

Proposal for an index measuring the reputation of open data portals: The *Odapri*

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Abstract

The demand for open data has led to the creation and the availability of numerous portals releasing data. However, a large percentage of them are not properly designed for professional use. One way to analyze the value that a portal delivers is through its reputation, but this is a concept that has not yet been well defined or measured. This work will focus on the reputation of open data portals with two objectives. The first objective is to delimit the concept of reputation for open data portals, therefore leading to the first proposed research question: How can the reputation of open data portals be defined? The second objective is to propose criteria for measuring reputation and to create a reputation index for open data portals, with the second research question: How can the reputation of open data portals be assessed? This work is conceptual and descriptive and proposes a multidimensional definition of this concept, which includes whether it is known, being known for something, and its generalized favorability. In addition, a proposal is made for a reputation index identifying its dimensions and measurements, and finally, an analysis of its usefulness is presented. To this end, a figure has been created that summarizes the dimensions and benefits for creators and developers of open data portals and for the different application sectors (public, private, academic, and third sector). This research can help public administrations and other sectors to have a reference of good practices when offering open data to citizens and organizations oriented towards creating value in society.

Keywords

Open data; Open data portals; Reputation; Indexes; Indicators; Metric; Public administration; Rankings; *Odapri*; Value creation; *Meloda*.



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1. Introduction

“Data matters” as proclaimed by **Zhang, Sun and Zhang** (2022). In that context, public interest in accessing open information on topics of general interest, such as the use of public budgets, economic and social development projects, and demographic information has led to the popularization and development of open government initiatives in recent years (**Oviedo; Mazón; Zubcoff**, 2015; **Reggi; Dawes**, 2022; **Zhao; Fan**, 2021). As an aspect of open government, the publication of open government data is a rapidly expanding phenomenon, motivated by the desire to democratize data access and knowledge production (**Aguilera et al.**, 2017; **Zhenbin et al.**, 2020), increase transparency (**Bisogno; Cuadrado-Balasteros; Santis**, 2022), and improve the social and economic dimensions of cities (**Hu; Zheng**, 2021; **Jetzek; Avital; Bjorn-Andersen**, 2019).

The most widely used tools providing access to open data are open data portals. These portals allow data to be published from a wide range of information sources, both formal and structured as well as informal. **Sabri, Emran and Harum** explain that

“open data portals serve as big data sources that support data-based discoveries and software applications development. Thus, open data are characterized by the properties of volume, variety, speed, and veracity of big data” (**Sabri; Emran; Harum**, 2019).

In this regard, it has been observed that the quality of veracity is difficult to measure (**Sabri; Emran; Harum**, 2019). This technical difficulty, together with the fact that most open data portals useful today come from public administration initiatives (**Quarati; De-Martino; Rosim**, 2021), has led to an increased interest in the definition of aspects such as the reputation of the published data together with their publisher. This can help users and re-users to be able to trust available data and appreciate more public administration services.

For data to be consulted and reused, they should be of good quality. Several studies focus on assessing the quality of open data (**Abella; Ortiz-de-Urbina-Criado; De-Pablos-Heredero**, 2014; 2019a; 2022; **Gil-García; Dawes; Pardo**, 2018; **Lnenicka; Nikiforova**, 2021; **Neumaier; Umbrich; Polleres**, 2016; **Oviedo; Mazón; Zubcoff**, 2015; **Sadiq; Indulska**, 2017) and propose criteria for evaluating the quality of open data and the portals that publish them (**Abella; Ortiz-de-Urbina-Criado; De-Pablos-Heredero**, 2018; **Fernández-Ardèvol; Rosales**, 2022; **Kubler et al.**, 2018; **Moghadami; Malekol-kalami**, 2022; **Zuiderwijk; Pirannejad; Susha**, 2021). **Kubler et al.** (2018) present a model for monitoring and evaluating the quality of open data portals on the basis of a set of open data quality indicators. The authors emphasize that the quality of the data impacts the publisher organization’s reputation, but in their model, they only analyze the status and quality of the metadata. To refer to metadata quality is a typical approach when dealing with both the quality of open government data (OGD) and the quality of OGD portals. However, it is limited in nature and does not provide insights regarding the actual quality. One of the limitations that **Kubler et al.** (2018) highlight is that the quality indicators considered are not enough to demonstrate the use of a set of data (for example, a data publisher or consumer might be interested in knowing to what extent a dataset is used by third parties), which relates to “reputation” or “participation and collaboration” metrics.

