

## Challenges and Strategies in Building Public Information Openness

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### ABSTRACT

Despite the importance of information transparency, many institutions face underappreciated challenges when implementing transparent practices. This study seeks to systematically identify barriers to information openness and proposes actionable strategies to address them. This study utilizes a qualitative approach to uncover multifaceted public information challenges. The findings advocate for an integrated approach to overcoming these hurdles. Key recommendations include establishing adaptive data governance protocols aligned with evolving legal standards, adopting scalable technologies that prioritize both accessibility and security, and cultivating organizational cultures that reframe transparency as a shared responsibility rather than a risk. The study concludes that sustained transparency requires ongoing adaptation to technological advancements and societal expectations, positioning it not as a static goal but as a dynamic component of organizational resilience. Implications: By embracing these challenges, organizations can successfully navigate the complexities of information transparency and gain the advantages of enhanced stakeholders' relationships and informed decision-making.

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## INTRODUCTION

The disclosure of information holds significant importance due to its impact across various sectors and on different stakeholders. Within the economic sector, for instance, the transparency of information aids investors in evaluating a company's financial well-being and operational efficiency, thereby fostering investors' trust and attracting more investments (Bian, 2023). Moreover, this trust fosters reciprocal relationships within the community, particularly

when the motive behind information disclosure is transparent, consequently leading to increased investments and profits even in short-term relationships where reputations are yet to be established or well established (Taguchi & Kamijo, 2020). Information, whether positive or negative, regarding a company can notably impact its stock price (Guo, 2020).

In the realm of politics, research by Vorobyev (2022) on the electoral process reveals that varying rules concerning the disclosure of voters' actions can significantly sway the electorate and impact the likelihood of voting for the most popular candidate. Practically, the transparency of information for electorates with Internet access is crucial for improving transparency, promoting citizen involvement, and addressing low voter turnout (Tejedo-Romero, F., & Araujo, 2023). In terms of governance, effective disclosure of public information can mitigate policy rejection by ensuring that the society is knowledgeable and able to actively engage in the policy-making process (Fudin & Rahayu, 2019). For instance, a study in Cilegon underscores the importance of public information disclosure services in fostering good governance, despite challenges related to human resources and infrastructure (Maryam et al., 2022). From a global perspective, particularly in times of emergencies such as the COVID-19 outbreak, striking a balance between privacy and sharing of information is essential for effective relationship management and flexible governance. Hence, a wise distinction between private and public interests is crucial (Cai et al., 2023). Collectively, these instances highlight the importance of information transparency in advancing transparency, trust, informed decision-making, and public welfare across diverse domains.

However, the implementation and principles governing information transparency are yet to be fully optimized. For instance, the failure to provide accessible public information in the education sector in Kemerovo, Russia exemplifies how many institutions falter in delivering information and services, indicating a deficiency in meeting information disclosure obligations (Krasnoshlykova et al., 2018). Similar challenges are observed in the Czech Republic, where detailed information on local politicians and public procurement is notably scant, despite the widespread availability of city websites (Bachmann & Zubr, 2014). In Croatia, although the government has disseminated non-political information on a large scale, there remain legal and transparency standards that have yet to be met (Musa et al., 2015). Similarly, in Africa, the corruption, violations of human rights, and the absence of transparency and accountability persist in eroding the foundational principles of the Right to Information (Adu, 2018). In Asia, especially in Indonesia, the domains of risk management and public information security can be analyzed through the lenses of technological governance, procedural oversight, and human capital administration (Aprianto, 2021).

The shortcomings in information management during the Covid-19 pandemic resulted in decreased transparency, inconsistent information dissemination, and incomplete data, subsequently causing confusion among the public and hindering efforts to trace the virus's spread (Farizi & Harmawan, 2020). Likewise, within the education sector, certain universities exhibit limited information transparency, particularly in the intellectual domain, which adversely impacts their rankings (Pujiningsih & Utami, 2022). Moreover, even in the United States, the endeavor to delineate and uphold the concept of privacy within the public sphere,

both theoretically and practically, has been compromised by iterations of an argument pertaining to conflicting interests, which Nissenbaum (2020) refers to as the normative knock-down argument. These instances collectively underscore that while information transparency is crucial, existing practices still fall short, with failures in upholding transparency prevalent on both global and national scales.

