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An empirical investigation

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RESEARCH ARTICLE

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Barriers towards Open Government Data Value Co-Creation: An empirical investigation

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Abstract

Whilst extant literature on Open Government Data (OGD) focuses upon value creation and innovation, there is scant emphasis upon the Value Co-Creation (VCC) that might result with the engagement of the public sector agencies and the users at large. The present study seeks to appreciate the barriers towards OGD VCC by adopting a qualitative research methodology wherein interviews are being conducted with key personnel manning the OGD initiatives in Brazil. Impediments veering around VCC may be counted the internal, social and cultural and data factors. Findings from the present study lend credence to the fact that a systematic strategizing is important for the success of OGD VCC lest Value Co-Destruction (VCD) happen. From a developing country's perspective, the present study acts as a sounding-board for bearing in mind the caveats deduced vis-a-vis the success of the VCC processes.

KEYWORDS

Brazil, Open Government Data failure, Open Government Data (OGD), Value Co-Creation (VCC), Value Co-Destruction (VCD)

1 | INTRODUCTION

With the onset of the Open Government initiatives after the call made by the ex-President of the US, Barack Obama, governments and administrative bodies, across a myriad set of sectors like transport, energy, health, climate, weather, industry, finance, and others, have been forthcoming in publishing datasets pertaining to their activities (Attard et al., 2015; Ubaldi, 2013). In a bid to be transparent, accountable, responsive apart from furthering citizen collaboration, engagement and participation in administration and to realize the ideals of economy, efficiency and effectiveness—these datasets that are made accessible online are referred to as the Open Government Data (OPD), Open Public Data (OPD) or Public Sector Information (PSI) (Wirtz et al., 2022; Wirtz & Birkmeyer, 2015). With the availability of a multitudinous set of data linked with the government and administration, users may tap these datasets for value creation/co-creation (VCC) and innovation. VCC happens when users take an active and collaborative role and co-create value together with the creators/suppliers in the course of relational exchanges by involving themselves across the service value chain (Pralhad & Ramaswamy, 2004; Yi & Gong, 2013). This study is using the terms value creation and value co-creation synonymously given that any attempt to re-use and harness it for deriving value out of the same involves, inter alia, engagement and collaboration of a number of stakeholders in the value chain, and, therefore, value derivation is not possible for a single individual to realize. Research on VCC conceptualization is in plenty but that on Value Co-Destruction (VCD)—the failure or aborted attempts at VCC—is lagging behind (Zhang et al., 2018). By using a qualitative approach wherein interviews are being done with the government officials from Brazil who are actually associated with the OGD initiatives, the study seeks to achieve three objectives: (a) to understand the underlying pre-requisites of OGD VCC, (b) to underline the reasons as to why the OGD VCC fails and Value Co-Destruction (VCD) happens and (c) to draw a roadmap for future research agenda. Ipso facto, the study seeks to contribute towards the application of Information Technology and Communications (ITC) towards sustainability and development given that OGD VCC would result in innovations apart from refurbishing public service delivery mechanisms.

The paper is structured as follows: Following a brief about the key concepts like OGD and VCC and how it is applicable for the OGD context followed by an understanding of the reasons for the failure of OGD VCC and VCD (Section 2). The research methodology is described in Section 3 with the results covered in Section 4. Discussion (Section 5) and Conclusion (Section 6) constitute the tail-end of the study.

2 | BACKGROUND

2.1 | OGD: A brief introduction

OGD refers to the online publishing of datasets in user-friendly formats (CSV, XLS, JSON, and the like) that are linked with governmental/administrative activities and these datasets are available without any conditions or fee (Attard et al., 2015). The purpose of any OGD initiative at all the levels of administration (Central, State and Local) cutting across different ministries and departments is to bring about transparency in its public service delivery mechanisms (Saxena & Alexopoulos, 2022; Wirtz et al., 2017) and to bolster the citizens to re-use these datasets for value co-creation and innovation (Ali et al., 2022; Hellberg & Hedstrom, 2015; Mandzuka et al., 2022). OGD initiatives have been phenomenal in the sense that they are known to promote economic growth (Leviakangas & Molarius, 2020; World Bank, 2021). Primarily speaking, any OGD initiative operates an ecosystem with the involvement of a diverse set of stakeholders apart from factoring in the environmental forces that impinge upon the functioning of the OGD ecosystem (Grimmelikhuijsen & Feeney, 2016; Mungai, 2018).

2.2 | VCC in public services

In the context of public service delivery, three types of “value” that are co-created have been identified in the course of interactions between the users and the service professionals:

- the meeting of individual economic/welfare needs;
- the generational of individual well-being as part of a service interaction;
- the creation of individual capacity to resolve problems in the future as a consequence of the above two value creation processes (Osborne et al., 2018).