Some metrics already consider open data reputation among their criteria. **Oviedo, Mazón and Zubcoff** (2015) include the criterion “reputation of the published data” in their model, which is defined as the degree of credibility of the portal that publishes the data. Moreover, **Abella, Ortiz-de-Urbina-Criado and De-Pablos-Heredero** (2019a) have developed version 5 of *Meloda*, a metric that analyzes the degree of reusability of open data, and for which they consulted a panel of experts who suggested including the reputation criteria. *Meloda* has already been applied to open data portals constructed by public administrations (**Abella; Ortiz-de-Urbina-Criado; De-Pablos-Heredero**, 2019a). A way of measuring reputation is proposed in the first study in which this metric is applied, **Abella et al.** (2022), which presents a reputation ranking of open data publishers wherein a set of portals is evaluated through the opinions of the managers of other open data portals. The authors highlight the interest in having a reputation ranking for open data portals, and propose the development of more robust, complete, and objective measures of the reputation of open data portals as a future line of research.

Thus, in the context of open data, it is necessary to consider how we might define the reputation of open data portals. However, the previous literature has not yet defined this concept, and it is therefore necessary to make an approximation to the concept of reputation applied in the case of open data portals. This is very important for public administrations, as they dedicate public resources to the creation and maintenance of open data portals (**Alzamil; Vasarhelyi**, 2019), and they are aware of the impact that citizen evaluations of their services have on their own reputations (**Grossi; Meijer; Sargiacomo**, 2020).

It is necessary to further analyze how the reputation of open data portals might be measured. Although work has been carried out regarding open government reputation (Veljković; Bogdanović-Dinić; Stoimenov, 2014) and on the intensity of open data publication in smart cities (Prieto; Mazón; Lozano-Tello, 2019), we have not found previous research that studies the creation of reputational assessments while taking into account the multidisciplinary nature of this concept as well as of the agents of the open data re-users' ecosystem. Consequently, it is useful to propose a reputation index for open data and assess its usefulness.

The goal of this paper is to study the reputation of open data portals to define the concept and then develop an index to measure it.

- The first objective is to delimit the concept of reputation for open data portals (*Odapre*), and therefore the first research question is proposed: How can the reputation of open data portals be defined?
- The second objective is to recommend criteria for measuring reputation and to create a reputation index for open data portals (*Odapri*), leading to the second proposed research question: How can the reputation of open data portals be assessed?

Following the introduction, the second section presents open data portals. The third section provides a definition of the concept of reputation in terms of open data portals (*Odapre*) and their dimensions. In the fourth section, a proposal of a reputation index (*Odapri*) and its benefits are explained. Finally, the conclusions section presents the theoretical and practical contributions of this work, as well as its limitations, and proposes future lines of research.

This work is conceptual and descriptive, and is supported by the discussion of literature regarding the need to create a reputation index, as well as its proposed usefulness. A literature search on the concept of "open data portal reputation" has been carried out in the *Web of Science* and *Scopus* databases. No clear definition or delimitation of this concept was found, and no specific metrics have been developed to evaluate it. For this reason, the authors have carried out a process of brainstorming and reflection on the basis of their experience in the evaluation of open data portals. In a previous study, a first proposal was made to measure reputation and a questionnaire was sent to the heads of open data portals in Spain. On the basis of the results obtained and their comments, the need to develop a multidimensional concept and a more complete metric able to analyze the evaluation of the reputation of open data portals from a more complete and comprehensive perspective was observed, which is the main contribution made in this paper. The results of this study are of interest for public administrations and other sectors (private, academic, and third party), as it is imperative they have a metric that can help to identify potential issues and develop active policies and practices oriented toward improving the quality of their open data portals.

