

Managing public sector data: National challenges in the context of European Union's new data governance models

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Abstract. In its regulatory enterprise to improve the conditions of data sharing and reuse, the European Union has enacted new legislation: the Data Governance Act (DGA). The DGA envisages new forms of sharing public sector data (PSD). Based on a legal analysis of the DGA and an in-depth study of data governance literature, this paper highlights what is at stake in the new regulatory framework and argues that more than the mere openness of more PSD will be necessary to ensure that the European Union policy goals are achieved, especially those concerning enhancing innovation for the common good. From this perspective, the paper argues that the public data trust model of data governance and the Responsible Research and Innovation approach offer two powerful tools for public sector data governance. In this context, this paper contributes to the debate about new data governance models and discusses tools and frameworks enabling the use of data for the common good. It also provides insights to public administration practitioners aiming to implement a framework for increased and sustainable PSD sharing.

Key points for practitioners:

- The implementation of the European Union's Data Governance Act will entail several challenges to national authorities, especially in what concerns new forms of public sector data sharing;
- Public Data Trusts can serve as an institutional model for new public sector data-sharing possibilities;
- Responsible research innovation offers a framework for democratic public sector data management.

Keywords: Data governance, public sector data, open government data, public data trust, data for common good

1. Introduction

Data is at the core of technological innovation and is perceived as an important source of economic growth and social good (European Commission, 2020b). This potential lies in the possibilities of data being aggregated and combined, enabling new insights, predictions and content. Such aggregation is seen as unlocking economies of scale and scope that “would materialize in efficiency gains for the industry and increased social welfare” (European Parliament, 2021, p. 2). However, in the current state of affairs, data and the technological capacity to explore it are concentrated in the hands of a few actors and benefit first and foremost powerful private groups pursuing exclusively economic interests (Micheli, Ponti, Craglia, & Berti Suman, 2020). This situation, also referred to as the platform economy, reinforces the power imbalance in modern societies and hampers innovation (Pistor, 2020; Taylor, Mukiri-Smith,

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32 Petročnik, Savolainen, & Martin, 2022). Moreover, the most important data uses are linked with targeted
33 advertising, personalised insurance premiums and credit score ratings (Ohm & Frankle, 2018; Viljoen,
34 2021). Although significant from an economic point of view, these applications are of limited relevance
35 to improving social welfare (Viljoen, Goldenfein, & McGuigan, 2021). In this context, the concentration
36 of technological capacity limits the bottom-up processes of social innovation through which civil society,
37 social entrepreneurs and small businesses tackle social needs that are generally not addressed by the
38 market or by players motivated solely by profit (Taylor et al., 2022).

39 In this framework, governments hold crucial sources of data. Despite this, the bulk of data controlled
40 by governments remains underexploited by the government itself and continues inaccessible to private
41 entrepreneurs due to, on one hand, legal and technical constraints to making it accessible and, on the other
42 hand, the lack of internal technical structure and human skills to exploit this data fully (Bharosa, 2022;
43 Taylor, 2017). The openness of what is called 'Public Sector Data' (PSD) has been an object of public
44 policy and regulation for a long time (Valli Buttow & Weerts, 2022b), and it has been promoted by the
45 Open Government Data (OGD) movement. The liberalisation of PSD was first motivated by arguments
46 such as its potential for improving democracy and boosting the economy (Valli Buttow & Weerts, 2022a);
47 now it is used as an important tool to fight data concentration and to foster innovation that is aligned with
48 the public good (European Commission, 2020c).

49 To make data available while tackling imbalances of power, the European Union (EU) has engaged
50 in a regulatory effort to foster a digital transformation that promotes human flourishing and is aligned
51 with European values (European Commission, 2020d). As part of this broader effort to regulate new
52 technologies and the digital market, the Data Governance Act (DGA) proposes increased data openness.
53 It aims to improve the conditions of data sharing and, by so doing, to boost innovation and ensure that
54 society as a whole profits from technological advances (European Commission, 2020c). With regard to
55 PSD, the DGA aims to complement the regulatory framework established by the Open Data Directive
56 (European Union, 2019), which is closely linked with the OGD movement (Valli Buttow & Weerts,
57 2022b). On this subject, the European regulation defines data as the digital representation of acts, facts
58 or information (European Union, 2022, art.2 (1)) and PSD as the data produced or collected as a result
59 of the execution of public tasks over which governments exercise legal and de facto control (European
60 Union, 2022). The PSD open definition is justified because, within the EU law, the scope of public tasks
61 is defined by national states. The attribution of data as public can therefore vary in line with different
62 national legal regimes (European Union, 2022, recital 8).

63 To sum up, this new legal framework expands and deepens the possibilities of data sharing based
64 on the adaptation of the OGD model. However, it is generally agreed that the OGD on which the new
65 European regulation is built has had limited positive results. Scholars have noted an important gap
66 between OGD promises and real-world impact (Jetzek, Avital, & Bjørn-Andersen, 2013; Reggi, Dawes,
67 & Gil-Garcia, 2022; Ruijter & Meijer, 2020; Safarov, Meijer, & Grimmelikhuijsen, 2017; Schwoerer,
68 2022). The literature identifies several barriers that hinder OGD potential such as a lack of opportunities,
69 motivation and ability to use public data (demand side), a lack of appropriate institutional incentives
70 to share (supply side), and a lack of adequate governance mechanisms to gather and act upon, users'
71 feedback (Jetzek, 2016; Reggi et al., 2022).

72 Achieving the DGA's ambitious policy goals poses a critical challenge to scholars, policymakers and
73 practitioners in the field. In this context, this paper aims to investigate the following research question:
74 What instruments and tools could be used to meet the DGA's objectives, i.e., to ensure that PSD is open to
75 the various political and economic players while guaranteeing that it can be reused for the common good?
76 To answer this question, we conducted an in-depth analysis of the literature on data governance, OGD

77 and Responsible Research and Innovation (RRI) and undertook an analysis of the DGA preparatory and
78 pre-legislative work complemented by a legal analysis of the DGA final text in the light of a law-in-context
79 approach. We argue that the adoption of collective and democratic management of PSD, based on a public
80 data trust institutional design rooted in the RRI framework, is an adequate response to the challenges
81 posed by the DGA implementation. This article addresses what we believe is a gap in the current literature
82 concerning the study of new institutional settings and policy instruments that enable the use of data in
83 more democratic ways designed to ensure that society as a whole benefits from data use (Beaulieu &
84 Leonelli, 2022; Pagallo, 2022; Prainsack, 2020). This article also contributes from a practical point of
85 view to the debate on the DGA implementation by national governments.