Moreover, the existing body of literature frequently examines discrete facets of transparency, including but not limited to technical, cultural, or regulatory impediments, yet it is devoid of a holistic framework that synthesizes these various dimensions. Numerous scholarly investigations concentrate on particular industries or geographic locales, thereby constraining the applicability of their conclusions. For example, although research has scrutinized transparency within the public sector (Bauhr & Carlitz, 2021; Ferry & Midgley, 2024), there exists a significant deficiency of studies that investigate the interaction between cultural resistance and technical impediments in private enterprises. Furthermore, the current body of literature inadequately addresses the dynamic nature of data privacy concerns within the framework of open information (Li et al., 2023; Tang, 2024), especially considering recent technological progressions and instances of data breaches (Hamida & Landi, 2018; Lyeonov et al., 2023).

Advancement in information and communication technology makes the contemporary time an information age where we have access to more information than we can process and assimilate simultaneously. This creates opportunity for various actors to be ambiguous or hide important information from users, meaning more information but less transparency. Information tends to carry more economic and political power now than in any time in human history. The existence of national policies and regulations on information disclosure and international conventions on information transparency underscore the importance of transparency in information sharing (OECD, 2024; United Nations Commission on International Trade Law, 2014).

Therefore, this study seeks to investigate the barriers to information transparency globally. It aims to identify the challenges impeding optimal information transparency and propose strategies to enhance the effectiveness of public information disclosure.

## RESEARCH METHOD

The qualitative methodology employed in this study aims to delve into the barriers hindering the establishment of an open information environment and propose effective strategies to enhance public information disclosure. A scoping search method of Google Scholar and other websites for studies and conference papers with key words on information transparency, information transparency barriers, information disclosure challenges, data protection, information management, and information transparency strategies was conducted. Thousands of studies were generated for different combinations of the search criteria, but fifty-two among them that met the search criteria were included for review. In addition, for space, and time constraints, and to prevent redundancy, careful selections were made between studies that covered the same or very similar issues. The review was done to obtain an in-

depth understanding of the challenges and strategies for creating transparency within information environments. The review covers a period of the last ten years, which correspond with ten years of the United Nations' Mauritius Convention on Transparency. By synthesizing insights from existing literature, the research identified key challenges and effective strategies for enhancing information transparency. The analysis of the collected data follows a systematic process, including data condensation, depiction, and the identification of patterns or classifications (Creswell & Creswell, 2018).

## RESULTS AND DISCUSSION

In the realm of open information, addressing technical, cultural, and regulatory obstacles, is paramount to establish information openness. Moreover, challenges such as resource constraints, engagement, and the concerns of security, privacy, and confidentiality, pose further barriers in achieving transparency (Figure 1). More detailed examination of these challenges is presented in the subsequent section.