2. Open data portals

Open data portals are the main tools used to publish open data. Open data portals often hold a significant and valuable amount of data with the potential to directly impact citizens (Barcellos; Bernardini; Viterbo, 2022).

The utility of open data portals lies not only in their ability to provide reliable data, but also in the fact that these data can be reused to create value. Cetina (2021) calls them "data with purpose" and points out the importance of identifying, before designing open data portals, the most urgent challenges that open data can help solve. When data are open, they can be reused to create value. Ferrer-Sapena *et al.* point out that, in an open government, information must be well structured enough

"so that the effort of the public, through appropriate re-use, can make it possible to improve services for citizens and at the same time, be a source of wealth creation and modernization of the public sector" (Ferrer-Sapena *et al.*, 2020, p. 6).

The lack of quality in information published by organizations is a barrier to the feasibility of the reuse process (Cadena-Vela, 2019). According to Cadena-Vela, data are created, stored, processed, exchanged, shared, added to, and reused as long as they are useful and the value obtained from them meets expectations. In addition, to ensure data quality in an organization, Cadena-Vela (2019) proposes five steps:

- consider the needs of users;
- define a clear data generation process;
- identify the data life cycle;
- appoint a data manager; and
- evaluate the quality of the data product.

Creators and publishers face several challenges, such as making published information useful for developing new products and services and allowing for beneficial interaction between users and citizens. They also face the need to make public/private service delivery more efficient, effective, and democratic, and must also take into consideration the restoration of trust and satisfaction with government and data openness policies (Barcellos; Bernardini; Viterbo, 2022). Therefore, one of the issues that has been given more attention in the literature is the quality of open data (Vetrò *et al.*, 2016) and the development of models and metrics to assess it (Park; Gil-García, 2022).

“ A definition of open data portal reputation is proposed ”

Best governance practices enable citizens, businesses, and entrepreneurs to participate as key stakeholders in open data projects (Zuiderwijk; Pirannejad; Sussha, 2021), which makes having reliable metrics to assess the quality of the data published in open data portals very important for reuse.

3. Reputation of open data portals: concept and dimensions

There has been little exploration about the use of the reputation of open data portals to improve the satisfaction of users and citizens. For Taylor *et al.* (2018), trust and reputation allow agents to make informed decisions about possible interactions. Trust in an agent derives from direct experience with that agent, while reputation is determined by experiences related by other witnesses with potentially different points of view. Reputation systems often include the collection, dissemination, and aggregation of actors' experiences (Hoelz; Ralha, 2015).

The quality of the data and their description have an impact not only on the reputation of the organization that publishes the data, but also on the decision-making and business income that can be generated from open data (Kubler *et al.*, 2018). Kubler *et al.* (2018) present the *Open Data Portal Watch* model, which allows the monitoring and evaluation of quality in open data portals on the basis of a set of open data quality indicators. This model only analyzes the status and quality of metadata, providing quality indicators for the applications that use them, but the proposed set of indicators are not enough to capture the idea of "reputation" or "participation and collaboration" (Kubler *et al.*, 2018).

Other metrics have considered the reputation of data among their criteria. Oviedo, Mazón and Zubcoff (2015) define the "reputation of published data" as the degree of credibility of the portal where the published data are located. In their analysis, they raise three questions:

- 1) Is it clear from which sources the information being published on the portal was obtained, so that these sources can be verified?
- 2) Do the sources from which the information published on the portal is derived carry prestige within your environment?
- 3) Is the original source respected, or is there any manipulation that might call into question the degree of credibility of the published data?

Abella, Ortiz-de-Urbina-Criado and De-Pablos-Heredero (2019a) include reputation in the latest version of the *Meloda* metric (version 5), in which they consulted a panel of experts who suggested the inclusion of reputation. Reputation, in this metric, has three levels:

- there is no information about the reputation of the data portal;
- there are statistics or reports published about the opinions of users; and
- there are indicators or classifications about the reputation of the data portal.

