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A Qualitative Study of Researchers Perspective on the Use and Risks of Open Government Data

Emigawaty[1], Dinda Sukmaningrum[2], Wiji Nurastuti[3]

[1]Informatics Department, Faculty of Computer Science, Universitas Amikom Yogyakarta, Yogyakarta, Indonesia
[2]Entrepreneurship Department, Faculty of Economics and Social, Universitas Amikom Yogyakarta, Yogyakarta, Indonesia
[3]Information Systems Department, Faculty of Computer Science, Universitas Amikom Yogyakarta, Yogyakarta, Indonesia
Email: [1]emigawaty@amikom.ac.id, [2]dinda.s@amikom.ac.id, [3]wiwitab@amikom.ac.id,

Abstract

Open government data has the potential to improve transparency, accountability, public participation, business innovation, and research quality. However, this openness also poses various opportunities for losses or even risks, especially related to low data quality, personal data security issues, data translation errors, and misuse of information. This study aims to review the potential risks of data openness on government data portals from the perspective of researchers as one of the important actors who use data. Using qualitative method with structured interviews, this study involved five potential researchers who actively used open data between May and August 2023. The results of the interviews showed that high data quality, such as accuracy, completeness, and currency, can increase researchers' trust in the data. At the same time, obstacles in accessibility and bureaucracy or data administration requirements can slow down the research process or stages. Security and privacy issues are also important parameters, with strict security policies and good audit processes can reduce the risk of data misuse. Data openness and transparency play a major role in increasing the use of data for public policy and evidence-based research. In addition, data standardization is essential to ensure the efficiency of data use by researchers. This study concludes that to optimize the benefits of data openness, there needs to be proper and measurable management in order to consider data quality, accessibility, security, and standardization.

Keywords: Risk, Open Data, Data Portal, Government, Researchers

1. INTRODUCTION

Open Government Data (OGD) has become an integral part of transparency and public accountability initiatives in various countries [1], [2]. The OGD initiative has been implemented by most countries in the world by issuing a number of government regulations [2], [3], [4]. Through government data portals, various information that was previously difficult to access is now available to the public, allowing the public, academics, and industry sectors to use it for various interests

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[5]. For example, researchers can collect various types of data, manage it, and analyze it to make data-based decisions [2], [5].

However, behind its various benefits, open data also poses various potential risks, especially related to privacy, data security, data misinterpretation, and data misuse [6], [7]. In terms of data security inherent in a set of datasets, open data also has the potential to increase the risk of exploitation by irresponsible parties. Data containing information related to critical infrastructure, strategic policies, state secrets, operational patterns of government institutions, or even domestic policies can be used for interests that are contrary to the original purpose of open data [7], [8]. For researchers or academics, the use of unverified or manipulated data can produce erroneous and misleading conclusions, contributing to the spread of inaccurate information. This situation is a 'blank spot' for researchers, and if not properly mitigated, it will become a time bomb in the future [7], [8].

Additionally, from the standpoint of researchers, the dangers that could occur include the validity and trustworthiness of data, the possibility of bias in information presentation, and the difficulty of making sure that the data used has undergone a sufficient curation procedure [9]. Misuse of data and information in the context of data openness is also a serious challenge for academics and researchers [10]. Data that is openly available on government and community data portals can be used outside its original context, namely for commercial purposes without appropriate attribution or to build biased or misleading narratives [11], [12]. In the academic world, this can have an impact on the difficulty in ensuring the integrity of research, especially when the datasets used experience changes or manipulation that cannot be detected [8], [13].

Several previous studies have highlighted challenges in implementing data transparency, such as the mismatch between expectations of transparency and protection of sensitive data [14], [15], as well as imbalances in data accessibility for various stakeholders [16], [17]. However, studies that specifically review the potential risks of data transparency from the perspective of researchers are still limited. In the context of academic research, the validity and reliability of the data used are highly dependent on the quality and transparency policies implemented by the government. Unclear regulations or lack of risk mitigation mechanisms can impact the credibility of research results and ethical use of data [18].

This paper proposes to identify and examine, from the viewpoint of researchers, possible risks associated with data transparency on government data portals. This study aims to give data providers and policy holders ideas for creating safer and more responsible data transparency regulations by examining factors like data quality, potential bias, and difficulties in accessing and interpreting data.