86 The following section (two) presents the conceptual background needed to understand the issue of
87 data governance and the theoretical basis of RRI. Section three outlines the DGA and considers it in its
88 policy context, emphasising the novelties concerning PSD governance. Section four links the theoretical
89 framework described in Section two to the legal framework investigated in Section three and explores
90 possible policy options to realise the potential of PSD for the common good. Section five presents our
91 conclusions.

92 **2. Data governance and responsible research and innovation**

93 This section presents the conceptual backgrounds for PSD governance, specifically focused on data
94 governance and RRI. Each conceptual background is constructed using the relevant scholarly literature
95 consulted by browsing the main scientific journals in the fields of technology, regulation, and innovation.
96 We studied relevant articles and chapters and checked references to confirm and thicken the concepts. This
97 background provides a deeper understanding of the issues at stake when discussing PSD and provides
98 insights on tools (institutional and organisational) that could be useful when implementing the DGA and
99 pursuing the DGA policy goals.

100 *2.1. The concept of data governance and its dominant models*

101 The concept of data governance has gained the attention of different fields in the literature, but its
102 conceptual boundaries are still being determined. The expression was first used in the realm of Information
103 Management, and it was thought of as the system of governance used to manage data inside different
104 organisations (Abraham, Schneider, & vom Brocke, 2019). In Science and Technology Studies (STS),
105 authors emphasise that data governance entails the “power relations between all the actors affected by, or
106 having an effect on, the way data is accessed, controlled, shared and used, the various socio-technical
107 arrangements set in place to generate value from data, and how such value is redistributed between
108 actors” (Micheli et al., 2020, p. 3). In critical data studies, Kitchin explains that the concept of data
109 governance designates the idea of a system of actors with different entitlements and several legal and
110 organisational layers that define how value is extracted from data (Kitchin, 2022, pp. 278–279). In socio-
111 legal scholarship, the concept of data governance captures both the managerial element and the question
112 of power/entitlements. In this sense, Ducuing explains that “from a policy and regulatory perspective,
113 data governance can be defined as a system of rights and responsibilities that determine who can take
114 what actions with what data.” (Ducuing, 2020, p. 59). Additionally, from a policy perspective, data
115 governance can be understood broadly as the ensemble of technical tools and mechanisms, legislative and
116 regulatory actions that aim to “enhance the creation of value from data” (Graef, 2020, p. 25). In brief,
117 all these perspectives, and more specifically, the perspectives of critical data studies and the social-legal

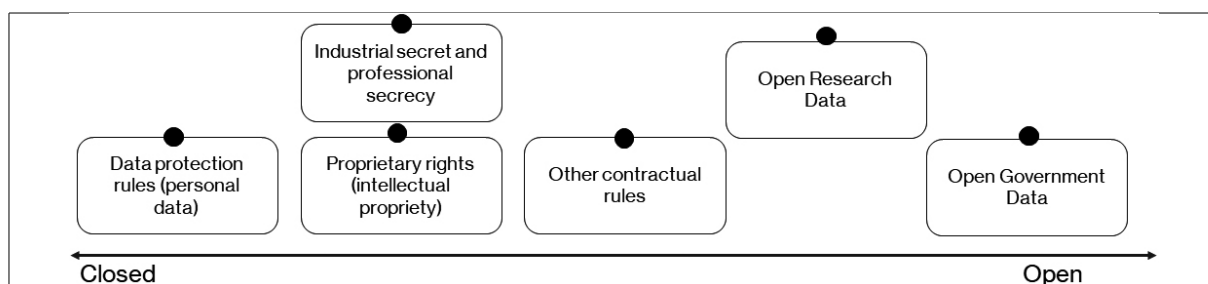


Fig. 1. Openness spectrum.

118 scholarship, highlight the social constructions that enable the use and reuse of data and, consequently, the
 119 extraction of value from them.

120 Two crucial and entangled issues are at the heart of the issue of data governance: the concentration of
 121 data in the hands of just a few actors and the stewardship of data-driven innovation toward the common
 122 good. Data governance models determine how and by whom data can be accessed, used and reused
 123 (Beaulieu & Leonelli, 2022). There is a variety of rules and regulations that define the conditions in
 124 which data governance takes place. These regulations encompass data protection rules, proprietary rights,
 125 security and secrecy rules, contractual conditions, and the still unsolved question of data ownership, among
 126 others. Different types of data will be subject to different rules and regulations, that will also depend on
 127 the context of their use. Broadly speaking, the different possibilities of data governance will be found
 128 anywhere along the spectrum between entirely closed and completely open access. Figure 1 illustrates
 129 how the regulatory framework determines the place of data under this spectrum. It is important to note
 130 that any data in this spectrum can be held or controlled by either public entities (such as governments of
 131 different spheres, local, regional, national or even international authorities) or private actors.

132 The current legal and political framework of data governance enabled the rise of the platform economy
 133 and data-driven markets with the winner-take-all structural logic, leading to the concentration of data
 134 and technical resources in a few giant tech companies (Pistor, 2020; Stilgoe, 2020). The exclusive access
 135 enabled by the current legal framework locks data into silos and hampers innovation. Indeed, small actors
 136 with good business ideas could find insurmountable difficulties in going further with their ventures if
 137 access to data is too difficult or, in some cases, impossible (Beaulieu & Leonelli, 2022; Verdegem, 2022).
 138 The second aspect that becomes salient in the discussion on data governance concerns the final use of
 139 data, the desirability of innovation and the legitimacy of the decisions concerning the direction and speed
 140 of innovation. Much of the recent technological development has been driven by giant corporations that
 141 retain the power to decide the areas of innovation, having as their core value the pursuit of economic
 142 gains (Birch, Chiappetta, & Artyushina, 2020; Taylor, 2021; Viljoen, 2021). In this sense, the question
 143 of the purpose of data-driven innovation underlines the discussion about increased access to data and
 144 improved data-sharing conditions (Taylor et al., 2022).