The first study in which this metric is applied is conducted by Abella *et al.* (2022) and presents a reputation ranking of open data publishers in which the portals analyzed in the study are valued through the opinion of the managers of open data portals. To accomplish this task, a survey is filled out by the managers of open data portals regarding the reputation of the other open data portals. The sample portals were divided into groups of ten, and each group was assigned a set of portals, ensuring that no portal could vote for itself. The survey asked about the knowledge and prestige of other open data portals, and the final reputation level was obtained from the voters' most frequent value over the reputation of other open data portals, weighted by the knowledge of the portal by respondent as claimed in the survey.

To shed light on the concept of reputation of open data portals, we will consider not only the idea of reputation of the data, but also that of the entity that publishes open data, thus alluding to the concept of organizational reputation. The reputation of an organization, together with any changes in its reputation, influences an organization's relationships with its stakeholders. Multiple multidimensional definitions of this concept have been proposed in the literature. Gwebu, Wang and Wang (2018) define a company's reputation as an intangible asset based on the collective recognition of the company's demonstrated ability to offer stakeholders quality and value in relation to their peers (Schultz; Mouritsen; Gabrielsen, 2001). Organizations build a good reputation by systematically demonstrating quality and participating in quality behaviors (Gardberg; Fombrun, 2002). Reputation diagnosis is a stable and credible signal that is difficult to discredit (Roberts; Dowling, 2002).

Lange, Lee and Dai (2011) review the literature on organizational reputation, and from the definitions of reputation propose three fundamental dimensions to understand organizational reputation:

- being known: widespread knowledge or visibility of the company; prominence of the company in collective perception (Barnett; Jermier; Lafferty, 2006; Rindova *et al.*, 2005);
- being known for something: perceived predictability of organizational outcomes and behavior relevant to a specific audience's interests (Fischer; Reuber, 2007; Love; Kraatz, 2009; Rindova *et al.*, 2005); and
- generalized favorability: perceptions or judgments of the organization in general as good, attractive, and appropriate (Barnett; Jermier; Lafferty, 2006).

The dimension of being known refers to the degree to which the group of beneficiaries maintains a strong, lasting, and non-evaluative image of the organization. This is the extent to which all agents share a deep and common knowledge of

the organization (**Lange; Lee; Dai**, 2011). The dimension of being known for something is the result of the assessments of the group of people who perceive it in terms of

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the probability that the company meets, or does not meet, its specific needs. Within a given set of recipients, there may be different competing, and perhaps conflicting, needs. Therefore, it is possible that within a defined set of beneficiaries, a company may have more than one significant reputation in the dimension of being known for something. Rindova *et al.* refer to the dimension of being known for something of organizational reputation as “perceived quality,” that is,

“the extent to which stakeholders positively assess an organization on a specific attribute, such as the ability to produce quality products” (**Rindova et al.**, 2005, p. 1035).

Love and Kraatz (2009, p. 317) label this dimension of reputation as “technical effectiveness” and describe it as the public’s assessment of the company’s ability to meet the material needs of the public, which means that the organizational reputation is “closely linked to the consequences and tangible results of the organization.” **Pfarrer, Pollock and Rindova** (2010) refer to this dimension of organizational reputation as the result of judgments regarding “the demonstrated ability of the company to create value.”

The dimension of generalized favorability, although it also entails judgments of the beneficiary, refers to the evaluation of the organization as an aggregate whole, rather than through assessments of its ability to deliver certain outcomes that meet the specific needs of recipients:

“the esteem, the consideration of the enterprise and how attractive the enterprise is” or “the public assessment of a company in relation to other companies” (**Lange; Lee; Dai**, 2011).

All dimensions depend largely on the audience that researchers or professionals decide to investigate (**Lange; Lee; Dai**, 2011).

Additionally, to define and measure the reputation of open data portals, the perspectives of the actors involved in the open data ecosystem must be considered. Following the proposal of **Abella, Ortiz-de-Urbina-Criado and De-Pablos-Heredero** (2019b), we find the following agents.