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The results of this study indicate that although data transparency on government data portals can provide significant benefits, such as increasing transparency, research quality, and data-based policy making, there are also potential risks that must be addressed. This study found that high data quality, easy accessibility, and strict security policies can increase researcher trust and the effectiveness of data use. Conversely, bureaucratic barriers, incomplete data, and concerns about security and privacy can reduce the benefits of open data. Therefore, it is important to balance openness with adequate protection to ensure that data can be used safely, efficiently, and effectively to support research and public policy.

2. METHODS

This study uses a qualitative approach to review the potential risks of data disclosure on government data portals from the perspective of researchers as data users. This approach was chosen because it allows for an in-depth exploration of researchers' experiences, challenges, and perceptions in utilizing openly available data. Data were collected through structured interviews conducted with five researchers who have experience in using datasets from government data portals. Interviews were conducted between May 2023 and August 2023. Respondents were selected based on their active involvement in research using open data, both in academic contexts and practical applications in the fields of public policy and data analysis.

Each interview lasted approximately 30 to 45 minutes and was conducted via an online communication platform such as Zoom or Google Meet, depending on the availability and preferences of the respondents. Before the interview process began, a list of semi-structured questions was prepared in advance to ensure consistency in exploring key topics relevant to the focus of the research. However, the approach used remained flexible, meaning that this situation allowed the researcher to adjust the direction of the interview according to the dynamics of the discussion. Respondents were also given space to freely convey their views, experiences, and personal interpretations. The selection of this open perspective approach is expected to allow for richer and more contextual information to be extracted.

The data obtained from the interviews were then analyzed using the thematic analysis method, which aims to identify important patterns, main categories, and meanings contained in the respondents' narratives. This analysis process was carried out through three main stages. First, all interview recordings were transcribed verbatim to ensure data accuracy. Second, the transcripts were coded using the open coding technique, where relevant data segments were marked and grouped based on similarities in meaning or topic. Third, the coding results are interpreted to formulate main themes that reflect key issues raised by participants.

Furthermore, the themes generated from this analysis process are used as a basis for identifying various potential risks faced by researchers in accessing and utilizing open government data. The potential risks in question include risks related to data quality, completeness of metadata, information security, and limited access. These findings also form the basis for formulating strategic recommendations for government data portal managers. The aim is to improve the quality of open data provision, strengthen security and privacy aspects, and expand accessibility for the academic community and other stakeholders. The design of the question instrument submitted to the sources or researchers can be seen in Table 1.

Table 1. Instrument Design of Interview Sections

Aspect ID	Interview Aspect	Q. ID	Research Question
LB-01	Researcher Background and Experience	LB-011	What is your research area, and how often do you use data from government data portals?
		LB-012	What is your main goal in using open data?
KV-02	Data Quality and Validity	KV-021	How do you assess the quality of data available on government data portals?
		KV-022	Have you ever found any discrepancies or errors in the downloaded data? If so, how did you resolve them?
AK-03	Accessibility and Ease of Use	AK-031	How easy or difficult is it for you to access the data you need?
		AK-032	Have you experienced any technical or administrative barriers to accessing data?
PR-04	Potential Risks and Challenges	PR-041	In your opinion, what are the main risks in using open data from government portals?
		PR-042	How do you ensure that the data used does not violate aspects of privacy or research ethics?
KP-05	Security and Data Protection	KP-051	Have you ever felt concerned that the data you use could be misused by others?
		KP-052	Do you see any policies that can improve security and mitigate risks in data disclosure?

Aspect ID	Interview Aspect	Q. ID	Research Question
RH-06	Recommendations and Expectations	RH-061	In your opinion, how can data transparency be improved to make it more useful for researchers?
		RH-062	Are there any specific recommendations you would like to make to government data portal managers?

3. RESULTS AND DISCUSSION

3.1. Researchers Perspective

This section presents the results of interviews conducted with five researchers as primary sources or respondents who actively use datasets from government data portals. The results of these interviews are analyzed to identify potential risks faced by researchers in utilizing open data, as well as to explore the challenges they experience in terms of data accessibility, quality, and security. In addition, this section also discusses how existing policies and practices can be improved to address these issues, so that open data can be utilized optimally without ignoring important aspects such as privacy and research ethics.

