitate the development of new services
87 leveraging Europe's wealth of data, but also ensures fairness by regulating the rights and obligations of
88 all the economic actors involved in sharing data, particularly from Internet of Things (IoT) devices.

89
90 Along with reference architectures, trust frameworks and data regulations, the existence of standards
91 recognized by the community represents another key pillar for developing collaborations around data,
92 across borders and across industries, easily, effectively while facilitating interoperability.

93 As trust is needed for stakeholders to engage in data transactions the CEN Workshop focuses on the
94 subject of Trusted Data Transaction.

95 2. Scope

96 The scope of this document is to provide terminology, concepts and mechanisms in the field of data
97 exchange focusing on trusted data transactions.

98 Those elements can be used in the development of standards in support of trusted data transactions. They
99 will help identify key dimensions and criteria that contribute to the trustworthiness of a data transaction
100 between interested parties.

101 Therefore, those elements may constitute a foundational understanding on which trusted data
 102 transactions can be based, independently of any architectural choices or technical implementation.

103 **3. Normative references**

104 There are no normative references in this document.

105 **4. Terms and definitions**

106 For the purposes of this document, the following terms and definitions apply.

107 ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- 108 • IEC Electropedia: available at <http://www.electropedia.org/>
- 109 • ISO Online browsing platform: available at <http://www.iso.org/obp>

110 **4.1**

111 **data**

112 re-interpretable representation of information in a formalised manner suitable for communication,
 113 interpretation, or processing

114 [SOURCE : ISO/IEC 20546:2019 (Big data – Overview and vocabulary)]

115 **4.2**

116 **data consumer**

117 **data user**

118 person or organization authorized to exploit data

119 Note 1 to entry: data are in the form of data products

120 [SOURCE: ISO 5127:2017 with Note 1 to entry added and with “data consumer” considered as equivalent
 121 to “data user”]

122 **4.3**

123 **data exchange**

124 **data sharing**

125 process by which a data provider grants a data user access to a data product, subject to applicable
 126 technical, financial, legal, or organisational use requirements.

127 Note 1 to entry: the term refers to a full spectrum of practices related to sharing or exchanging any kind
 128 of data, including open data and the many forms of non-open data.

129 Note 2 to entry: data sharing may or may not require transfer of data.

130 **4.4**

131 **data license**

132 agreement which describes the conditions under which the data user can use the data once acquired

133 Note 1 to entry: conditions include, but are not limited to, duration, terms and conditions, sub-licensing
134 rights and territory

135 **4.5**

136 **data product**

137 standardised data unit packaging data and relevant conditions into a useable form

138 Note 1 to entry: data product includes, without being limited to, metadata describing the data product,
139 data licenses and terms of usage

140 Note 2 to entry: data product does not necessarily imply commercial aspects

141 Note 3 to entry: data product is typically published in a data product catalogue that is searchable by data
142 users

143 **4.6**

144 **data producer**

145 natural person, legal person,, device or any software that generates data.

146 **4.7**

147 **data provider**

148 **data product provider**

149 natural or legal person that has the right or duty to make data and data products available to data users

150 Note 1 to entry: data provider is known as data holder in the European Data Governance Act and Data
151 Act

152 Note 2 to entry: data provider has several roles, e.g. :

- 153 - non-technical, on behalf of a data rights holder, including the description of the data products,
154 data licenses and terms of usage of the data, the negotiation with the data users, and the
155 conclusion of contracts
- 156 - technical, with the provision of the data products to the data users

157 Note 3 to entry: The right or duty of the data provider shall not adversely affect the rights of data subjects
158 pursuant to the applicable Union and national law on the protection of personal data, in particular the
159 General Data Protection Regulation (GDPR)

160 **4.8**

161 **data rights holder**

162 party that has legal rights and/or obligations to use, grant access to or share certain personal or non-
163 personal data, and to transfer such rights to others

164 Note 1 to entry: data rights holder and data provider represent different roles, that can be carried out by
165 the same entity or by different entities

166 Note 2 to entry: data rights holder's role is focused on managing authorizations and consents to use
167 certain data, required before the provision of the data

168 4.9

169 data space

170 distributed system defined by a governance framework that enables secure and trustworthy data
171 transactions between participants while supporting trust and data sovereignty

172 Note 1 to entry: data space is implemented by one or more infrastructures and enables one or more use
173 cases

174 [SOURCE: DSSC Glossary | Version 2.0 | September 2023]

175 4.10

176 data transaction

177 immutable outcome of an agreement for data access or exchange

178 Note 1 to entry: data transaction requires a data provider, a data user, a clear definition of the data
179 product being transacted, data licensing mechanisms, the secure technical transfer of - or access to- the
180 data, and traceability of the data transaction.