- One group consists of the data publishers, which are the organizations that release data: they are mostly public organizations, and the organizations related to publishers are, in the majority, other public organizations that depend on data publishers.
- The second group consists of direct re-users of open data, who provide products/services for others, whether they be professional re-users such as for-profit entities that use data to create innovative products/services offered to others, or social re-users, such as not-for-profit organizations that provide services to others.
- The third group consists of end users, including professional users who are for-profit entities consuming products/services based on open data and/or academic users, who directly access published open data or use direct reuse services.

On the basis of these ideas, we contend that the reputation of open data portals is the collective recognition of the ability demonstrated by the portal to systematically offer reusable open data, allowing the creation of value from them. This concept can be understood multidimensionally in the three dimensions proposed by **Lange, Lee and Dai** (2011):

- the degree to which it is “known” (dissemination and knowledge of the data portal),
- the means in which it is “known for something” (for example, by their degree of maturity, by their datasets, by the services developed by their data, or by their innovation), and
- the generalized favorability (opinion of the re-users of the ecosystem).

Therefore, reputation is determined by the experiences reported by other ecosystem actors with potentially different views, and their analysis requires the collection, dissemination, and aggregation of the knowledge and experiences of agents. Considering this precedent, we will define the reputation concept of open data portals as the degree to which a portal is known, is known for something, and is valued in the opinion of ecosystem agents who reuse their data. Table 1 presents the dimensions of recognition, its definition, and its inspiration from academic literature.

Table 1. Dimensions of the reputation of open data portals

Dimension	Definition	Sources of origin of the dimension
Known portal	It is known to exist. It is distributed by agents with potential interest	Rindova et al. (2005)
Portal known for something	It has characteristics that make it known for some specific attribute	Deutsch & Ross (2003); Carter (2006); Dimov, Shepherd & Sutcliffe (2007)
Valued portal	It presents favorable opinions of those who use the portal data	Barnett, Jermier & Lafferty (2006); Fischer & Reuber (2007); Highhouse et al. (2009)

4. Open data portal’s reputation assessment

Here, a proposal for building a reputation index for open data portals is presented on the basis of the definition previously given for the reputation of open data portals.

4.1. The Open data portal reputation index: Odapri

To establish criteria to assess the reputation of open data, we will consider the two elements of analysis of an open data portal: the creators/developers and the dataset. We will also consider the three dimensions of reputation proposed in the definition, that is, the degree to which “it is known,” how it is “known for something,” and the general assessment (generalized favorability).

Therefore, our measurement will consider the assessment of the following players in the open data re-user ecosystem: the data publishing organization itself, other public and private organizations publishing data on open data portals, professional data re-users, and academic data users.

Considering these preliminary assumptions, the analysis of the reputation of an open data portal requires not only that portal managers analyze knowledge about it, but also that experts in the reuse of open data should objectively assess the characteristics of the portal (degree of maturity), its datasets (degree of reuse), and the applications and services created from them (innovation and features of services and business models). The level of value of the open data portal, as perceived by both creators of other portals and the re-users of the published data, should also be taken into consideration.

Therefore, the following criteria are to be analyzed:

- degree of knowledge of the portal by the agents of the open data ecosystem;
- degree of maturity of the portal;
- degree of reuse of their datasets;
- products and services created from their datasets: if they have a section in which to leave comments, or if they are known by the creators of the portal;
- degree of innovation;
- opinion on the reputation and prestige of the creators and their portal developers (institution, company, etc.).

Table 2 presents dimensions, measurement indicators, and proposed items to measure the reputation of open data portals.