Apart from this, legal norms should be factored in as far as facilitating VCC is concerned in the public service systems; viz., (a) the need for instituting legal provisions to enable the transfer some powers and responsibilities to citizens for the public service delivery process; (b) ensuring the inclusion of the principles of equality—ensuring equal access to services, and universality—requiring all human beings to be equally entitled to human rights (Szescilo, 2018). VCC in public service delivery is a function of citizen participation and the latter gives a sense of empowerment to the citizens (Buckwalter, 2014).

2.3 | Pre-requisites of co-creation: Relevance for OGD VCC

Four types of user VCC have been identified: Collaborating (a process in which the users have the maximum power to contribute their own ideas and to choose the components that should be incorporated into a new product/service offering; e.g., Open Source Software initiatives like Linux); Tinkering (Users make changes to an available product/service and some of these recommendations are taken into account while launching subsequent products/services; e.g., computer game industry); Co-designing (a process in which a comparatively small group of users provides an organization with most of its new product/service's design or modalities, while a larger group of users helps in selecting the design or modalities that should be adopted by the organization; e.g., online clothing manufacturers) and Submitting (a process in which users directly communicate ideas for new product/service offerings to an organization, thereby involving lot of efforts on the part of the users in the form of their resource usage or ideation; e.g., contests/hackathons to invite creative ideas in diverse realms) (O'Hern & Rindfleisch, 2008).

VCC happens when the suppliers as well as the customers engage in VCC or innovation of goods and services (Ranjan & Read, 2016) and in the context of the OGD initiative, the parallel fits well with reference to the governments/administrative departments and the users. Users' experiences and their beliefs regarding the expected benefits significantly impact the continued participation in VCD processes (Kohler et al., 2011). A number of economic and psychological reasons may be responsible to goad the users to participate in the OGD VCC process (Bendapudi & Leone, 2003). The pre-requisites of successful OGD VCC lie in possessing the capabilities of combining heterogeneous data and the manner in which the extensive data and the unmet needs may be linked (Gao & Janssen, 2022). For instance, barriers towards OGD VCC were identified in the case of the the OGD initiative of Saudi Arabia—a developing country—via insights revealed from the semi-structured interviews of the

practitioners, viz., the conflicting situations among the stakeholders and the lack of awareness among the users (Rasideh et al., 2022). Likewise, in the context of Greece—a developing country from Europe—it was shown that poor data quality posed OGD VCC challenges in terms of interoperability and data linkages (McBride et al., 2018). Furthermore, lack of proper institutional mechanisms in Ghana's local administrative levels to streamline OGD VCC was counted a major challenge (Chatwin & Arku, 2018). Therefore, governments need to understand as to how OGD VCC may be provided the required impetus via equal citizen engagement apart from realizing the fact that the public decision-making can help in tackling the impediments linked with the market economy. OGD VCC has several benefits. For instance, information-sharing with the society happens apart from the development of new products and services for consumption. With the involvement of stakeholders and partners like journalists, IT specialists, non-governmental organizations' representatives, academia, businessmen and the like, OGD VCC assumes a multi-dimensional picture.

Another consideration that needs to be taken into account pertains to the availability of the resources (human capital, finance, knowledge, time, energy, IT capability and set-up, and others) that may play a critical role in the VCC process. There should be increased participation of the users and the other stakeholders in the VCC process. There is a need to forge trust with the users via open communication and giving due accord to the skills and knowledge of the users (D'Alonzo, 2010; Ponik et al., 2010) apart from the need to identify individual as well as collective dimensions of the value co-creation and the dimensions linked with the value chain of data collation, data cleaning and the consequent steps resulting in the value co-creation and innovation of goods and services (Becker et al., 2013). Training must be imparted to the participating entities (Allen et al., 2011) for understanding the nuances involved in the OGD VCC inclusive of the other related issues of power and participation dynamics. Furthermore, it is important that the participating entities possess skills and knowledge associated with different approaches to research.

The aforesaid prerequisites are facilitated by:

- a. User participation behavior: User behavior may be comprehended in terms of four facets: information seeking (users are on the look-out to know about the service status and service parameters apart from soliciting information as to the manner in which they might perform their roles as the value co-creators in the course of the service encounters), information sharing (users ought to share vital and accurate information about their needs for proper diagnosis and further management of the VCC), responsible behavior (users should be cooperative, rules/policies—abiding and willing to acknowledge the role and performance expectations for the users from the end of the government/administrative bodies) and personal interaction (VCC is facilitated when the interactions between the users and the government/administrative bodies happens in social settings with courtesy, friendliness, respect, pleasantness, congeniality and positive mindset).
- b. User citizenship behavior: User citizenship behavior encompasses dimensions such as feedback (users ought to provide the solicited or unsolicited information regarding the services to help improve the VCC), advocacy (satisfactory public service delivery results in user loyalty to the government/administrative body thereby resulting in positive word of mouth and referrals), helping (users may interact and evince empathetic behaviors to the fellow users and others involved in the VCC) and tolerance (users' patience with the cases of genuine possible delays or failures is significant) (Yi & Gong, 2013).