145 While the 'closed' side of data governance had led to data and technology concentration in the hands
 146 of a few powerful actors, leaving small space for social innovation, the open regime of freely and widely
 147 accessible data embodied by the OGD movement has produced only modest outcomes. In this context,
 148 research into OGD's features, barriers and effects provides insightful inputs concerning the process of
 149 opening up data and its consequences. Within this literature, there is an emerging consensus that the
 150 OGD's initial ambitious promises are difficult to realise in the real world (Janssen, 2012; Jetzek et al.,
 151 2013; Murillo, 2015; Reggi et al., 2022; Schwoerer, 2022). Some authors have suggested that the real
 152 potential of OGD is quite limited (Ruijter & Meijer, 2020). Others suggest that the results of widespread

153 OGD availability are not meeting expectations (Murillo, 2015; Sussha, Grönlund, & Janssen, 2015).
154 Safarov and colleagues indicate a general lack of evidence of the causal links between OGD and positive
155 outcomes and point out that “it is not enough to assume that the effects will occur, and that this will
156 occur automatically” (Safarov et al., 2017, pp. 18–19). Khayyat and Bannister highlight the weakness of
157 misguided ideas about openness that ignore the complexity of license regimes and argue that an adequate
158 license regime could offer a better solution to the management of PSD (Khayyat & Bannister, 2015).
159 Jaakola and colleagues note that it is not enough to open data, it is necessary to promote and encourage
160 the use of that data (Jaakola, Kekkonen, Lahti, & Manninen, 2015).

161 The literature thus shows that the simple provision of access to data does not ensure its reuse nor that
162 its potential reuse will produce results aligned with social goals. Research to date corroborates this view,
163 emphasizing the need for improving mechanisms of feedback (Reggi et al., 2022) and for constructing
164 a closer collaboration between public sector bodies and potential PSD users (Ruijter & Meijer, 2020;
165 Smith & Sandberg, 2018). Furthermore, one should not be blind to the commercial interests behind the
166 movement to open up PSD (Bates, 2014; Birch et al., 2020; Bodó, 2019; Longo, 2011). The question
167 of open (or closed) access is only the beginning of the discussion on better uses of data. New forms of
168 data governance, forms that were more socially responsible and sustainable, would entail a discussion on
169 systems of participation and representation within a democracy, not only on the possibilities of access,
170 but also on what kind of uses are enabled and what innovation is both needed and necessary (Beaulieu &
171 Leonelli, 2022; Bodó, 2019).

172 2.2. *Alternative models of data governance*

173 The discussion about alternative data governance models aims to find new ways to best articulate the
174 different rights related to data to maximise its potential value, considering equally social and economic
175 goods (Graef, 2020). Scholars have proposed several alternatives to resolve the problem of data concen-
176 tration and promote more sustainable use of data (Madison, 2020; Micheli et al., 2020). Sustainable use
177 of data can be understood as the type of use that preserves and supports communities and their values
178 (Taylor & Purtova, 2019). Another argument in this debate is that regimes incentivizing data sharing
179 could be a more economically efficient answer and would boost innovation, even if it is not without costs
180 (Graef & Prüfer, 2021; Pistor, 2020). Some authors call for public data infrastructures or data spaces that
181 foster innovation and sustain better political decisions (Zygmuntowski, Laura Zoboli, & Nemitz, 2021).
182 Most alternative models proposed depend on creating new legal arrangements and policy adaptations.

183 From this perspective, Micheli et al. propose a taxonomy of alternative data governance models that
184 policymakers could foster to counter-balance the problems created by the platform economy (Micheli
185 et al., 2020). Among the different models put forward, the public data trust model entails establishing a
186 new kind of institution that manages, preserves privacy and improves the public value of data (Kitchin,
187 2022). A public data trust would be an independent institution empowered to receive, store, and share data
188 from public bodies (but also eventually from private actors); it would establish the conditions for sharing
189 such data with private actors and other interested public bodies. The institution would also oversee data
190 reuse, preserving control over data and preventing abuse. The key idea underlying such a proposition is
191 that data should provide insights and support for policymaking and promote innovation and social good
192 (Micheli et al., 2020). Under the model described by Micheli et al., there is no detailed specification of
193 how the governance of such structures would be organized, but the authors emphasize that innovative
194 forms of participation and democratic decision-making should be deployed (Micheli et al., 2020). A few
195 pilot projects of public data trust have been tried and are discussed in the literature. One such is the city

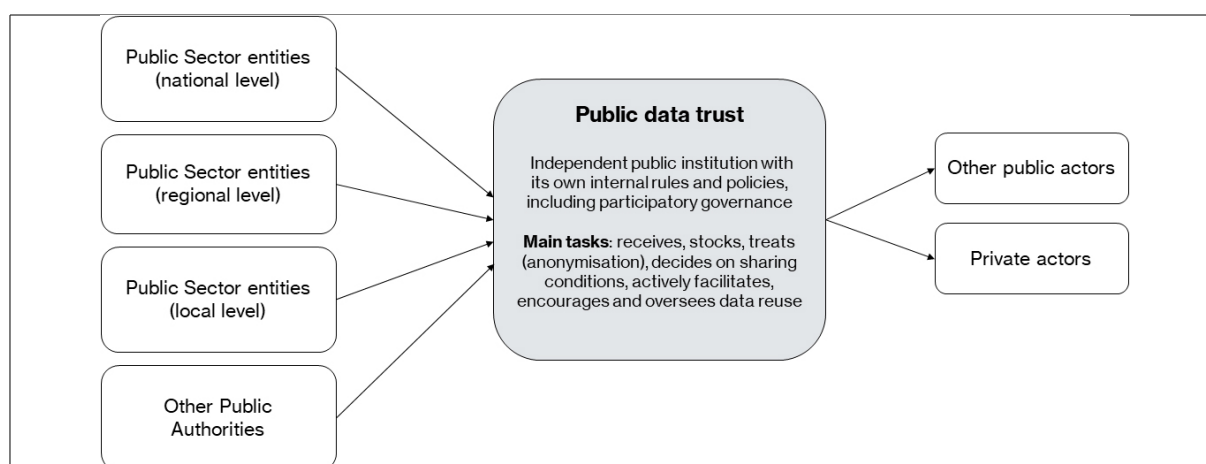


Fig. 2. Public data trust.

of Barcelona and others are to be found in the United Kingdom in different areas, for example urban data, the illegal wildlife trade, and food waste (Hardinges, Wells, Blandford, Tennison, & Scott, 2019; Morozov & Bria, 2018).