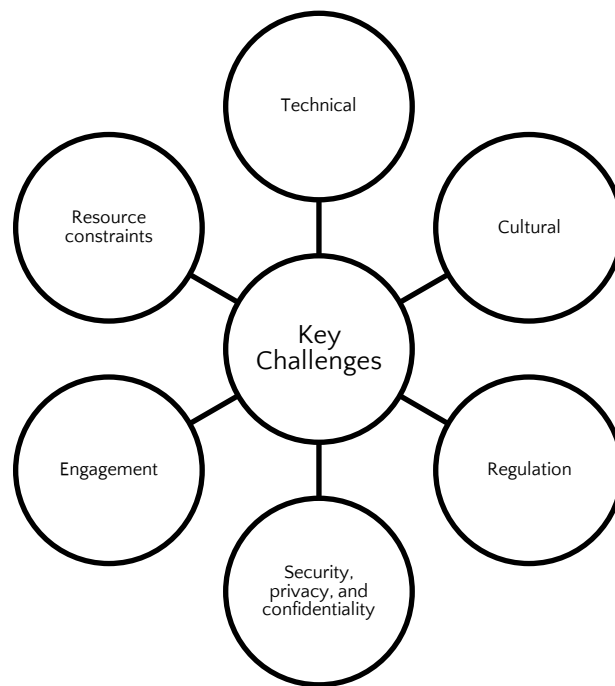


Figure 1 Key Challenges in Establishing Open Information

### Technical Challenges

Technical challenges in open data pose significant barriers that could impede the effective dissemination, utilization, and governance of information. These challenges stem from a variety of factors, including disparities in data formats, issues related to data quality, concerns regarding scalability, difficulties in achieving interoperability, and the need for a strong technical base. An important issue is the amalgamation of data from different databases, where discrepancies in formats, units, and terminologies may obstruct data integration and analysis, thereby hindering the seamless flow of knowledge and insights (Barry & Bannister, 2014; Brayne et al., 2022). Moreover, managing substantial amounts of data from

multiple origins requires sophisticated tools and methods, which can be resource-intensive and complex (Lee et al., 2019).

Ensuring the quality and integrity of data presents another considerable challenge, given the varying levels of precision, completeness, and dependability among different sources that can impact the overall quality of managed information (Lee et al., 2019; Verma & Gupta, 2015). The absence of standardized formats and interoperability issues exacerbate the difficulties in efficiently sharing and utilizing open data. Various software and systems employ different approaches to handling data, making achieving genuine interoperability a challenging endeavor (Jannah et al., 2020; Lee et al., 2019; Rossi & Lenzini, 2020). Additionally, the lack of universally acknowledged standards for data exchange leads to inconsistencies, errors, and challenges in guaranteeing consistent protocols and formats among all stakeholders involved (Lee et al., 2019).

Scalability also presents a technical hurdle, as systems for managing open information must be able to accommodate increasing data volumes without compromising performance, necessitating continuous investment in new technologies and skills development to keep up with rapid technological progress (Boué et al., 2018; Lee et al., 2019). Moreover, standardizing and ensuring interoperability of data across various sectors is crucial for enhancing data accessibility and reusability (Dulong de Rosnay & Janssen, 2014; Hofman & Rajagopal, 2014).

The implementation of open data policies often requires advanced technology and expertise, leading to difficulties related to the adoption and maintenance of information management systems, ensuring data security, and providing access to information for all members of society (Toni, 2017; Verma & Gupta, 2015). Particularly, smaller enterprises may encounter challenges due to the absence of essential technological infrastructure and expertise for efficient data management and sharing, which could inhibit their participation in open data initiatives (Sayogo et al., 2014; Verma & Gupta, 2015).

The technical challenges related to managing open information necessitate collaborative endeavors to enhance interoperability, data quality, scalability, and technical infrastructure. By overcoming these challenges, organizations could realize the complete benefits of open information and facilitate the seamless exchange of information for informed decision-making and policy formulation.

### **Cultural Challenges**

The challenge organizations and government institutions face in promoting transparency and accountability in data sharing through open information initiatives is significant due to cultural barriers. Stakeholders' lack of trust and transparency results in scepticism and resistance towards data sharing efforts (Hamida & Landi, 2018; Hansen & Pang, 2023). This lack of trust also affects government agencies and private companies, making it harder to implement open information practices.

Cultural resistance within organizations, as noted by Lyeonov et al. (2023) and Hamida and Landi (2018), hinders the adoption of open information policies. Operational changes may be met with resistance from employees and management, who fear the consequences of

increased transparency, thus impeding progress towards a more open data ecosystem. Similarly, resistance to change within government institutions can be attributed to officials' attachment to traditional information handling methods, making the transition to open information management practices challenging (Hanida et al., 2019; Verma & Gupta, 2015). Additionally, cultural and institutional resistance within public bodies also hampers efforts to enhance transparency and accountability (Jaakkola et al., 2014; Jetzek, 2016; Toni, 2017). Furthermore, the misconception that specific departments or officers are solely responsible for public information openness complicates the collective responsibility needed for effective governance and data sharing (Dulong de Rosnay & Janssen, 2014). Policy and cultural barriers, such as closed government culture and privacy legislation, further impede the dissemination of governmental data in accessible formats, making it difficult for agencies to embrace new governance paradigms (Hartog et al., 2014; Huang et al., 2020; Verma & Gupta, 2015).