181 Note 2 to entry: "data exchange" and "data access" terms are used in order to describe different
182 mechanisms, like actual transfer of data or situations where data does not move but where access is
183 provided to different stakeholders

184 Note 3 to entry: Data transactions do not necessarily imply a commercial relationship

185 Note 4 to entry: Each data transaction is unique and must be treated independently of other data
186 transactions

187 4.11

188 metadata

189 data about data or data elements, possibly including their data descriptions, and data about data
190 ownership, access paths, access rights and data volatility

191 [SOURCE: ISO/IEC 20546:2019 (Big data – Overview and vocabulary)]

192 5. Objectives, stakeholders and concepts of trusted data transaction

193 5.1 Objectives

194 For digital ecosystems, trustworthiness is key to enable data exchanges between stakeholders and
195 support interoperability. Therefore, the objective of a trusted data transaction is to make sure that the
196 stakeholders involved in a data transaction can conduct it in a trustworthy way, with a clear and shared
197 understanding of the conditions of the exchange, from a technical, business, legal and regulatory
198 perspective. The ultimate goal is to reduce data silos, increase access to data, and accelerate the flow of
199 data to boost competitiveness and innovation.

200
201 A key goal of the Workshop is to identify and define the trustworthiness characteristics in a data
202 transaction. The preliminary work done in Part 1 is structured in a way to support this goal:

- 203
- 204 • The identification and definition of key concepts and terminology that are needed in support of
- 205 Part 2 of the Trusted Data Transaction Workshop
- 206 • It is not the intention of the Workshop to list and describe all the terms and concepts related to
- 207 data exchange and data sharing in general, but instead to start from the definition and concept of
- 208 a data transaction, and ensure that all related concepts and terms are well defined.

209 **5.2 Stakeholders**

210 **5.2.1 General**

211 Key stakeholders that are involved in a data transaction include the data provider, the data user and the
212 data intermediary (in the sense of the Data Intermediation Services Provider defined in the European
213 Data Governance Act).

214 **5.2.2 Data provider and data user**

215 The data provider, along with the data user are the key stakeholders that are directly engaged in a data
216 transaction.

217 On the data provider side, stakeholders can play several roles simultaneously, or these roles can be played
218 by different organizations. Roles can be split between:

- 219 • data producer role
- 220 • data rights holder role
- 221 • data provider role

222 The data provider is ultimately the entity that provides a data product to a data user, and co-signs with
223 this data user a contract specifying the terms and conditions for the usage of this data product.

224 **5.2.3 Data intermediary**

225 The data intermediary, also known as data intermediation service provider plays an extremely important
226 role in the data economy to facilitate and secure the circulation of data between data providers and data
227 users. The scope of the services offered by the data intermediation service provider can vary, depending
228 on the operational model defined. In data ecosystems (e.g. data spaces), data intermediaries enable to
229 establish relationships between participants and facilitate data transactions with other members.

230 **5.2.4 Trust service provider**

231 Trust service providers are independent parties that provide services regarding to identity
232 (authentication), attestations (including registries), authorization and consent. This includes the
233 provisioning of technical services and organizational services implementing the required processes to
234 fulfil identification, attestation and authorization.

235 **5.3 Concepts**

236 **5.3.1 Data and data product**

237 Data and Data Products are two distinct notions. While data is a collection of facts, figures, statistics or
238 representation of information, a data product is a collection of data, packaged by the data provider, and
239 containing more than just the data, ie.:

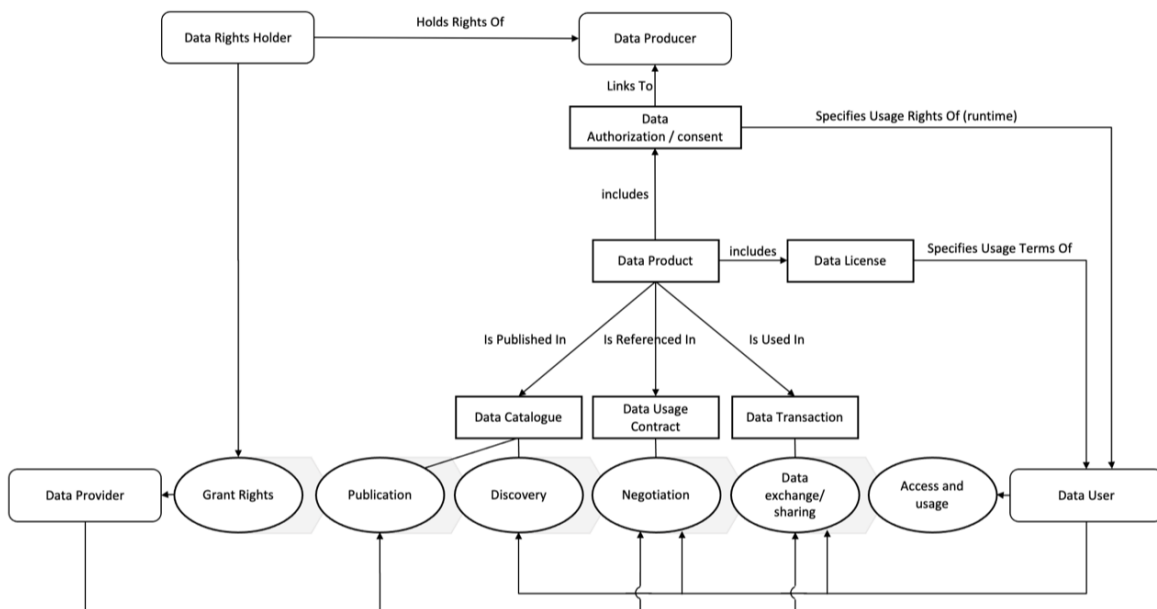
- 240
- 241
- 242
- Description of metadata, which are important for discoverability purposes. It is also important to ensure that the description includes enough and exhaustive information about the data product, if possible regarding the specific purposes the data product is intended to,
- 243
- data licenses, which describe the legal terms of the license for the data product,
- 244
- terms of usage, including, but not limited to, the duration, terms and conditions, territory and sub-licensing rights,
- 245
- offering details, including commercial terms and price, if any.
- 246