The public data trust model echoes the idea of exploring data through a regime of commons, producing a more plural and collective data governance approach (Madison, 2020; Taylor & Purtova, 2019). However, the public data trust contrasts with the idea of purely open commons, which is at the foundation of the OGD movement and the roots of PSD liberalisation (Bodó, 2019). Indeed, while in the OGD regime, PSD is widely and freely available, without any control or oversight of its use, a public data trust regime would entail democratic control over data access and reuse. The management of PSD would be closer to a closed commons regime. In this sense, Madison explains that data could be considered a collective resource, and their extraction and management should involve the participation of all the interested and affected actors. This closed commons approach relies on the idea that the resources are not completely open to being exploited, but they should be subject to collective governance through the enactment of collective institutional rules addressing coordination and social (and ethical) dilemmas. Such a governance system could co-exist with private and market laws (such as proprietary rights) (Madison, 2020). Figure 2 illustrates data flow among public sector entities and public or private actors through public data trust.

Public data trust and data governance through the commons approach raises the question of what kind of data-driven innovation is desirable and who decides about the desirability of such innovation? The idea is to add public and democratic reflection on the purpose and the form of data sharing and reuse. This approach, it is argued, would also bring public scrutiny to the innovation process by making the link between the input (data) and the output (final product or service) more transparent and shedding light on the overall impact of innovation. Adding this reflection layer could provide a space for discussion and negotiation on the possible harms and benefits of technological advances and how those harms and benefits are distributed throughout society (Pfothenauer, Laurent, Papageorgiou, Stilgoe, & Jack, 2022). It also provides more transparency and public awareness of the trade-offs of innovation, making more explicit how, for example, gains in efficiency could also lead to an increase in surveillance or aggravate discrimination against certain vulnerable groups (Taylor, 2017). Moreover, a democratic debate about the desirability of innovation would contest the rhetoric of the inevitability of technological advances (Taylor, 2017).

225 The discussion as to how to make the most of data's potential while aligning data-driven innovation
226 to society's needs and priorities envisages, inter alia, engagement with the broader question of how to
227 increase the potential of scientific knowledge and technical innovation so as to address societal problems
228 and challenges (such as climate change, demographic-ageing crisis, etc.) (Beaulieu & Leonelli, 2022;
229 Mazzucato, 2016). In this respect, the literature on RRI proposes a possible path to reduce the gap between
230 society's needs and innovation. In the next section, we explore the RRI to bring into the discussion on
231 data governance the lessons that can be learned from the RRI practice and literature.

232 2.3. *Responsible research and innovation*

233 The possibility of bridging the needs of society and technological advances is a challenge and has
234 received much attention from scholars and policymakers (Jasanoff, 2016). Several mechanisms have
235 been proposed and in some cases tried (with different levels of success). Some of these aim to enable
236 society to have an active voice in the discussion of the technological future. STS provides the shared
237 theoretical base of these approaches. It considers that technological advances are not the deterministic
238 result of technical features. Instead, it assumes that political and social choices have a direct influence
239 over the technological trajectory (Stilgoe, Owen, & Macnaghten, 2013). This premise gains renewed
240 relevance, considering that technological innovation, once deployed, becomes structural and shapes social
241 sets by enabling and constraining action (Orlikowski, 1992). In this sense, considering that the trajectory
242 of technological advances is shaped by social structures, discussions on the governance of innovation are
243 also discussions about power and decisions over our collective future (Pfothenauer et al., 2022).

244 In this context, the RRI framework emerged as a possible approach to tackle the challenge of promoting
245 socially desirable innovation (Jirotko, Grimpe, Stahl, Eden, & Hartswood, 2017). The framework emerged
246 simultaneously as a policy discourse and a research field (Owen & Pansera, 2019). As a policy discourse,
247 it was adopted by the EU to make science and innovation more responsive to contemporary society's
248 challenges (Owen & Pansera, 2019). The framework aims to bring together on one side, science and
249 innovation and, on the other side, the expectations and values of society (Owen, Pansera, Macnaghten, &
250 Randles, 2021). Several researchers have collaborated on the elaboration and development of the concept.
251 Scholars emphasize that the process of innovation creates the future and entails changes that may affect
252 society at large; hence, it should be the subject of democratic reflection and decision (Owen & Pansera,
253 2019). The most current definition of RRI in the literature is inspired by a policy document published
254 by the European Commission (EC) in 2011 (Burget, Bardone, & Pedaste, 2017). The definition goes as
255 follows:

256 Responsible Research and Innovation is a transparent, interactive process by which societal actors
257 and innovators become mutually responsive to each other with a view on the (ethical) acceptability,
258 sustainability and societal desirability of the innovation process and its marketable products. (European
259 Commission, 2011, p. 9).

260 The RRI approach engages with a broad realm of stakeholders in the discussion concerning the direction
261 and speed of research and innovation (Randles, Tancoigne, & Joly, 2022). It proposes a democratic and
262 inclusive decision-making process concerning new technologies. At the same time, it is a valuable tool
263 for managing risks and uncertainties concerning technological development (Jirotko et al., 2017).