Variations in information culture among researchers and archivists, as highlighted by Borgerud and Borglund (2020), can lead to inefficiencies in managing research data, underscoring the importance of aligning practices in data sharing initiatives. Moreover, concerns about data misuse by external parties add another layer of complexity to data sharing initiatives, with companies worrying about potential harm to their reputation and operations (Dulong de Rosnay & Janssen, 2014; Hansen & Pang, 2023). Perceptions of unfair competition between open data and private data providers, as observed by Dulong de Rosnay and Janssen (2014), can also fuel resistance in sharing public information.

The cultural challenges in conducting open information practices indicate a collaborative approach to surmount resistance, cultivate a culture of openness and trust, and encourage accountability among stakeholders. By acknowledging and tackling these obstacles, organizations and government institutions can create a path for a more transparent and efficient information sharing ecosystem that benefits society at large.

### **Regulation Challenges**

The regulation challenges in open information present a complex landscape that requires careful navigation to ensure transparency and accountability while promoting data openness. Various legal and regulatory issues, as highlighted by Hanida et al. (2019), create potential conflicts and ambiguities due to the application of different laws at different government levels. These challenges can hinder the seamless sharing of data and information across sectors and regions. The principles of accountability and oversight are integral to effective implementation of open information policies (Hanida et al., 2019; S. Li & Chen, 2021; Sayogo et al., 2014).

However, establishing effective mechanisms for monitoring and evaluating compliance with these policies can be challenging. Without robust oversight mechanisms, ensuring transparency and accountability in data sharing practices becomes difficult. Ethical and legal considerations, as pointed out by Borgerud and Borglund (2020), add another layer of complexity to open data initiatives. Addressing ethical concerns when using research data

collected by other researchers can complicate the process of making data openly accessible (Hartog et al., 2014; Sayogo et al., 2014; Verma & Gupta, 2015). These considerations must be carefully managed to maintain the integrity and credibility of open data practices.

The lack of clear and robust information policies, as highlighted by Sayogo et al. (2014), can hinder companies' willingness to disclose data. Companies require assurance that their data will be handled securely and appropriately, and without strong policies in place, there is a risk of misuse or misinterpretation of data (Hartog et al., 2014; Hogan et al., 2017; Verma & Gupta, 2015). This lack of policy clarity can deter companies from participating in open data initiatives.

The legal and regulatory compliance challenges faced by businesses, as discussed by Lyeonov et al. (2023), highlight the complexity of navigating regulations related to data sharing and transparency. Varying legal requirements across regions and industries make it challenging for companies to maintain compliance while promoting openness (Lee et al., 2019). These regulatory hurdles can discourage companies from openly sharing data due to the resource-intensive nature of compliance efforts.

The regulation challenges in open information underscore the need for clear, harmonized legal frameworks, robust oversight mechanisms, and ethical considerations to ensure transparency, accountability, and compliance with data sharing practices. Addressing these obstacles will require collaborative efforts from policymakers, researchers, and industry stakeholders to foster open information initiatives effectively.

### **Security, Privacy, and Confidentiality Issues in Open Information**

The reviewed studies shed light on the significant security hurdles associated with open information, particularly concerning data privacy, confidentiality, and security. Issues surrounding data privacy have heightened due to the exploitation of personal data by corporations like Facebook and privacy violations by government bodies such as the National Security Agency, causing individuals to hesitate in openly sharing information (Hamida & Landi, 2018). The management of open information involves the dissemination of data across different platforms and stakeholders, which brings about risks related to data security and privacy (Hartog et al., 2014; Sayogo et al., 2014; Verma & Gupta, 2015). The importance of robust security protocols in open information practices is emphasized by the potentially severe outcomes of unauthorized access or data breaches (Lee et al., 2019).

Organizations are tasked with protecting sensitive information while engaging in open information practices. Privacy, confidentiality, and security are essential exemptions to disclosure that companies need to adhere to. It is crucial to ensure that shared data does not compromise individuals' privacy, disclose confidential business information, or pose security risks in order to maintain trust and protect sensitive data (Jetzek, 2016; Sayogo et al., 2014). Balancing transparency with protecting personal and proprietary information presents a significant challenge in the implementation of open information (Verma & Gupta, 2015). Businesses must navigate carefully between openly sharing information and safeguarding sensitive data from unauthorized access and misuse (Lyeonov et al., 2023).