2.4 | Failure of OGD VCC thereby resulting in VCD

At the root of OGD VCC failure lie barriers such as data and technology barriers (missing values, lack of metadata, encoding issues and outdated data), stakeholder barriers (lack of awareness of OGD and its benefits), organizational barriers (incompatible organizational processes such as reluctance to release data due to confidentiality procedures, incompatible routines and processes, lack of feedback loops, resistance from the public sector to change, lack of trust, lack of political priority, and inadequate resources), legislation and policy barriers (existing legislation related to sharing and licenses) (Toots et al., 2017). It has been underlined in the extant literature that OGD providers are negligent to the needs of the users (Smith et al., 2016) and they do not give the required attention to the OGD VCC process (Janssen et al., 2012).

Furthermore, there is customer passivity towards VCC owing to facets such as fear of VCD or the possibility of resource misuse and the same results in mental and physical exhaustion on account of VCD (Heidenreich et al., 2015; Petri & Jacob, 2016). VCD happens owing to insufficient resources, malfunctioning technologies, behavioral tussles, and others (Surachartkumtonkun et al., 2015). Users become a part of the VCD when they do not play their defined roles (Echeverri et al., 2012). VCD is also caused by factors such as the need for exerting much or the need to invest many resources or even by the users' unfavorable thoughts, feelings and behaviors (Hollebeek & Chen, 2014) towards the government/administrative department during the previous or ongoing course of interactions. In addition, VCD happens when the stakeholders from both the sides engage in blaming each other that exacerbates the communication gap among them (Kashif & Zarkada, 2015).

VCD is exacerbated by the officials of the government bodies/administrative departments who act rudely towards the citizens/users and lack empathy towards them and spread negative word-of-mouth about the senior management (Zhang et al., 2018). Further, VCD may result in untoward things like diminished reputation (for the supplier—government in the present case), reduced trust (and, hence, reduced revenue for the governments given that a number of users would be dissuaded to buy government goods and services) and loss of users (who might shift to other service providers) (Patterson et al., 2016). It has been explicitly stated that user non-receptivity towards VCC may be accounted by three dimensions: apathy, ambivalence or annoyance (Malshe & Friend, 2018). Owing to a lack of mutual engagement of the stakeholders and a lack of

conceptualization and a sustained vision and commitment as well as a lack of leadership to counter the issues of power and status across different domains and to forge trust and participation of all the entities concerned (Madsen & O'Mullan, 2018), OGD VCC efforts fail. Apart from this, the differences in the manner in which the datasets are interpreted and comprehended (Contu, 2013) apart from the variations in the approach to be adopted for the VCC and innovation process; the diversity of the entities' background in terms of the practices and worldviews; and the differences in the expectations and perceptions of the participating entities have a huge bearing on the OGD VCC process.

VCD in public service delivery has also been referred to as an instance of "co-contamination" especially where there are inequitable partnerships and collaborations or there is low trust between the key actors (Williams et al., 2016). VCD in public service delivery happens on account of reasons such as:

- a. *Deliberate rejection of responsibility*: In the midst of scarcity of financial resources, the governments/administrative bodies might prefer to shed off their responsibility for VCC.
- b. *Failing accountability*: Owing to the lack of clear specification of roles and responsibilities, the temporality of the VCC services, or the threat of litigation, VCD happens.
- c. *Rising transaction costs*: Process costs linked with the information asymmetries between actors, information seeking and sharing; implementation costs or the costs associated with participant behavior.
- d. *Loss of democracy*: Whenever VCC is brought about by a lack of democratic principles like inclusiveness, representativeness, impartiality, transparency, deliberativeness, lawfulness or empowerment, VCD happens.
- e. *Reinforced inequalities*: Inequalities and asymmetries in the form of unequal power positions across dimensions such as formal position, knowledge, expertise, resources or ability to set the rules of the VCC exercises result in VCD.
- f. *Implicit demands*: Psychological needs as well as the non-participation of those who are actually impacted influences the trajectory of VCC in many cases (Steen et al., 2018).

To sum up, VCD happens on account of the following:

- a. Absence of information (the provider is unable to provide correct information or the users fail to process information).
- b. Insufficient level of trust (the user is unwilling to provide information or when one or both actors face an inability to trust the other actor or when the user acts selfishly).
- c. Mistakes (occur due to wrong assumptions or when an inaccurate product/service is bought that does not work in the user's environment).
- d. Inability to serve (owing to inadequate relationship management with the users, when the user does not receive what s/he was promised, when the provider's internal processes are slow or aspects such as answer the user's request or when there is a delay in delivery of the product/service).
- e. Inability to change (in the instances when the provider fails to respond to the emergency situations but fails to provide alternative solutions at the earliest, when the user is not able to adopt the novel behavioral norms in accordance with the product/service offerings).
- f. Absence of clear expectations (when there is an absence of clear needs or when the users have inaccurate expectations from the providers).
- g. Customer/user misbehavior (in the event when the user misuses the product/service and the product/service fails, the user will blame the provider or when the user incorrectly manages/stores/safeguards the product/service or when the user acts disruptively by shifting to another VCC project without completing the ongoing one).
- h. Blaming (harmful complaining in terms of publicly complaining via social media, word of mouth, in the news or acquaintances, for instance, or baseless blaming behavior wherein the user accuses the provider falsely despite being on the wrong her/himself) (Jarvi et al., 2018).