264 The RRI's foundations are the notions of reflexivity, anticipation, inclusion, and responsiveness
265 (Burget et al., 2017; Stilgoe et al., 2013). Some authors include the dimensions of care and sustainability
266 as complementary concepts to RRI (Burget et al., 2017). Reflexibility aims to inculcate a culture of
267 self-reflection, awareness and moral responsibility in researchers and innovators (Stilgoe et al., 2013). RRI

268 seeks to respond to the idea that innovation is creating the future. For this reason, within the RRI process,
269 there is an exercise of imaging possible futures and anticipating the risks and benefits of a given invention.
270 By implementing an inclusive process, RRI fosters a collective debate and promotes the engagement of a
271 larger public in finding innovative and technical solutions (Stilgoe et al., 2013). Responsiveness is linked
272 to the transparency and accessibility of the innovation process (Burget et al., 2017). It conveys the idea
273 that the innovation process should be open-ended and adjust the innovation accordingly to the inputs
274 of stakeholders (Stilgoe et al., 2013). The emerging dimensions of RRI refer to the resource-efficiency
275 of innovations (sustainability) and the idea that the decisions about our future should be collectively
276 constructed, making citizens equally responsible for them (Burget et al., 2017). The RRI framework
277 does not aim to build a utopian world where the risks of innovation are all foreseen, and only harmless
278 innovation is allowed to be developed. Instead, the RRI is anchored in concrete practices and inclusive
279 dialogue that seeks to foresee and democratically evaluate all the possible risks of a new technology
280 (Burget et al., 2017). Authors have argued that this practice is valuable as a compliance exercise and that
281 it adds value to innovation, improving acceptability and increasing public trust in technology (Ribeiro,
282 Smith, & Millar, 2017).

283 The RRI approach has faced criticism (Owen & Pansera, 2019). The most important criticism relates to
284 the challenge of transforming RRI from discourse into practice (Ribeiro et al., 2017). More substantially,
285 some critics accuse RRI of slowing innovation and unduly interfering in the autonomy of science. Critics
286 have also warned about the limits of predicting the impact of innovation due to the impossibility of
287 foreseeing all potential uses of a given technology (Owen et al., 2021). However, RRI is an evolving
288 concept and policy, and it has demonstrated real potential for fostering reflection and responsiveness to
289 research and innovation (Ribeiro et al., 2017). Indeed, the RRI has become a horizontal theme in the work
290 of the EC, which has driven the development of the RRI framework by integrating it into its research
291 programs, encouraging its integration into the academic curricula and promoting training and public
292 forums for discussions on the topic (Owen & Pansera, 2019). Moreover, the EC has developed tools to
293 help governments and businesses implement the approach (<https://rri-tools.eu/>). In what concerns the
294 actions of governments, the EC recommends that the RRI approach should be deployed in the design of
295 policies covering research and innovation.¹ It also recommends incorporating RRI into the structure of
296 research funding, proposing that governments condition the allocation of funds on projects that embrace
297 RRI.² All in all, RRI could be a valuable framework for complementing the data governance propositions
298 designed by the DGA. To better understand how this could work, the following section presents an
299 in-depth analysis of the DGA policy context with a focus on the governance of PSD.

300 2.4. *The EU's alternative approach to data*

301 To address the challenges of data concentration and restrained innovation, the EU has adopted a
302 data strategy and developed its regulatory framework to provide the legal conditions for harnessing
303 the potential of data. The DGA is one of the fundamental pieces of this new regulatory framework.
304 This section presents the policy context and then outlines the main features of the DGA, emphasizing
305 the novelties in PSD governance and highlighting national implementation issues. It is built on an in-
306 depth analysis of European Commission preparatory documents, including the consultation process. The

¹<https://rri-tools.eu/how-to-stk-pm-incorporate-rri-in-policy/funding-institutions> last time consulted on 30 September 2022.

²See: <https://rri-tools.eu/how-to-stk-pm-incorporate-the-rri-principles-in-a-funding-call> last time consulted on 30 September 2022.

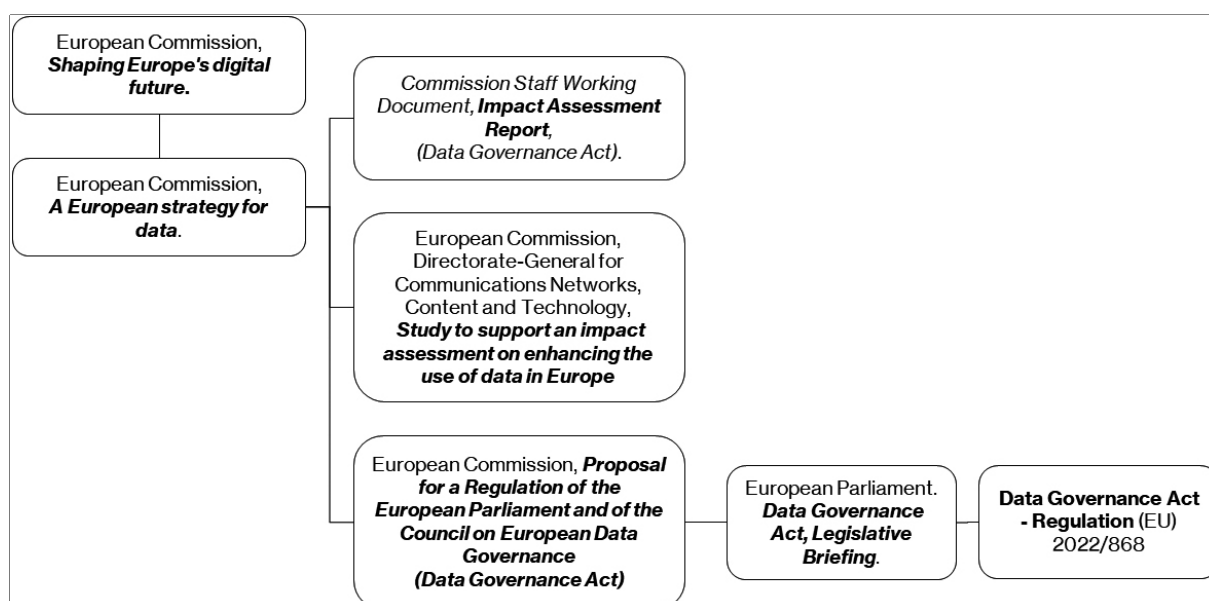


Fig. 3. European data governance policy chain.