In the discussion section, this paper links the field findings with various literature related to data openness and public information governance. Several previous studies also support the view that the quality and interoperability of open data are still major challenges in various countries, including Indonesia. From the interview results, several researchers suggested the need for standardization in data formats, metadata structures, and update mechanisms, in order to ensure consistency and ease of use of data by various groups. In addition, they also emphasized the importance of transparency in the data curation and publication process, including clarity regarding data sources, update frequency, and limitations on its use.

The following are the results of interviews with researchers to further investigate and explore the phenomenon and impact of open data for academics, as presented in Table 2.

Table 2. Results of Open Interviews with Researchers

Interview Aspect	Q.ID	Interview Question	Participant's Response
Researcher Background and Experience	LB-011	What is your research area, and how often do you	[Researcher 1]: "I research public policy and often use

Interview Aspect	Q.ID	Interview Question	Participant's Response
		use data from government data portals?	economic and demographic data." [Researcher 2]: "I focus on health and only use open data occasionally." [Researcher 3]: "My field is data science; I use government portal data almost every week." [Researcher 4]: "I work in social analytics, often accessing open data for case studies." [Researcher 5]: "I research transportation and infrastructure, sometimes using open data."
	LB-012	What is your main goal in using open data?	[Researcher 1]: "For evidence-based policy analysis." [Researcher 2]: "For validation of public health research results." [Researcher 3]: "For machine learning model development and trend analysis." [Researcher 4]: "To understand social patterns and community well-being." [Researcher 5]: "To assess the effectiveness of public transportation policies."
Data Quality and Validity	KV-021	How do you assess the quality of data available on government data portals?	[Researcher 1]: "Some datasets are quite complete, but some are not up to date." [Researcher 2]: "Data is often not well documented." [Researcher 3]: "The quality varies, some are good, some are not very accurate." [Researcher 4]: "Often find data that does not match the reality in the field." [Researcher 5]: "Most of the data is useful, but there are

Interview Aspect	Q.ID	Interview Question	Participant's Response
			gaps in the data's up-to-dateness."
	KV-022	Have you ever found any inconsistencies or errors in the downloaded data? If so, how did you resolve them?	[Researcher 1]: "Yes, I often have to do data cleaning before analyzing." [Researcher 2]: "I compare with other sources for validation." [Researcher 3]: "Metadata errors make interpretation difficult." [Researcher 4]: "Contacting data providers, but rarely getting a response." [Researcher 5]: "I usually note these errors in my research report."
Accessibility and Ease of Use	AK-031	How easy or difficult was it for you to access the data you needed?	[Researcher 1]: "Some datasets are easily accessible, but others require special permission." [Researcher 2]: "Difficult because not all portals provide APIs." [Researcher 3]: "Often having difficulty finding a specific dataset." [Researcher 4]: "Too many different data formats." [Researcher 5]: "Sometimes the server goes down and the data cannot be downloaded."
	AK-032	Have you experienced any technical or administrative barriers in accessing data?	[Researcher 1]: "Non-standard data formats make it difficult to process." [Researcher 2]: "Some data require non-transparent registration." [Researcher 3]: "Lack of technical documentation." [Researcher 4]: "Too many procedures to obtain permission to access certain data."

Interview Aspect	Q.ID	Interview Question	Participant's Response
			[Researcher 5]: "Often find dead data links."
Potential Risks and Challenges	PR-041	What do you think are the main risks in using open data from government portals?	[Researcher 1]: "Lack of validation can lead to misinterpretation of research results." [Researcher 2]: "Potential privacy violations if data is not sufficiently anonymized." [Researcher 3]: "Risk of data misuse by irresponsible parties." [Researcher 4]: "Data can be used for disinformation if not properly verified." [Researcher 5]: "Reliance on data that is not always updated."
	PR-042	How do you ensure that the data used does not violate aspects of privacy or research ethics?	[Researcher 1]: "I always check the privacy policies of data providers." [Researcher 2]: "Use aggregation techniques to avoid identifying individuals." [Researcher 3]: "Search for secondary sources to compare the accuracy of the data." [Researcher 4]: "Be careful in publishing to avoid leaking sensitive information." [Researcher 5]: "Work with the legal team to ensure regulatory compliance."
Security and Data Protection	KP-051	Have you ever felt concerned that the data you use could be misused by others?	[Researcher 1]: "Yes, especially if the data is used for unethical purposes." [Researcher 2]: "Some data can be exploited for political gain." [Researcher 3]: "Risk of identity theft if data is not sufficiently anonymized." [Researcher 4]: "There needs to be stricter regulation of open data management."