The challenge faced by public entities lies in managing information classified as state secrets while striving for transparency. The absence of clear guidelines on balancing transparency with the protection of sensitive information complicates the effective implementation of open information policies, creating obstacles for public institutions (Hansen & Pang, 2023; Jaakkola et al., 2014; Toni, 2017). Moreover, ensuring the security of shared data poses a critical challenge for companies engaged in open information practices.

The increased threat of cyber-attacks as well as data breaches can result in negative financial and reputational repercussions, highlighting the necessity for robust cybersecurity measures in open information initiatives (Lyeonov et al., 2023). Attaining the right equilibrium between transparency and confidentiality is a daunting task for businesses, necessitating them to carefully navigate the fine line between openly sharing information without compromising strategic interests or breaching legal obligations (Moses & De Koker, 2018; Sayogo et al., 2014). This delicate balance requires thoughtful consideration of what information can be openly disclosed to promote transparency while safeguarding sensitive data (Charalabidis et al., 2018; Lyeonov et al., 2023).

The security challenges in open information are complex and require a holistic approach that gives priority to data privacy, confidentiality, and security. Dealing with these challenges entails implementing robust security measures, clear directives, and a delicate balance between transparency and confidentiality to build trust and safeguard sensitive information in the digital era. Furthermore, with technology advancing rapidly, companies must remain alert to new cyber threats and consistently enhance their security procedures to keep up with the evolving data protection environment.

### **Engagement Challenges**

Engagement challenges in open information encompass various complexities that impact the effectiveness of transparency initiatives. Coordination and collaboration among government agencies are essential for seamless information sharing. However, differing priorities, bureaucratic obstacles, and communication deficiencies can impede these efforts. The presence of silos within government entities can hinder the flow of information, leading to inconsistencies and delays in data sharing (Hanida et al., 2019). Additionally, the readiness and willingness of public entities to open their data can vary, resulting in inconsistencies and coordination issues (Hogan et al., 2017; Moses & De Koker, 2018; Sayogo et al., 2014).

Community engagement is crucial for the success of open information practices. However, citizens' lack of awareness regarding their rights to access information and skepticism about the government's transparency can pose significant barriers (Moses & De Koker, 2018; Sayogo et al., 2014). Building trust with stakeholders is paramount for fostering successful open information practices. Skepticism about motives behind transparency efforts or past instances of misinformation and data breaches can erode trust, making engagement challenging (Hartog et al., 2014; Lyeonov et al., 2023). Challenges may arise in ensuring that



individuals are informed about their rights to access information and are equipped with the knowledge to exercise these rights effectively (Toni, 2017).

Addressing engagement challenges in open information involves taking proactive steps to improve coordination, establish trust with stakeholders, increase public awareness, and reduce financial obstacles to accessing and sharing information. It is essential to overcome these obstacles to promote openness, responsibility, and diversity in open information endeavours. Consequently, cooperative efforts involving government bodies, scholars, societies, and stakeholders are essential for addressing these obstacles and fostering an atmosphere of openness and confidence in the information age.

### **Resource Constraints**

Implementing data sharing initiatives may result in high costs, involving investments in new technologies, staff training, and continuous maintenance to guarantee data security and adherence (Hansen & Pang, 2023). This financial burden creates a significant obstacle for local governments with constrained budgets and resources, impeding their capability to effectively execute open information policies (Hanida et al., 2019; Hartog et al., 2014; Sayogo et al., 2014). Likewise, numerous organizations, particularly non-profits and smaller establishments, lack the essential resources and infrastructure to oversee and distribute data openly, restricting their involvement in open information endeavors (Hamida & Landi, 2018; Verma & Gupta, 2015).

Particularly, public bodies encounter resource constraints, including limited financial, human, and technical resources, which impede their capacity to manage and disclose public information in a timely and accurate manner (Dulong de Rosnay & Janssen, 2014; Hartog et al., 2014; Toni, 2017). Managing big research data, electronic journals, digital tools, and digital libraries requires advanced technological infrastructure and skills that may not be readily available to all researchers or institutions (Charalabidis et al., 2018; Hogan et al., 2017; Steinerová, 2019).