307 selection of these preparatory documents traces back to the policy context of the DGA and considers the
 308 relevant documents that help in understanding the policy's rationale and goals. Figure 3 illustrates the
 309 DGA's policy path with the most relevant policy documents to its adoption. The analysis followed an
 310 inductive strategy that highlights the constitutive function of discourse (Howarth & Griggs, 2015; Yanow,
 311 2015). The legal analysis of the DGA final text used a classic legal hermeneutic analysis that considers
 312 the policy context in which the legal act was adopted, following a law-in-context approach (Selznick,
 313 2003).

314 2.4.1. The European data strategy

315 In 2020, the EC released its data strategy with the goal of increasing both the supply and demand for
 316 data by improving the technical and legal conditions of data sharing and use in the EU market (European
 317 Commission, 2020b). This goal responds to a broad political agenda that aims to build a comprehensive
 318 approach to the data economy (European Commission, 2020d). Such an approach was expressly presented
 319 as an alternative to the platform model (European Commission, 2020a). The platform model of data
 320 economy is described as one in which giant tech companies are present in the entire data value chain and
 321 have established a quasi-monopoly over data (European Commission, 2020a; Micheli et al., 2020). The
 322 vision encapsulated in the European Data Strategy aims to empower society to exploit data's potential for
 323 creating economic and social goods and to promote innovation that responds to individual and collective
 324 needs (European Commission, 2020b). It is, therefore, part of a regulatory effort that aims to change the
 325 current data governance model in order to level the playing field for a broader and more diverse network
 326 of actors.

327 The barriers identified by the EC as holding back data sharing can be summarised in three categories:
 328 (i) lack of trust in data sharing (data holders do not trust that re-users will use data in accordance with
 329 contractual rules or general guidance) (ii) lack of structures and processes for data sharing, including
 330 legal uncertainty and (iii) technical obstacles (European Commission, 2020a). In the EC's view, data
 331 should flow within the EU and across sectors. By putting forward this plea for openness, the EC aims

332 to put in place the conditions for “society to get the most out of innovation and competition and ensure
333 that everyone benefits from the digital dividend.” (European Commission, 2020b, p. 1). Moreover, the
334 improvement in data sharing conditions combined with the increased availability of data is deemed
335 essential for “tackling societal, climate and environment-related challenges” (European Commission,
336 2020b, p. 3). For that purpose, the EC intends to develop a clear and fair legal framework enabling data
337 sharing and reuse. Finally, the EC aims to build a legal and technical environment that combines a wide
338 flow of data with high levels of privacy, security, safety and ethical principles (European Commission et
339 al., 2022, p. 12).

340 The EC’s DGA proposal partially formalised the goal of deploying structural conditions for improving
341 data sharing and reuse. The preparatory documents reveal that EC has significant expectations concerning
342 this new regulatory framework. It is expected to achieve economic growth and improve social well-being.
343 The impact assessment of the DGA’s proposal foresaw the economic potential but did not present any
344 evidence of it. For example, it mentions the difficulty in accessing the real potential of PSD and refers
345 to an OECD estimate that enhanced access to sensitive PSD would bring economic and social benefits
346 equivalent to something between 0.1% to 1.5% of GDP (European Commission et al., 2022, p. 19).
347 Besides its economic ambition, the European policy on data emphasizes the concern about using PSD
348 accordingly in the public interest and to promote the common good (European Commission, 2020b). In
349 the same way, when summarising the consultation process, the impact assessment prepared by the EC
350 notes that the “decision to allow reuse should be based on the public interest (which needs to be defined)
351 and use-case specific risk assessment.” (European Commission, 2020a, p. 71).

352 Although the EC’s discourse reveals an effort to establish the link between data reuse and the promotion
353 of social-oriented technologies, it remains silent concerning the problem of what constitutes the public
354 interest and common good or how to establish it. In this sense, what constitutes the common good depends
355 on political discussion. Within the EU policy context, the RRI approach, adopted in the realm of public
356 funding of research, provides a suitable tool for overcoming this gap in the regulation. The following
357 section shows how the final text of the DGA addresses the issue of bridging the gap between innovations
358 and societal needs. It emphasizes the absence of mechanisms that ensure a technological development
359 more closely aligned with the common good and public interest.

360 2.5. *Public sector data in the data governance act*

361 The DGA was adopted by the European Council and the European Parliament in March 2022. It is built
362 on four pillars: (i) a regime for the reuse of certain categories of protected data held by public sector bodies
363 (subject to rights of others); (ii) a certification framework for data intermediaries (conceived as a neutral
364 agent that provides data sharing services by connecting data holders to data re-users); (iii) measures
365 facilitating data altruism; (iv) the institution of an expert group, the European Data Innovation Board, to
366 facilitate and coordinate European Member States’ (EMS) efforts to support data-driven innovation, to
367 lower transaction costs and to prevent sectoral fragmentation.

368 Concerning the governance of PSD, the DGA aims to complement the Open Data Directive (European
369 Union, 2019) by establishing a data-sharing regime for PSD that is not yet covered by 2019’s Directive.

370 The DGA creates a mechanism for reusing specific categories of protected PSD. These kinds of data
371 held by the public sector are subject to others’ rights, such as personal data protection, intellectual
372 property rights and commercial confidentiality. Because of the incidence of other kinds of rights, these
373 data sets are excluded from open data regimes. In European policy, this particular category of PSD is
374 also referred to as ‘sensitive data’ (European Commission et al., 2022). Based on the assumption that