Interview Aspect	Q.ID	Interview Question	Participant's Response
			[Researcher 5]: "Some datasets should not be fully open."
	KP-052	Do you see any policies that can improve security and mitigate risks in data disclosure?	[Researcher 1]: "Increased data anonymization could help." [Researcher 2]: "Standardization of metadata is needed to be more transparent." [Researcher 3]: "There needs to be an audit mechanism to ensure data is not misused." [Researcher 4]: "It is important to involve data users in policy discussions." [Researcher 5]: "Governments need to provide more education on data use."
Recommendations and Expectations	RH-061	In your opinion, how can data transparency be improved to make it more useful for researchers?	[Researcher 1]: "Improving interoperability between datasets is essential." [Researcher 2]: "More quality data should be available in real time." [Researcher 3]: "The needs of the research community should be heard in the development of data portals." [Researcher 4]: "Improvements in data documentation and metadata are essential." [Researcher 5]: "Collaboration with academics on data validation can help improve quality."
	RH-062	Are there any specific recommendations you would like to make to government data portal managers?	[Researcher 1]: "Ensure regular data updates." [Researcher 2]: "Make APIs more accessible." [Researcher 3]: "Involve the research community in data evaluation."

Interview Aspect	Q.ID	Interview Question	Participant's Response
			[Researcher 4]: "Provide more comprehensive technical documentation." [Researcher 5]: "Increase transparency in the curation and selection process for open data."

From the results of interviews with five researchers, there were several findings that reflected the various challenges and potential risks faced in utilizing open government data. One of the main issues raised was the inconsistent quality of data. Several researchers reported that the available data was often inaccurate, incomplete, or out-of-date. This is especially a concern for researchers who need clean and structured data for more in-depth analysis. On the other hand, other researchers considered the existing data sufficient for their research, although it often requires further verification. This contradiction shows the differences in needs among researchers, where those working in data science or fields that rely heavily on data accuracy may be more critical of data quality, while researchers in the field of public policy are more tolerant of data deficiencies as long as the data is relevant and representative enough.

In addition, data accessibility was also a prominent issue in the interviews. Most researchers acknowledged that even when data is available, they often face obstacles related to non-standard data formats, difficulties in finding relevant datasets, or administrative bureaucracy in obtaining data that slows down the process of submitting and using data. Researchers who focus more on policy analysis or practical applications are more likely to experience administrative barriers, while researchers in data science are more burdened by technical issues, such as difficulties in processing unstructured or unformatted data. This contradiction suggests that open data policies need to consider different segments of data users, so that data accessibility can be facilitated according to their specific needs.

Concerns related to data security and privacy also emerged as key issues in the interviews. Some researchers expressed concerns that open data could be misused by irresponsible parties, while others felt that current data security policies still needed to be improved, such as by implementing data anonymization or stricter audits to prevent misuse. However, there were also researchers who emphasized the importance of data transparency and broader openness policies, arguing that the more data that is opened, the greater the potential for improving evidence-based research. This contradiction underscores the need to balance maintaining

transparency and openness with ensuring data security and privacy, so that these two aspects can coexist without compromising data quality or integrity.

From the interview results, the correlation between data quality and researcher trust shows that the higher the data quality, especially in terms of accuracy, completeness, and currency, the greater the level of researcher trust in the data used. Accurate and up-to-date data gives researchers confidence that the research results obtained will be more valid and accountable. Conversely, incomplete or inaccurate data tends to reduce the level of researcher trust, so they must be more careful in drawing conclusions. This indicates the importance of good data management to ensure reliable data quality for research.