The establishment of systems and procedures to guarantee transparency of information may require substantial financial resources, which are essential for investing in technology, training, and upkeep to maintain the accuracy, currency, and security of data (Lyeonov et al., 2023). A major challenge in enabling open information is the absence of coordination and resources among stakeholders, hindering the effective implementation of open access policies (Borgerud & Borglund, 2020). Additionally, there is a notable scarcity of infrastructure to assist with storing and organizing open data, including persistent need platforms for researchers to archive their material over time (Borgerud & Borglund, 2020; Verma & Gupta, 2015).

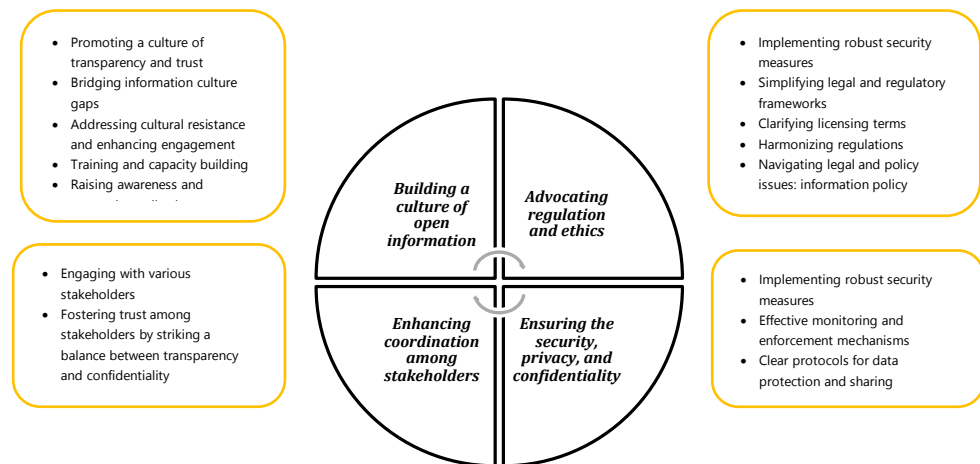
Globally, government agencies face significant resource constraints, including inadequate and inappropriate resources for implementing open data initiatives, which hampers the generation of high-quality data consistently (Verma & Gupta, 2015). Implementing and maintaining open information management systems can be financially burdensome, requiring substantial investments in technology, infrastructure, and human resources, acting as a barrier for many organizations (Lee et al., 2019).

In general, there is a critical shortage of skilled personnel capable of converting existing data into open formats, preparing metadata, and publishing it in the open domain, posing a major concern for government agencies (Verma & Gupta, 2015). The enhancement of competencies among government employees is essential to enable them in recognizing significant datasets and publish them openly, as many officials lack the requisite skills and knowledge for managing open data initiatives effectively (Hartog et al., 2014; Jaakkola et al., 2014; Verma & Gupta, 2015).

Resource constraints present significant challenges in conducting open information efforts. The lack of financial, human, and technical resources hinders organizations, governments, and researchers from fully participating in open data practices. Addressing these constraints requires collaborative efforts, capacity building, and strategic investments to promote transparency, accountability, and inclusivity in open information management.

### Strategy in Building Open Information Environment

From the literature, numerous attempts have been made to address challenges in enhancing information transparency among different sectors and parties, such as fostering a culture of openness, advocating for regulation and ethics, and guaranteeing the security, privacy, and confidentiality of open information (Figure 2). A more in-depth analysis of these strategies is provided in the following section.



**Figure 2 Strategy in Creating Open Information Environment**

Encouraging a change in organizational culture to prioritize and implement open information policies can be achieved by establishing trust, providing education and training, and showcasing the advantages of open information. Fostering a culture of transparency and trust enables organizations to address resistance and establish an environment that values and embraces open information practices (Charalabidis et al., 2018; Hartog et al., 2014). The establishment of trust and transparency constitute a fundamental components in advancing open information practices, as both government agencies and private companies must increase their openness regarding their data procedures to foster public trust and promote data sharing (Hamida & Landi, 2018; Hanida et al., 2019).