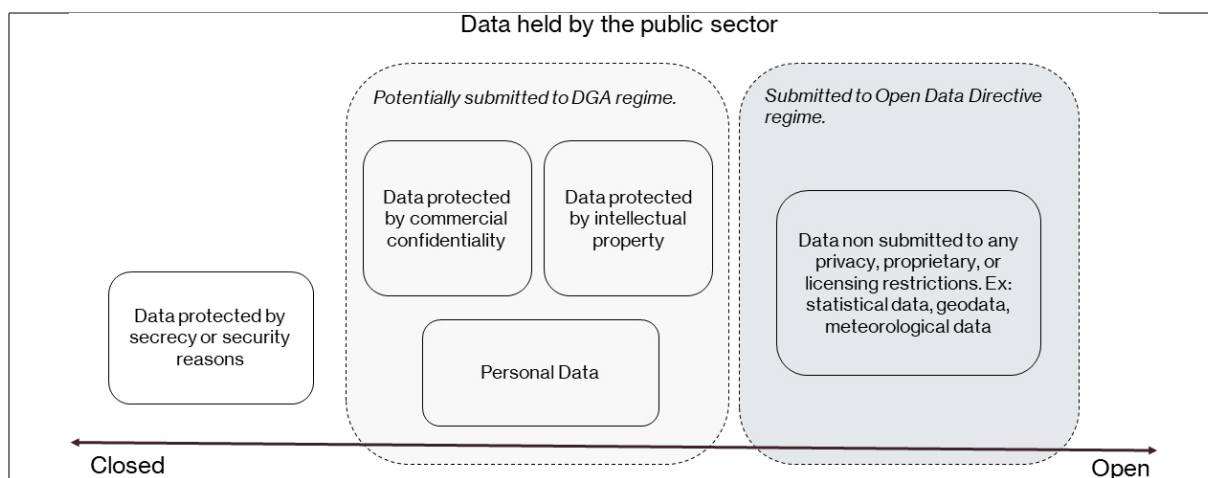


Fig. 4. PSD in the openness spectrum.

375 these data hold important economic and social potential, the idea is to make them accessible, despite the
 376 additional work this entails for public sector bodies.

377 The DGA establishes harmonized rules under which the EMS may allow and enable the reuse of
 378 public sector sensitive data. These rules set out some substantial principles. First, EMS are required to
 379 be transparent concerning the conditions under which the reuse could be granted (Article 5(1)). The
 380 DGA also prohibits – with exceptions – exclusive agreements and restrictions of access for third parties
 381 (Article 4). Moreover, the sharing conditions should be non-discriminatory, transparent, proportionate
 382 and objectively justified (Article 5 (2)). EMS should designate competent bodies to assist public sector
 383 bodies in the activities of granting access to data (Article 7 (1)). Such institutional infrastructure should
 384 be provided with the legal, financial and human resources necessary to undergo these tasks (Article 7
 385 (3)). EMS have to put in place a single information point that will offer easy information (providing
 386 searchable asset lists and available data sources) (Article 8(1)). This single information point will receive
 387 and transmit data reuse requests to the competent bodies (Article 8(2)). The DGA also contains provisions
 388 concerning remote access to data and data processing in secured environments (secured physical locations
 389 or remote access) (Article 5(3 (b and c))). In these specific cases (processing in secured environments),
 390 the public sector body should reserve the right to exercise control through the assessment of processes,
 391 means and results of data processing to restrict any kind of use that results in prejudice to the rights and
 392 interests of third parties (Article 5(4)). There are also specific restrictions concerning the transmission of
 393 data to third countries (Article 5(9 and 10)). Finally, the DGA allows public sector bodies to charge for
 394 allowing the reuse of data. The fees shall nevertheless be transparent, non-discriminatory, proportionate,
 395 objectively justified and shall not restrict competition (Article 6(1 and 2)). Such fees should be derived
 396 from the costs involved in the procedure to enable access and reuse (such as costs with reproduction,
 397 anonymisation, and maintenance of the secure processing environment, among others) (Article 6(5)).
 398 Special fee conditions should be provided for scientific research purposes, small and medium enterprises
 399 and start-ups, civil society and educational establishments (Article 6(4)).

400 However, it is important to note that governments have no obligation to provide data. EMS should
 401 “be able to decide whether data is made accessible for reuse, also in terms of the purposes and scope
 402 of such access.” (Recital 11). Within the DGA, the EMS should establish the specific conditions under
 403 which PSD is shared. At the same time, the conditions “should be limited to what is necessary to preserve

the rights and interests of third parties in the data and the integrity of the information technology and communication systems of the public sector bodies” (Recital 15).

Overall, the DGA gives the EMS some leeway to implement a public policy covering the sharing of public sector sensitive data that is aligned with the general policy goal of implementing a model of data governance that is truly an alternative to platform models and that prioritizes the common good.

3. Discussion: The role of the EMS in achieving the policy goal

The governance of PSD remains in the hands of EMS, and governments will have to adopt and adapt to the DGA's new rules. This will be a challenging task. Governments will have to adapt public infrastructures to execute tasks such as managing requests, taking decisions concerning data reuse and preparing data sets for reuse (e.g., anonymisation procedures, ensuring the protection of intellectual rights, etc.). Additionally, governments will need to implement secured environments (remote or on-site) and be able to supervise data processing in such environments. Acquiring human and technical competencies in this domain will certainly require considerable effort. Nonetheless, the more critical challenge will be achieving the EU policy goal of building a data-sharing model that works for the common good (European Commission, 2020b). Building on the literature presented in Section 2, we now discuss how the DGA not only imposes some demanding tasks on the EMS, but also opens opportunities to experiment with new models of PSD governance.

The regulation does not establish mechanisms to access or evaluate how the final use of data contributes to the common good or how well the innovation resulting from data reuse is aligned with the public interest. A possible path to ensure that PSD liberalisation is responsive to society's needs and values would be to integrate the institutional design of public data trust embedded in the approach proposed by RRI.

From an institutional level, creating a public data trust appears to be an adequate solution to manage PSD liberation. The DGA establishes that states should create a single point of contact, but does not specify how such an authority should be organized nor the type of legal form it should have. Creating a single point of contact raises the idea of a central authority or institution managing the data supply and demand. In this sense, a public data trust would be an intermediary between public sector bodies and potential re-users of PSD providing data management and ensuring security and compliance with privacy and data protection rules (Delacroix & Lawrence, 2019). A public data trust should be the custodian of PSD enforcing a governance policy that ensures data reuse aligns with social goals and needs (Zygmuntowski et al., 2021). Following the typology proposed by Micheli et al., a public data trust would ensure the collective and democratic governance of PSD (Micheli et al., 2020). Civil society's active and meaningful involvement is important to build trust and to define what the common good is. While there exist several possibilities and frameworks for participatory governance, the integration of the RRI approach has the advantage of providing a framework already tested for the governance of public resources, as is the case with public research funding. This institutional design of public data trust embedded in the RRI approach would integrate the RRI principles into the internal work of the public data trust, applying RRI tools to its internal policies and practices. The combination of public data trust institutional features and the RRI approach would ensure independent and democratic data management from an institutional point of view.