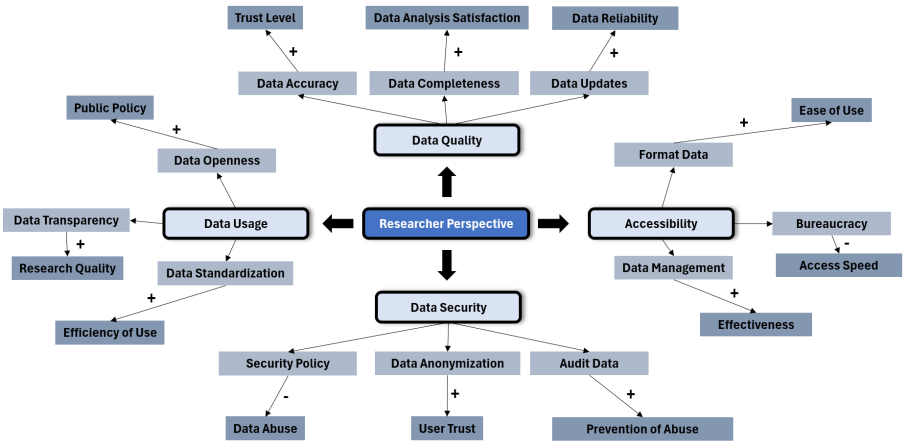


Figure 1. Correlation of Researcher Perspectives on Data Use

Meanwhile, data accessibility also greatly affects the effectiveness of data use in research. Researchers who have easy access to data in standard formats tend to be more efficient in using the data for their analysis. Conversely, long bureaucratic obstacles or difficulties in finding relevant data can slow down the speed of access, which ultimately reduces the effectiveness of data use in research. Therefore, reducing administrative barriers and standardizing data formats are needed to facilitate accessibility and increase research efficiency.

In terms of data security and privacy, strict policies, such as the implementation of data anonymization and better audits, serve to reduce the risk of data misuse and increase user trust. Researchers feel safer using data that has undergone anonymization and strict monitoring, as this reduces the potential for privacy violations. However, inadequate or unclear security policies can actually raise concerns about data misuse, which can reduce researchers' trust in the data portal.

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Greater data transparency also has a direct impact on the use of data for public policy and evidence-based research. The more data that is openly available, the greater the opportunity for it to be used in more transparent and fact-based policy decision-making. In addition, high data transparency will support the quality of research, because researchers can more easily verify the validity of the data used, and explore the potential of the data from various perspectives. This transparency and openness allow the data used in research to be accounted for and can provide more useful results for the development of science and policy.

Finally, data standardization is one of the key factors that increases the efficiency of data use by researchers. Standardized data, both in terms of format and clear documentation, allows researchers to quickly utilize data from various sources without having to do a lot of data cleaning. This speeds up the research process and allows data integration from various portals or institutions without significant technical barriers.

3.2. Discussions

This study sheds light on the real-world challenges researchers face when working with open government data (OGD), offering empirical insights that both reinforce and enrich existing literature on data openness and public information governance. While OGD initiatives are widely promoted as tools to enhance transparency, accountability, and evidence-based policymaking, findings from the interviews reveal persistent barriers related to data quality, accessibility, and security. These obstacles not only limit the potential of OGD to support robust research but also highlight the urgent need for policy improvements to bridge the gap between data availability and effective data use.

First, inconsistent data quality emerged as one of the most pressing issues identified by the researchers interviewed. Several respondents noted that government datasets often suffer from outdated, incomplete, or poorly documented data, which directly undermines the accuracy and reliability of research outcomes. For example, one researcher observed, *"Some datasets are quite complete, but others are not up to date,"* while another pointed out that metadata errors frequently make interpretation difficult. These findings are consistent with prior studies (e.g., [1], [8], [19]) that emphasize data accuracy, completeness, and recency as critical factors for maximizing the utility of open data. Without reliable data, researchers cannot confidently draw conclusions or make recommendations that policymakers and stakeholders can trust. In Indonesia, where several researchers reported finding discrepancies between official data and field realities, the issue of data quality becomes even more consequential for evidence-based decision-making.

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Second, data accessibility remains a major hurdle that prevents researchers from fully leveraging OGD. Although the existence of open data portals suggests easy access, interviews revealed that the reality is often far more complicated. Barriers such as non-standard data formats, difficulties in locating relevant datasets, and complex administrative procedures frustrate researchers seeking timely data for analysis. As one participant noted, *"Some datasets are easily accessible, but others require special permission,"* while another highlighted, *"Too many different data formats make processing difficult."* These accessibility challenges echo findings from international literature, which show that open data infrastructure and interoperability issues often hinder researchers from using data effectively. This suggests that governments must prioritize harmonizing data formats, simplifying access procedures, and ensuring comprehensive, user-friendly data documentation to better serve diverse research communities.