247 5.3.2 Data transaction

248 The concept of a data transaction has a number of key characteristics:

- 249
- A data transaction, in order to materialize, requires a data provider, a data user, a clear definition of the data product being transacted, data licensing mechanisms, the secure technical transfer of - or access to - the data, and traceability of the data transaction.
- 250
- In some cases, the data is transferred from the data provider to the data user. In other cases, the data does not move while access to the data is given to one or several stakeholders.
- 251
- Data transactions do not necessarily imply a commercial relationship between the data provider and the data user, and does not necessarily imply the payment of a fee by the data user to the data provider in order to access and use the data.
- 252
- Each data transaction is “unique” indicating that it must be treated independently of other data transactions. It is also “immutable” indicating that a data transaction is unmodifiable when it has occurred
- 253
- 254
- 255
- 256
- 257
- 258
- 259

260 The concept of Data Transaction can be described with the conceptual model hereafter:



261

262

Figure 1: Conceptual model of the scope of data transaction¹

¹ Source: Gaia-X European Association for Data and Cloud AISBL – Data Exchange documents 23.11 (with simplification) and based on DSSC inputs.

263 Before using a Data Product, the Data user accepts or negotiates - and co-signs - an agreement (Data Usage
264 Contract) with the Data Provider, containing the terms of usage, including applicable authorizations and
265 consents. Authorizations and consents will need to be verified each time the data is accessed. This Data
266 Usage Contract is based on a data product description that may have evolved during the negotiations, if
267 any, from the data product description initially published in the Data Product Catalogue.

268 After such a contract has been agreed upon and has been signed by both parties, the Data user can start
269 accessing and using the data, operationalizing the Data Usage Contract. Such data usage with the
270 associated Data Usage Contract corresponds to a Data Transaction which relates to the technical and legal
271 arrangements necessary to enable the proper use of data by the Data user.

272 The concept of Data Transaction relates to the following three phases ²:

- 273 - Granting rights and publication of the data product which is a provisioning phase leading to the
274 publication of metadata and data policies.
- 275 - Discovery and negotiation which is the phase leading to an agreement (Data usage contract)
276 between a data provider and a data user regarding a data product
- 277 - The data exchange or sharing phase operationalizing the Data Usage Contract through a data
278 transaction which includes also the access and usage of the data product by the data user

279 Although the activities depicted in Figure 1 are typically executed in the order as displayed, certain data
280 transactions may skip activities or reiterate parts of the process. This is not displayed in the figure for
281 readability reasons.

282 5.3.3 Trusted Data Transaction

283 A trusted data transaction is a data transaction based on a set of verifiable characteristics such as
284 reliability, security and legitimacy. Parties involved include, but are not limited to, the data provider, the
285 data user, and other parties, such as the data intermediation service provider. Implementing trust is
286 strongly related to implementing identity management, as well as access and usage control.

287 Trust (and trustworthiness) is also improved by providing a whole and comprehensive description of the
288 data product, with enough and exhaustive information about the data product, if possible regarding the
289 specific purposes the data product is intended to. It should mostly include information about the
290 provenance (and tracing) and quality of the data, with quality dimensions and indicators related as much
291 as possible to the specific uses the data product is intended to.

292 Part 2 of the workshop will focus on determining which are those characteristics that are the most
293 relevant for defining trustworthiness of a data transaction, as well as a list of criteria, for each
294 characteristic, that can objectively be used for measuring this trustworthiness.

² based on the Gaia-X Data Exchange Services Conceptual Model and the DSSC glossary