Besides an institutional design that ensures the democratic and participative decision-making process concerning PSD reuse, another substantial tool inspired by the European Research and Innovation policies could also be deployed. In addition to applying the RRI to its own internal work, public data trusts could

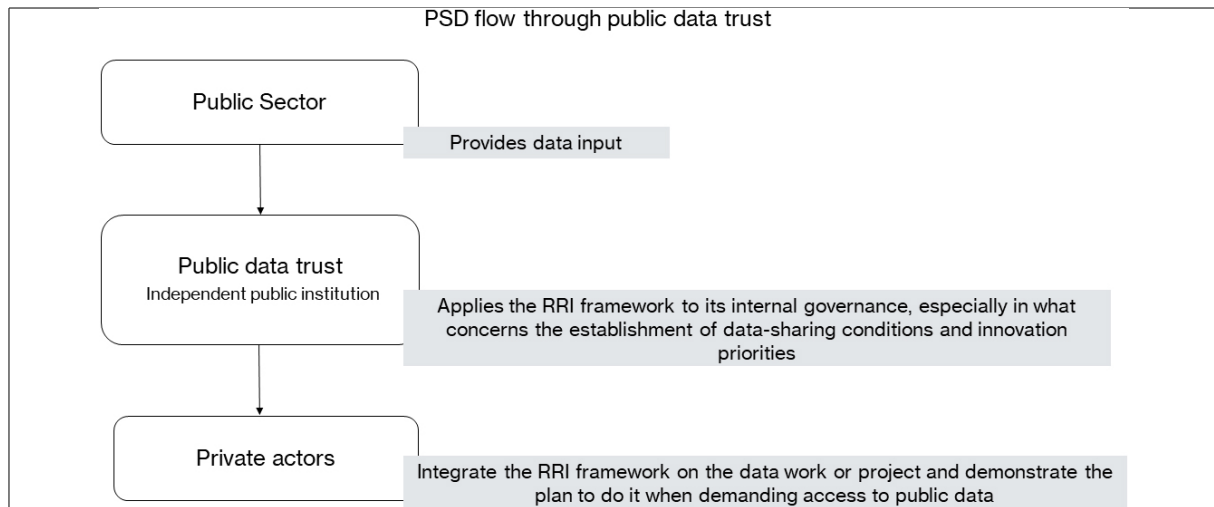


Fig. 5. Public data trust and the RRI institutional design.

impose, as a requirement for PSD reuse, the adoption of the RRI approach by innovators and potential data re-users. By imposing the RRI approach as a requirement in the reuse conditions, governments would encourage developers to implement a reflexive and responsive posture. It would foster discussion between innovators and society concerning what innovations are needed and desired. It would also enable a more considered discussion on technology's harms and benefits and the respective distribution in society, bringing more transparency and accountability to innovation processes. The oversight and follow-up of these projects should be an institutional responsibility of the public data trust, as illustrated in Fig. 5.

A well-designed RRI approach, one that enables participation both in the policy discussion and in the design, use and impact of technology, would provide entry points for the public to discuss innovation policy and technological outputs. It would offer the opportunity for the co-construction of technological futures. Indeed, the RRI approach proposes more than simply balancing the harms and benefits of a given technology. It puts forward a process of co-creating technology that is deeply infused with public values. In this sense, the democratic discussion enabled by RRI, questions what kind of technology is truly desirable and could help to develop technology that effectively contributes to human flourishing by fostering autonomy and helping to tackle social challenges.

4. Conclusion

The current data governance model, also referred to as the platform model, is far from ideal. It entails the concentration of data in segregated silos, intensifying power imbalances in society. The concentration of technological means in the hands of a few actors hampers innovation and inhibits democratic discussion on the collective technological future. At the same time, action must be taken to guarantee that innovation is embedded in public values and stewarded for the common good. In the EU, the recently enacted DGA aims to tackle this challenge and envisages the governance of PSD as part of the solution to the existing problems of the platform economy.

This article explores how the DGA impacts the governance of PSD. In this context, the DGA provides some general principles based on the extension of the OGD model, and entrusts EMS with designing the specificities of PSD sharing. The literature on OGD suggests that the simple liberalisation of PSD

is unlikely to achieve the DGA's policy goal, but further measures can be taken. Indeed, the evidence has shown that the mere fostering of the market is insufficient to promote innovation aligned with social values. More than that, the OGD's limited positive results indicate that simple data liberalisation will not suffice to produce technological advances that enhance the common good. In this context, we suggest that the institutional model of public data trust combined with the RRI approach provides a viable path for EMS. The institutional design of public data trust and the RRI framework would enable a more democratic discussion on innovation policy and at least some level of co-construction of technological futures. EMS should be aware that the decision to enable access to PSD is also a question of what kind of innovation is desirable. What are the costs and benefits involved in constructing these innovations? How are these costs and benefits distributed throughout society? These questions are not easy to answer, and different actors may respond differently. However, these are important questions and governments need to provide the framework for discussing them. Implementing public data trust rooted in the RRI approach would enable this discussion and be a step towards restoring a democratic balance to the current concentration of technological power.

This is much more the beginning of the path than the final answer. Experience of RRI to date shows that the approach is a work-in-progress framework, with much to be experimented and improved. This will demand investments both from scholars and practitioners. Furthermore, the implementation of the DGA will certainly revive the research in the field of PSD, which, so far, has been focused on OGD. This research could focus on how PSD liberalisation could improve democratic control over new technologies. From an epistemological point of view, the investigation of the implications of using PSD as the input of innovation and decision-making is also an important field of further research. The intersection between the DGA and other European legislation in data and digital law (such as the Data Act, the Digital Services Act, Digital Market Act, and the Artificial Intelligence Act) also opens an important field of research for scholars working on law, regulation and governance. Concerning the DGA implementation, it is important to note that in the following years, the EU will proceed with the evaluation of the GDPR (2023) and the Open Data Directive (2024). Both evaluations could provide important insights on how to tackle challenges to national implementation, besides delivering crucial information on the effectiveness of the policy. When planning and implementing the DGA, policymakers should also learn from these evaluations.

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