2.5 | Strategies for managing OGD VCC failure/OGD VCD

Governments may take up strategies for managing OGD VCC failure/VCD like providing incentives for VCC, building credibility and trust, and others (Malshe & Friend, 2018). Government/administrative bodies should act as catalysts for VCC by providing incentives, inviting regular and periodic feedback from the stakeholders/users and other improvised public service delivery practices (Zhang et al., 2018) and user-to-user interactions for VCC may be facilitated by using robust technology platforms (Torres & Orlowski, 2017).

Some of the critical questions that need to be taken into consideration to obviate the VCD crises are:

- "Who is in, and who is out?"
- Who benefits, and who loses?
- How is power redistributed?
- What were stakeholders' goals, was there consensus over these goals, have these goals been met and, if so, whose goals?

- Which services are scaled up, and which are slimmed down? and
- Who can service users or other stakeholders keep accountable for lacking or inadequate services?" (Steen et al., 2018).

Putting things into perspective, OGD VCC may be driven by aspects such as data and technology drivers (providing access to high-quality data sets and providing opportunities for demonstrating OGD solutions, facilitating data analysis and enabling easy visualization and harnessing of the OGD), stakeholder drivers (driving home the perceived ability of OGD to support administrative efficiency and automation of organizational processes, improving access to information and enhancement of evidence-based policy-making plus the demand of OGD by the users and stakeholders), organizational drivers (strong innovation leadership and capable change management plus the existence of relevant capacities in the organization—management skills, digital literacy, skills of data management and collaborative innovation), legislation and policy drivers (legislation related with the provision of government information and data, legal obligations to publish OGD, open standards policy, open data action plans) (Toots et al., 2017).

3 | RESEARCH METHODOLOGY

Based on a positivist epistemological position, this exploratory study adopts a qualitative cross-sectional approach such that it describes situations and characteristics manifested by the phenomenon under study (Mayring, 2015; Ritchie & Lewis, 2012; Straub et al., 2004). The techniques of data collection and analysis used to define the research as qualitative based on content analysis in semi-structured interviews. Figure 1 shows the design of the research:

The data collection was performed using a semi-structured instrument developed in English by the researchers and later translated into Portuguese by one of the researchers native to the Portuguese language. Two linguistic experts to vindicate the correctness of the essence of the questions (Brislin, 1970) also did back-translation into English. The interview script had 06 (six) questions which sought to understand the flaws in government of OGD VCC Strategies. The interviewees are named by codes from E1 to E11 and the interviews were conducted online, individually, with each interviewee. The interviews lasted an average of 40 min. Appendix A of this article enlists the questions prepared for the interviews.

A group of 11 civil servants participated in the semi-structured interviews. They work on activities involving OGD, IT strategy, ITG, public corporate governance, public corporate strategy, and citizens' relationship. The choice of public managers is related to the theme of government open data, which were chosen because they worked or have worked with OGD, individually or in conjunction with the teams they lead. Table 1 shows the profile of respondents regarding gender, training, and job position they hold in public organizations that work.

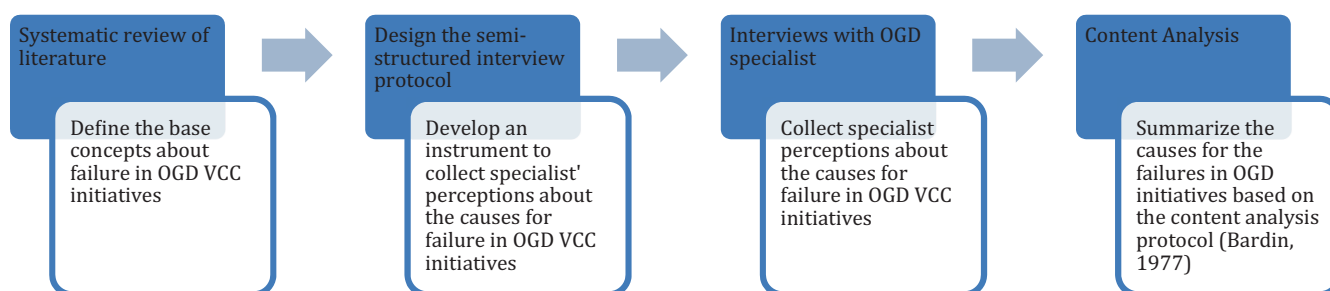


FIGURE 1 Research design.