Table 2. Reputation dimensions and measurements of open data portals

Reputation dimension and weight	Open data ecosystem agent and weighting	Measurement indicator	Items
Being known (20%)	Open data portal managers (20%)	Degree of knowledge of the portal by agents of the open data ecosystem	<ol style="list-style-type: none"> 1. Indicate to what extent you know any entity that reuses the data published in its open data portal on a regular basis (Likert scale, 0-10) 2. Indicate to what extent different types of entities reuse your data on a regular basis (e.g., individual citizens, professional re-users, researchers, and academic staff including students; the data of the publishing organization itself, and other public entities) (Likert scale, 0-10) 3. Indicate to what extent your entity has carried out some type of activity to promote the use of your data in the last year (e.g., application competitions, own events, external events, meetings with re-users and others) (Likert scale, 0-10) 4. Indicate the extent to which you use the access statistics for your open data portal (Likert scale, 0-10)
Being known for something (20%)	Academic experts and researchers (20%)	Degree of maturity of the portal	Degree of maturity of the portal according to the metric of Abella; Ortiz-de-Urbina-Criado; De-Pablos-Heredero (2017) (Likert scale, 0-10)
		Degree of reusability of datasets	Degree of reusability according to the <i>Meloda 5</i> metric of Abella; Ortiz-de-Urbina-Criado; De-Pablos-Heredero (2019a) (Likert scale, 0-10)
		Products and services created from datasets	<ol style="list-style-type: none"> 1. To what extent your portal has a section identifying services and/or applications based on portal data (Likert scale, 0-10) 2. How many applications you have identified in your open data portal
General favorability (60%)	Managers of other portals (20%) Professional re-users (40%)	Degree of innovation	Indicate to what extent these types of innovations are produced by data reuse; product innovation; process innovation (Likert scale, 0-10)
		Opinion on the reputation and prestige of the creators and their portal developers	<ol style="list-style-type: none"> 1. Indicate the level of knowledge of the entity: I) high: you know the portal well and its features; you use it frequently and/or have used them; II) medium: you know the portal and its features; you have briefly used it and/or have ever used your data; III) low: did not know of its existence or visited it without using its data 2. Indicate the level of reputation of the entity that develops the portal: I) reference portal of the sector: data of the portal are a reference in the sector and/or appear as a recognized reference in rankings of the sector or in reputation reports; 2) mature portal: the data are known and quality is valued and/or user opinions are known; 3) incipient portal: no information on the reputation of the portal data

Once the items have been identified for each dimension, a quantitative assessment will be made for each one on a scale of 0-10. This way, it will be possible to give a quantitative assessment for each portal regarding the three aspects analyzed: whether it is known, whether it is known for something, and whether it is valued by the re-users. A weighted average of the combined three will be calculated after considering the measurement for each dimension. Each dimension has been weighted in accordance with the importance of each ecosystem agent. As the value of the data lies in its reuse, the most important agents are professional re-users, who have been assigned double importance (40%). The average value obtained will be the reputation index of each portal (scale 0-10). This value will allow for the development of a global reputation ranking of portals and the analysis of their positioning.

Results claim for offering open data to citizens and organizations oriented to create value in society

4.2. Potential benefits of the *Open data portal reputation index*

The main functions of the reputation indicator for open data portals are listed below.

First, it serves to evaluate the concept of an open data portal and its usefulness as an open data provider that can be reused.

Second, the indicator assists with the identification and dissemination of best practices in the development of open data portals.

Third, the reputation indicator helps to discourage the creation of only apparently open data portals and helps to improve the degree of maturity of the portals as well as the degree of reusability of the datasets they publish.

Fourth, the reputation indicator for open data portals helps to promote better open government development policies, favoring the fulfillment of the objectives proposed by **Bello-García (2017)**:

- more transparent government operations;
- creation of a better policy through greater participation;
- provision of better public services through greater collaboration; and
- unlocking the economic potential of public resources.