Third, concerns over data security and privacy were significant among interviewees, who expressed apprehension about the potential misuse of open data if privacy safeguards are inadequate. Some researchers pointed out that certain datasets could inadvertently expose sensitive information if not properly anonymized, leading to risks such as privacy violations or identity theft. One participant warned, *"Data can be used for disinformation if not properly verified,"* while another emphasized, *"Stricter regulation of open data management is necessary."* These perspectives highlight a tension at the heart of OGD policies: how to balance the benefits of openness with the imperative to protect individuals and entities connected to the data. Previous studies ([20], [21], [22]) have underscored that excessive transparency, without robust privacy and ethical considerations, can result in harmful consequences that outweigh the intended benefits of openness. Therefore, integrating stricter policies on data anonymization, establishing clear privacy protocols, and conducting regular audits are critical to ensuring responsible data sharing.

Fourth, the interviews underscore that transparency in the curation and publication processes of open data plays a pivotal role in building credibility and accountability, both for research and public policy. Clear documentation of data sources, refresh frequency, and usage limitations are essential practices that allow researchers to understand and trust the data they use. Several participants recommended that governments should involve researchers in the data curation process and provide more comprehensive technical documentation. This collaborative approach could improve data quality, make data more relevant to the needs of academic and policy researchers, and enhance public trust in government data initiatives.

Fifth, data standardization emerged as a key theme that can greatly improve efficiency in the research process. Standardized metadata formats and consistent

data structures allow researchers to integrate multiple datasets without spending excessive time cleaning and transforming data. One interviewee emphasized, *"Improving interoperability between datasets is essential,"* while another suggested that, *"Collaboration with academics on data validation can help improve quality."* These insights highlight how standardization can address both technical and usability challenges, supporting the view in the literature that interoperability and technical consistency are prerequisites for a robust open data ecosystem.

The correlation between data quality and researcher trust was also evident: the higher the accuracy, completeness, and currency of the data, the more confident researchers were in using it for valid and accountable research. Conversely, low-quality data diminished trust, forcing researchers to expend extra effort on verification and potentially compromising the reliability of their findings. This reinforces the need for governments to prioritize rigorous data management practices, including timely updates, comprehensive documentation, and ongoing stakeholder engagement.

Data accessibility, similarly, directly affects the effectiveness of research. Researchers with easy access to standardized, well-documented data can move swiftly from data collection to analysis, thereby improving the efficiency and timeliness of research outputs. Administrative hurdles, server downtimes, and the lack of search-friendly data portals slow down this process and, in some cases, deter researchers altogether. Reducing bureaucratic barriers, ensuring reliable data infrastructure, and offering user-friendly tools (e.g., APIs) are essential steps to improving the usability of OGD.

Finally, strict data security policies that include anonymization, periodic audits, and transparent privacy guidelines not only reduce the risk of misuse but also increase researchers' willingness to rely on OGD. Interviews showed that many researchers feel safer using data when clear privacy measures are in place, whereas ambiguous or lax policies heighten concerns over potential abuse. Taken together, the findings from these interviews reveal a complex landscape where the promise of open government data is undermined by ongoing challenges in data quality, accessibility, and security. Addressing these challenges requires a multi-pronged approach: improving data management and documentation, standardizing formats, simplifying access, enhancing privacy protections, and involving researchers directly in the development and evaluation of open data policies.

4. CONCLUSION

This study examined the potential risks and challenges of open government data from the perspective of researchers who use government data portals. Interviews with five researchers revealed that while data openness can enhance transparency

and support better research and policy decisions, significant obstacles remain. Key concerns include inconsistent data quality, limited accessibility due to bureaucratic or technical barriers, and risks related to data security and privacy. Ensuring accurate, complete, and up-to-date data is essential to build trust and produce reliable research. Improving data accessibility through standardized formats and simpler procedures can enhance research efficiency. Stronger privacy protections, such as data anonymization and regular audits, are also needed to prevent misuse and maintain user confidence. However, as the findings are based on a small group of researchers, they may not fully represent all data users' experiences across different disciplines or regions. Broader studies involving more participants could provide deeper insights into the opportunities and challenges of open government data.

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