TABLE 1 Respondents' profile.

Gender	Background	Job position
Female (5)	Ph.D. (2)	Director (2)
Male (6)	Master (2)	Head of Sector (3)
	Specialization (5)	Vice Head of Sector (1)
	Graduation (2)	Analyst (4)
		Administrator (1)

In an attempt to encompass the complexity of the public management structure in Brazil, the participants belong to six different public organizations of which the majority are in Rio Grande do Sul (RS) State. These companies wield autonomy and have their own budgets. Some organizations are government owned and some are state ones. Considering all these characteristics, especially their independence and the non-obligation to follow any general OGD model, they use their own OGD model and present different decision archetypes about the OGD initiatives. This kind of diversity is common in a big country like Brazil. For instance, the RS State has 125 thousand civil servants only on the Executive Branch. In addition to the previous information, Table 2 presents the profile of the companies and public agencies in which the interviewees work.

For data analysis purposes, the content analysis technique according to Bardin (1977) was adopted in which the analysis of the corpus of documents was divided into three stages: (1) the pre-analysis; (2) the exploitation of the material; and (3) the treatment of the results, the inference, and the interpretation. Thus, the interviews were recorded and the lines in the videos were transcribed into a text document. Finally, all interviews were inserted in the Atlas.TI®, a data qualitative analysis software. Subsequently, segment-by-segment coding of each data identified in the interviews was performed, and, finally, categories were created, in which the corresponding codes were inserted.

4 | RESULTS

The first important result to be commented on was the absence of evidence that corroborates the existence of deliberate actions to deconstruct the value co-created by the government's open data strategies. However, during the analysis process, 80 evidences were extracted from the texts transcribed from the interviews, regarding the causes for failures in value co-creation strategies in open data initiatives. Next, with the support in the literature, the evidence was codified in 18 terms, which cover expressions of similar meaning in the context of the interviews. Finally, the 18 codes were grouped into 03 categories, which represent the main causes for failure in the strategies of co-creation of value of open data initiatives. Table 3 presents the coding structure based on the content analysis performed:

4.1 | Internal causes to the Government or the ODG solution

The lack of political support and the lack of interest of the public agent were the most cited causes by the interviewees, denoting that Internal causes to the Government or the ODG solution are largely caused by issues related to the interests of individuals or groups of individuals in relation to the use of OGD. As mentioned by E4 in relation to the lack of interest of the government to turn the data into useful information, having the citizen to do his own analysis.

The government itself should have the initiative to treat this data and to turn that data into useful information for society. What we don't have: the data is dropped, it is released, it is published without any kind... the citizen makes his own analysis of it. (E4)

TABLE 2 Company/organization profile.

Name of company/organization ^a	Description
Centro de Tecnologia da Informação e Comunicação do Estado do Rio Grande do Sul S.A.—PROCERGS (3)	The company specialized in the development of high-added-value solutions, operates in 100% of the organs of the state executive, and processes millions of transactions daily, which are vital to the proper functioning of the State of Rio Grande do Sul.
Secretaria da Fazenda do Estado do Rio Grande do Sul—SEFAZ/RS (1)	Secretary of Finance of the State of Rio Grande do Sul, which, among others, has the function of providing the necessary resources to the State, with transparency and fiscal justice, for the benefit of society and the business environment.
Advocacia Geral da União—AGU (1)	An institution that, directly or through a linked body, represents the Union, judicially and extrajudicially.
Departamento de Economia e Estatística—DEE—SPGG/RS (2)	It integrates the structure of the Secretariat of Planning, Governance, and Management (SPGG) of the State of Rio Grande do Sul and has the task of providing socioeconomic indicators and conjuncture analyses, with the global and sectoral variables that permeate the economic and social development of the State.
Secretaria de Segurança Pública—SSP/RS (2)	Responsible for the tasks inherent to public security in the State of Rio Grande do Sul.
Casa Civil—RS (2)	Responsible for directly advising the Chief of Executive Power in the coordination of government actions.

^aNumber of respondents working by Company/Organization profile.

TABLE 3 Frequency of citations by codes and categories.

Causes for failures in OGD value co-creation strategies		
Categories ^a N = 80	Codes ^a N = 80	Frequency of citations by category (%)
Internal causes to the Government or the OGD solution (45)	Lack of political support (9)	56.25
	Lack of interest of the public agent (6)	
	Organizational Culture (5)	
	Administrative Barriers (5)	
	Lack of financial resources (5)	
	Legal influences (4)	
	Resistance to change (4)	
	OGD events poorly conducted (3)	
	Lack of collective work (3)	
Social and Citizen causes (26)	Lack of perception of value of the OGD (9)	32.50
	Lack of knowledge for the use of the OGD (9)	
	Lack of participation of the Society (6)	
	Lack of monitoring of citizen participation (2)	
Data Related Causes (9)	Lack of disclosure of OGD (4)	11.25
	Lack of transparency in the use of OGD (3)	
	Lack of upgrade of OGD (1)	
	Lack of treatment of OGD (1)	

Note: In bold the code with the higher frequency of citation within the categories.