Fifth, the reputation indicator for open data portals can help to make policymakers aware of the impact of open data portals. When publishing and sharing open data, there are numerous factors and barriers (**Alcaide-Muñoz; Rodríguez-Bolívar; Villamayor-Arellano, 2022; Huang et al., 2020; Janssen; Charalabidis; Zuiderwijk, 2012; Nikiforova; Lnenicka, 2021; Zuiderwijk; De-Reuver, 2021**) that discourage public authorities from adopting more innovative and collaborative approaches, and that, among other consequences, lead to the creation of pretender open data portals (PODP) (**Abella; Ortiz-de-Urbina-Criado; De-Pablos-Heredero, 2022**). **Bello-García (2017)** identifies 15 barriers:

- lack of leadership and political commitment;
- inertia of the status quo;
- lack of financial means;
- lack of capacity and competencies at the individual and institutional levels;
- legal restrictions;
- lack of representativeness;
- multilingualism;
- lack of common standards and specifications (interoperability);
- perception of loss of control;
- uncertainty about sustainability issues and business models;
- legal gaps in knowledge regarding responsibilities;
- poor quality data;
- difficulties in identifying and creating demand from citizens and businesses;
- lack of confidence; and
- unrealistic or false expectations.

The last four in particular are closely related to issues with the reputation of publishers and data quality. Therefore, having a reputation indicator for portals can help to reduce these barriers, making both public institutions and other sectors aware of the importance of having useful open data portals.

Sixth, encouraging other sectors to open their data by having a measure of reputation is a good initiative, and is an example of good practices from public and private organizations in the publication and reuse of open data. In this sense, although open data have been more focused on the public sector (open government data, OGD), other sectors that are currently considered private sector, such as the academic sector or the so-called third sector, which are alternative or complementary sources, might

How useful is it to have a ranking based on the application of a reputation index for open data portals?

be encouraged to open their data. Each sector has different motivations, but their collaboration is essential to enriching information and achieving a more efficient production and reuse of data, resulting in greater social, economic, and scientific impact (Iglesias, 2020).

The private sector is one of the largest generators of data, but most of these data are not available as open data. However, some companies are already considering the advantages that some of their data can offer in this modality, for example, for research and/or social purposes. This can serve to improve their corporate reputation and attract new users, customers, employees, and investors (Iglesias, 2020). Data spaces provide the mechanisms for these data transactions to take place (Autolitano; Pawlowska, 2021).

IT User (2019) observes in its work that the exchange of data can benefit the public sector as a re-user, and the private sector as a publisher, equally. Open data can help improve decision-making and policymaking, helping to optimize public services and increase efficiency in both internal administrative processes and public service delivery. Private companies can also benefit from the openness of their data, as it will aid in achieving improvements in reputation, since open data will be considered as a corporate social responsibility action and an improvement in the perception of the brand as an employer. This can serve to create an open and transparent business image: one that shares information and helps to attract and retain talent. This can also serve to better the knowledge of the company, helping to solve questions that were not already answered internally, thus encouraging innovation. However, to be able to share their data, companies must overcome organizational, technical, and legal challenges.

The academic sector is another producer of data through scientific activity. The motivations of this sector to open their data are to facilitate open access to scientific results; to provide public domain data for the benefit of the community; to develop data laboratories (or data labs) as experimental environments to provide innovative and practical solutions to social problems; and to create entities such as Data Innovation Hubs to share data and be able to work collaboratively (Iglesias, 2020).

The third sector is a sector that is not directly covered either by the private or the public sector, and generally includes not-for-profit organizations that carry out concrete actions in social areas. The openness of data in this sector can help to improve transparency in its management as a best practice in the social and solidarity economy, as well as to facilitate multilateral collaboration (Iglesias, 2020).

Figure 1 shows the dimensions of *Odapri* and its benefits.