Studies in academic context found that improved communication and understanding between researchers and archivists may aid in bridging the gaps in information culture, resulting in enhanced data management and archiving efficiency (Borgerud & Borglund, 2020; Verma & Gupta, 2015). By nurturing trust and cooperation among various stakeholders involved in information management, it is feasible to enhance information sharing practices and guarantee the successful preservation and dissemination of valuable information (Charalabidis et al., 2018; Hartog et al., 2014; Verma & Gupta, 2015).

To overcome resistance within organizations, one can establish a culture of transparency by engaging in regular communication, providing training programs, and involving employees in decision-making processes (Lyeonov et al., 2023). Organizations have the capacity to nurture trust and facilitate acceptance of open information practices through addressing cultural hindrances and fostering transparent communication, thereby building a more collaborative and inclusive work environment (Charalabidis et al., 2018; Hartog et al., 2014; Verma & Gupta, 2015). Therefore, encouraging the active involvement of the community in promoting public information openness can foster trust and public participation, ultimately ensuring the accessibility and transparency of public information (Hanida et al., 2019; Hogan et al., 2017).

Offering education and training opportunities to researchers, university staff, and information professionals is essential to equip them with the required skills for effectively managing open access policies (Borgerud & Borglund, 2020; Wirtz et al., 2016). Through the provision of instruction on data management practices, ethical considerations, and new digital tools, organizations can enhance their capability to navigate the intricacies of open science initiatives and ensure the successful execution of open information practices (Hogan et al., 2017; Nikiforova & Zuiderwijk, 2022; Verma & Gupta, 2015).

Educating stakeholders on the advantages of open data and promoting critical information literacy can alter perceptions and cultivate a culture of openness and collaboration (Dulong de Rosnay & Janssen, 2014). Additionally, supporting the merits of open data inspires organizations to engage in transparent information projects, resulting in increased transparency, creativity, and economic growth (Charalabidis et al., 2018). Hence, fostering a sense of shared responsibility among all government entities can establish a more unified and efficient approach to public information openness, ensuring that transparency is esteemed and prioritized in all sectors (Charalabidis et al., 2018; Hanida et al., 2019; Hartog et al., 2014).

Establishing an open information culture demands a holistic strategy that underscores the significance of fostering transparency, trust, communication, and collaboration among stakeholders. Managing cultural opposition, boosting participation, providing training and capacity enhancement, and increasing awareness of the benefits of open information can help organizations in setting up an ecosystem that respects open information practices, contributing to enhanced transparency, accountability, and public trust.

Advocating for regulation and ethics of open information. Simplifying and harmonizing the legal and regulatory frameworks concerning public information openness is crucial for reducing confusion and ensuring uniformity in government institutions' obligations and responsibilities (Hanida et al., 2019; Hartog et al., 2014; Nikiforova & Zuiderwijk, 2022).

Moreover, offering clear guidance on compliance can aid companies in navigating the intricate landscape of data disclosure (Hogan et al., 2017; Sayogo et al., 2014; Toni, 2017). Streamlining these frameworks enables public bodies to navigate compliance requirements more effectively, thus promoting transparency and accountability in data disclosure practices (Charalabidis et al., 2018).

To overcome licensing restrictions, it is imperative to clearly define the terms of use in licenses, explicitly permitting legitimate uses like abridgement, translation, and visualization (Dulong de Rosnay & Janssen, 2014; Putra & Kadir, 2020; Toni, 2017). Consequently, organizations can facilitate the lawful dissemination and utilization of data, fostering a culture of open information sharing and innovation by providing clarity on licensing terms.

Different sectors operate under distinct laws and policies, necessitating the harmonization of regulations to establish a unified approach to opening data across various public sectors (Dulong de Rosnay & Janssen, 2014; Gascó-Hernández et al., 2018). The government should streamline data sharing processes and promote cross-sector collaboration, ultimately enhancing the accessibility and interoperability of information through aligning regulations (Zuiderwijk et al., 2014).

Offering guidance and support to researchers in comprehending and adhering to complex legislative and policy landscapes can facilitate their navigation of regulatory frameworks, enabling them to focus on their research endeavours (Noveck, 2017; Steinerová, 2019). Institutions can guarantee compliance with legal requirements and ethical standards, as well as foster a culture of responsible data sharing, by offering researchers the essential resources and support.