^aThe number of evidence coded.

Another point mentioned as negative in co-creation strategies was not knowing who is responsible for solutions in open data, whether it is the citizen, whether it is the government or whether it is the private initiative, that is, identifying stakeholders, as E2 points out:

Responsibility of those who maintain, manage this proposed solution? Who will operationalize this solution? Is it going to be a government solution, or is it going to be the population, the private sector? Are you going to stay where this is? So we have this question. We also have questions, in addition to the operationalization and beyond the questions: “Where will it stay?,” “Who will do?,” we have the question of intellectual property of this solution, for example, “who is?,” “who is the person who will answer for this solution?,” “who is the data?” (E2)

One more factor pointed out is the interest of the public agent, that is, the governments, whether federal, state or municipal, that they have an interest in making the data available and co-creating the value of this data with society. E1 and E5 mention difficulties that the lack of public interest can generate.

This can happen because the value changes and we say that the public interest is controversial and difficult to articulate. (E1) But so, the difficulty I see to grow and be widely used, one is that... or need to have someone who will buy the idea, adopt and will use, as an institution, that is, the State found a nice institution to ... the state I do not say, but the municipality. (E5)

Administrative issues also interfere negatively in co-creation strategies, either due to the work overload caused by the reduction of government structures and with it the reduction of personnel, as well as the problems in administrative management, as indicated by E9:

I think we still have a lot of management difficulties, not only political management, but administrative management often for development. (E9)

Cultural issues that can negatively influence value co-creation strategies may be related to the lack of government approximation with society, as is said by E3

I think this has an implicit, cultural resistance for public administration to approach society.

As financial issues, the limitation of public resources is cited as a possible obstacle to the progress of strategies for co-creating value of government open data, according to E10:

... is that we know that the state government sometimes has limited intelligence and financial resources. (E10)

E1 addresses the situation of changes in legislation that can interfere with the strategies of co-creation of value and availability of open data:

Sometimes the data changes over time, at a given time was based on a law that has changed, then, the same data becomes another way of being obtained. (E1)

Resistance to change, that is, to open up to new forms, in the case of the use of public data, even with the participation of the citizen. It is also a point cited by the interviewees as an obstacle to the strategies of co-creation of value, as exemplified by E9:

We see a lot of restrictive idea still in this respect. In conversation with colleagues we see that there are many people have restrictions ... what's with all the information?

Finally, E5 says that working together is important since cultural, administrative and even knowledge issues have significant bearing on the government-society interfaces in terms of OGD VCC. Therefore, collaborative endeavors are important for tackling the barriers related with OGD VCC:

If we really want to create an effect for society, we have to talk to see what needs to be done. Because it's no use you come up with a whole beautiful and wonderful study from the outside, because when you come into the Public Administration it's not like that. You have other... you have a different structure, a different culture for you to implement something, understand? So I don't believe in destruction. I believe that the initiatives start together, understand? To get to a possible question. (E5)

4.2 | Social and citizen causes

These are elements related to the interviewees' views about the situations outside the government that can be barriers to open data value co-creation strategies. The lack of knowledge was one of the topics mentioned, as in the case of what was said by E2, that one difficulty is the lack of knowledge of the citizen who is not used to the tasks related to open data, who does not know what he can and cannot do with that data and who does not have much contact with the technologies required for data processing.

There are also issues regarding the culture of the population in general to know what can and cannot be done with the information. (E2)

We work here, directly with information and for us it is very trivial to talk about, for example, accessing the invoice from the computer, accessing login through the computer, having a unique login from the Union, accessing traffic fines online, making IPVA payments online... We who work in the area have this culture. But the general population, to whom we refer, does not have this technology penetration, so to speak. So, I see that, in the great demand, we have this problematic. (E2)

Regarding the participation of society it is already clearer its importance and that the lack of it is a hindrance to the success of the co-creation of value, since the citizen, the support of society is necessary for the creation of value of open data together with the government, as E3 says

... I think it depends a lot on integrating the people who want to do this work of cocreation of open data. (E3)

4.3 | Data related causes

The analysis here aims to verify the possible failures in the co-creation of value related to the nature and maintenance of open data, considering the views of the interviewees. The effectiveness of value co-creation was cited in the sense of checking whether the value co-creation strategies of open data have been useful and lasting. E1 brings an example, explaining that effectiveness is related to the sustainability, in the sense of duration, of data value creation.