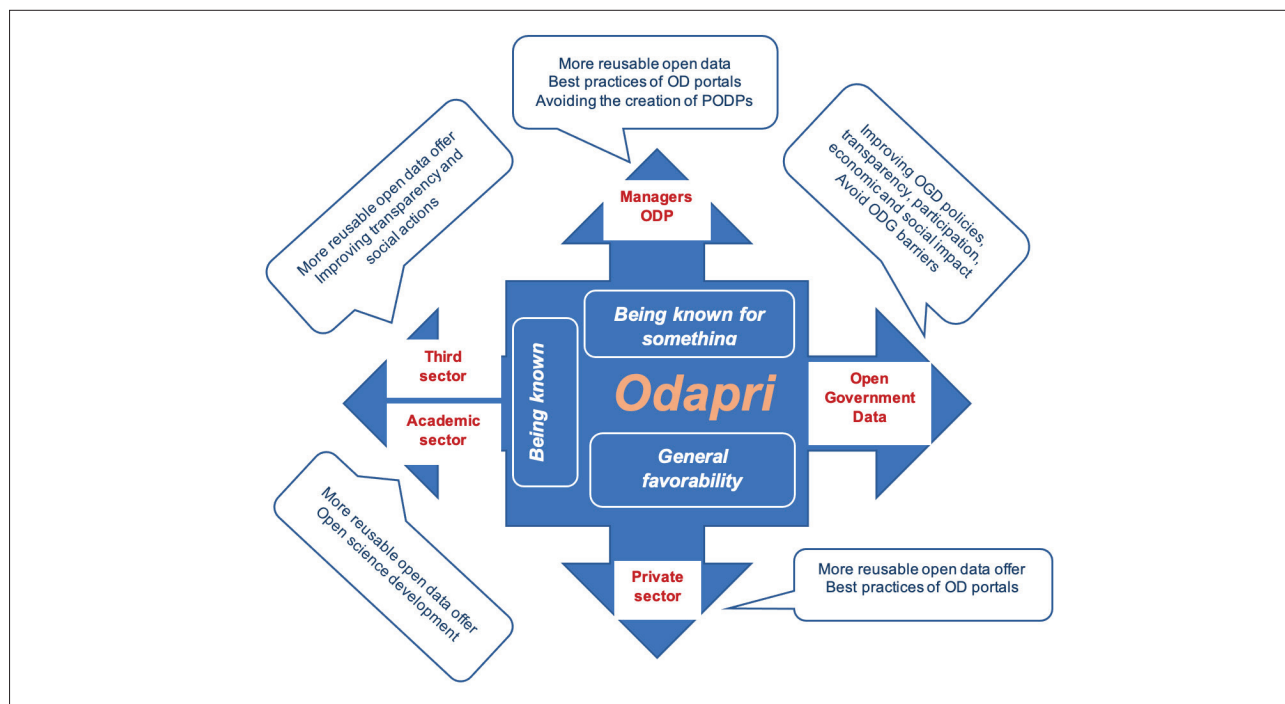


Figure 1. *Odapri*: Dimensions and benefits

5. Conclusions

This work has developed advances in the definition and assessment of the reputation of open data portals, providing answers to the three research questions posed. A definition of the reputation of open data has been proposed, and based on this definition, criteria have been proposed for the measurement of reputation and the creation of a reputation index. Finally, we have reflected on the usefulness that this reputation index can offer to each of the agents of the data re-user ecosystem, the different sectors that publish data, and for society in general.

Public Administrations can have a reference of quality and best practices

Open data have been useful in improving many areas, including job creation, public services, transparency between government and citizens, accountability, and citizen participation in government decision-making. In addition, by increasing government transparency, open data can serve to improve the level of trust of citizens, enhance the participation and collaboration of the public and private sectors, and encourage more innovative developments (Sabri; Emran; Harum, 2019).

Public administrations can analyze themselves according to this reputation index. This will help them to redesign the open data portals they have created according to the perceptions and expectations citizens and organizations have of them.

This work is conceptual and only presents a proposal for measuring open data reputation. Although some of the items proposed in the indicator have already been used in previous studies (Abella; Ortiz-de-Urbina-Criado; De-Pablos-Heredero, 2017; Abella *et al.*, 2019; 2022), further research is needed to refine these indicators and apply them to representative samples of actual data. Future research can validate the dimensions of *Odapri* as well as the weights and involved agents of *Odapri*. The validation of this index can be done through qualitative methodologies with the Delphi method. Quantitative methodologies can also be applied by sampling open data portals to measure their reputation. All of this can help in the creation of a reputation ranking of open data portals.

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