Let's take a startup, for example, that is effective, generates service, generates public value, and generates value, suddenly even monetary, for this company, and that is sustainable over time, then we would have effectiveness. The specific actions that we did

and that I saw happen, in practice, even as an award, as a post mentoring, a hackathon, a dataton, at the end of the day it does not have an effect. (E1)

As for the monitoring of citizen participation, E1 presents a view related to what he understands as a way to mitigate the destruction of value of government open data, seeking the evaluation of the citizen as a beneficiary of the availability of data.

So, one way to mitigate this is to think: this action created over this government data, if at the end of the day the main beneficiary, which is the citizen, both as an individual and as a legal entity, if it is really valuable to them. So, to seek his judgment, his evaluation, before creating actions without thinking, at the end of the day, who is the main beneficiary of that data. (E1)

The updating of data was also addressed as necessary to assist in the solutions generated in the co-creation of value of open data, as cited by E2:

The data that was made available there. If by chance the data that was made available is no longer updated and the solution demands a constant update. (E2)

Considering the dissemination of data, E9 talks about the need for this so that citizens can be aware of the government's activities, as well as the work done with open data and, of course, that they can contribute in some way.

So I think it's very important to have a more comprehensive campaign to disseminate the access places and the kind of information people will find there so that a large part of the population will effectively start searching for this information and have a greater knowledge of the activities developed by the state government as a whole. (E9)

As for events about open data, such as the hackathon, they are interesting initiatives where people who deal with open data get together to discuss strategies related to the theme, but in the view of E1, they are punctual actions not generating effectiveness.

I don't... the only co-creation initiatives I have seen are the hackathons, datathons, that governments do with society. But, again, for me these are still very punctual actions. Is it an action? Is it a beginning? Yes, it is. (E1)

Transparency is mentioned by E9 as a way to keep citizens informed and that this is important for the value co-creation strategies of open government data.

I still come back to that issue, that the more information society has, the more knowledge about the services provided, about everything that occurs in terms of public administration we will certainly have at this point an evolution of society.

On the other hand, the unclear rules of data formation and the way it is made available, that is, the processing of data, may also be related to possible flaws in open data strategies, as E1 said:

One reason could be, it is a given that the training rule is not clear.

It is important to consider that the Brazilian federate states have the autonomy to decide about their own organization, government, and administration, which are regulated by their state constitutions, once they abide by the federal constitution. Thus, there is an ecosystem formed by independent organizations (ministries, offices, public agencies, and public or semi-public organizations) connected through differed kinds of hierarchies (Campbell et al., 2015). In this ecosystem, the resources, work, data and information is distributed or scattered, making it necessary to consider the interorganizational approach to develop ODG value co-creation strategies, which engulfs the organization as well as its related network, including the synergy among its knots (Grant & Tan, 2013).

5 | DISCUSSION

As attested from the interviews, three broad categories were identified for being responsible for the failure in OGD VCC: internal causes with the majority of causes attributable to the lack of political direction and support and the lack of interest of the public agents themselves; social and citizen causes including causes like the lack of perception of the value of the OGD and the lack of knowledge for the use of the OGD and the

data-related causes with the key factors being the lack of disclosure of OGD and the lack of transparency in the use of OGD. Findings from the present study are supported in the extant literature as well. For instance, the lack of government vision, support and direction is considered as one of the causes of the failure for OGD initiatives (Rasideh et al., 2022; Yang et al., 2015), let alone the VCC. Likewise, the overall responsibility and accountability for the VCC is also not clear and the same dilemma gets reflected in the OGD initiatives in general (Charalabidis et al., 2014). Poor data quality is a major concern as far as the successful OGD VCC is concerned (McBride et al., 2018). Lack of interactive channels and coordination among the stakeholders were underlined as potent challenges to OGD VCC (Nurdin et al., 2014; Platinga & Adams, 2021). Legal and administrative bottlenecks in terms of the availability of resources, training and capacity building or senior management support are also the key thorny issues (Buttow & Weerts, 2022; Martin, 2014; Zhao & Fan, 2021). Likewise, the lack of public interest may be akin to the lack of awareness of OGD per se apart from the other social and cultural factors like the user inability or incompetency to deal with OGD (Shao & Saxena, 2019).

Furthermore, citizen support initiatives are visibly lacking in the OGD initiatives (Zhu & Freeman, 2019). Findings from the present study also corroborate with the barriers identified in the previous studies wherein the stakeholders encounter difficulties on account of the lack of open data policy or IT literacy within the administrative agencies (Ma & Lam, 2019). OGD VCC becomes a challenge amidst difficulties in the basic processes of data discovery, access and usability (Machova et al., 2018). These bottlenecks get compounded with the lack of public engagement in the social-media platforms meant for debate and discussion for OGD re-use (Lee & Kwak, 2012) or the non-participation of the citizens in the contests, events or hackathons for showcasing the re-use of OGD for VCC and innovation (Nikiforova, 2022). Given the need for bolstering OGD initiatives in Brazil, it is important that the inter- and intra-organizational challenges be tackled with strategic vision and execution (Luciano et al., 2017; Mesquita et al., 2019).

6 | CONCLUSION

The purpose of the study was to understand the barriers towards OGD VCC thereby furthering our understanding regarding the causes for OGD VCD. For driving home the arguments, a qualitative research methodology was adopted wherein interviews were conducted with 11 representatives of the agencies responsible for the implementation of OGD initiatives in Brazil. Three broad categorization of barriers in OGD VCC were identified: internal factors, social and cultural factors and data-related factors. It may be deduced from the findings that OGD VCC is conducive only when the strategic vision and direction is in place with the engagement of the government agencies and the stakeholders concerned (Zhenbin et al., 2020). These findings are also suggestive of the need for having a robust legal framework (Afful-Dadzie & Afful-Dadzie, 2017) apart from the proper handling of the information and quality issues (Talukder et al., 2019). This is so because data quality should be high-value (Leviakangas & Molarius, 2020; Nikiforova & McBride, 2021) to ensure that VCC and innovation happens. Since the present study was contextualized in Brazil, it has opened a Pandora's Box for understanding the key bottlenecks in OGD VCC in developing countries. For instance, it has been attested that public values may be realized via appropriate quality maintenance of e-government web portals in the Sub-Saharan Africa, and, since OGD is a culmination of e-government, it is anticipated that quality assessment of OGD web portals would result in improvisation of public service delivery formats (Verkijika & De Wet, 2018). Likewise, in line with our findings, it may be deduced that without the ecosystemic balance wherein the interests of the relevant stakeholders are properly matched—case in point being Indonesia—OGD VCC is difficult to achieve (Nurdin et al., 2014). Similarly, in line with our findings, it was shown that institutional robustness is important for furthering open innovation via citizen engagement via the OGD initiative at the local level in the context of Ghana (Chatwin & Arku, 2018) as also across other developing and developed countries (Huber et al., 2022). Thus, it is implicit that failure in VCC might be the precursors for the VCD processes and the same need to be preempted.

Following insights for practitioners and the lines of research themes may be adopted for further research in the furthering our understanding of the VCC-VCD realm:

1. *Government/administrative culture*: The mindset of the management in the government/administrative cadres should be changed. Government/administrative bodies need to foster an open culture in which their vision, goals, activities and processes promote transparency, accountability and collaboration. Further research is warranted across the aforesaid themes apart from looking into the strategies adopted for furthering this culture. Finally, appreciation of the manner in which VCD happens in the face of the failure of adopting an open and resilient culture or developing the requisite strategy for VCC by the concerned government/administrative body is also required.
2. *Learn-Unlearn-Relearn paradigm*: Government/administrative bodies need to embrace this paradigm wherein mutual learning happens in the OGD VCC phase. When the government/administrative body fails to provide the users/stakeholders with the necessary wherewithals (skills, technological know-how, tools, modules, and others) or generating awareness or incentivizing them for OGD VCC, OGD VCD happens and this is an interesting line for research for future too.
3. *Organizational dynamics*: Providing a sense of achievement to the users/stakeholders for the successful OGD VCC is important because without encouragement in the initial steps, the users/stakeholders are not liable to take further steps for OGD VCC, thereby resulting in VCD—this calls for further research.

4. *Resources and capabilities*: Drawing upon the governmental/administrative resources (manpower, funding, material resources, and others), OGD VCC may be furthered but in the absence of these or neglect of the same, OGD VCC may be aborted. Further research may delve into such intricacies as well.
5. *User/stakeholder importance*: Further research should appreciate the significance of users/stakeholders in terms of VCC given the fact that successful VCC results in pushing the margins of the governmental/administrative body.

CONFLICT OF INTEREST STATEMENT

Authors have no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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APPENDIX A

- Hello and thank you for being with me this hour. I am conducting a study on the failure of Open Government Data Value Co-creation (OGD VCC) that results in OGD Value Co-Destruction. Please tell me how important is this entire OGD VCC for you, us, the society, the country and the world?
- Well, I can sense that OGD VCC has not really reached its optimality. How do you assess this dimension? Have you encountered this scenario till now ever since the inception of the OGD initiative? What were such instances like?
- Much is known about the OGD VCC that happens owing to the incentives (contests, hackathons, events, training sessions, and others) being provided to the users/stakeholders/actors for OGD VCC but many of the attempts at OGD VCC fail to materialize actually. Why does this happen? Have you witnessed such cases till now? Please give examples.
- Your organization has been spearheading the OGD initiative for quite some time now. Do you see that OGD VCC is happening at the ground level in the true sense of its terms?
- What are the impediments for successful OGD VCC? There are serious concerns regarding OGD VCD (OGD Value Co-creation Destruction).
- What could be the “reasons” for this? How do you assess this scenario? Can you throw some light on the “best practices”/“strategies” to pre-empt OGD VCD?
- (In the follow-up questions, you could elaborate upon the “reasons” that have been pointed out in the preceding question.)

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