Implementing policy reforms that support open data initiatives, such as revising privacy legislation and addressing security concerns, can help overcome policy and cultural barriers hindering the dissemination of government information in accessible formats (Verma & Gupta, 2015). Consequently, the government can foster a conducive environment for transparent data sharing practices by adapting existing policies to align with the principles of open information (Zuiderwijk et al., 2014).

Formulating clear and robust information policies is critical to ensuring secure and appropriate data handling practices (Hartog et al., 2014; Sayogo et al., 2014; Zuiderwijk et al., 2014). Partnerships between governmental bodies and industry associations could lead to the creation of standards that build confidence within companies to share their data without the worry of exploitation or misinterpretation, thereby fostering a climate of transparency and responsibility (Gascó-Hernández et al., 2018; Saxena & Muhammad, 2018).

It is necessary for organizations to stay informed on the legal and regulatory requirements for data management across various regions and sectors in order to ensure compliance and minimize/mitigate legal risks (Lee et al., 2019). By keeping up-to-date and complying with the relevant regulations, businesses can effectively navigate the intricate regulatory environment, encouraging responsible data sharing practices (Dulong de Rosnay & Janssen, 2014; Li et al., 2021). Hence, the government assumes an essential role in offering

resources and assistance to improve companies' comprehension of regulatory responsibilities, thereby encouraging open data sharing practices and minimizing legal risks.

Establishing guidelines and best practices for addressing ethical and legal challenges related to open research data is vital for ensuring responsible data sharing practices (Borgerud & Borglund, 2020; Lee et al., 2019). By developing frameworks that promote ethical data handling and compliance with regulations (Aprianto, 2021; Lyeonov et al., 2023), researchers can engage in open data initiatives confidently, contributing to the advancement of knowledge and innovation.

In conclusion, promoting regulation and ethics in open information necessitates collaborative efforts to simplify legal frameworks, clarify licensing terms, harmonize regulations, navigate legislative and policy issues, ensure regulatory compliance, develop information policies, address ethical concerns, implement policy reforms, ensure legal compliance, and establish monitoring mechanisms. By prioritizing transparency, accountability, and responsible data sharing practices, organizations and governments can create a conducive environment for open information initiatives, fostering innovation, trust, and societal progress.

Ensuring the security, privacy, and confidentiality of publicly available information is crucial for upholding the integrity of data sharing protocols and protecting sensitive data from unauthorized breaches and access. Employing resilient security measures, including data encryption, access management, and routine security evaluations, serves to safeguard data against cyber threats and uphold confidentiality (Lee et al., 2019). Engaging in comprehensive cybersecurity measures, such as firewalls and intrusion detection systems, is crucial to strengthen defences against possible breaches and maintain the security of open information practices (Lyeonov et al., 2023).

Effective monitoring and enforcement mechanisms are indispensable for ensuring compliance with open information laws and holding public bodies accountable for their data disclosure practices (Toni, 2017). By establishing robust oversight mechanisms, governments can uphold transparency standards, evaluate compliance, and address any discrepancies promptly, fostering a culture of accountability and integrity in data sharing practices (Neylon, 2017).

Organizations can address privacy and security concerns by anonymizing data, utilizing encryption techniques, and establishing clear guidelines on data sharing to protect sensitive information while facilitating data exchange (Sayogo et al., 2014; Zuiderwijk et al., 2014). By anonymizing information and applying encryption, organizations can ensure that valuable data remains secure and private, fostering trust among stakeholders (Moses & De Koker, 2018; Verma & Gupta, 2015). Clear protocols for data protection can mitigate privacy risks and enhance transparency in data sharing practices.

Balancing transparency with confidentiality requires public bodies to establish clear guidelines and protocols for handling state secrets and sensitive information (Toni, 2017). By defining frameworks that delineate the boundaries between transparency and confidentiality, organizations can ensure that open information policies are implemented effectively while safeguarding confidential data. Balancing the crucial elements of transparency and

confidentiality is vital to preserve trust and uphold legal responsibilities (Lyeonov et al., 2023; Moses & De Koker, 2018).

Enhancing data privacy protections involves implementing comprehensive information security protocols, ensuring compliance with privacy laws, and transparently communicating how personal data is utilized and safeguarded (Hamida & Landi, 2018; Saxena & Muhammad, 2018). Organizations can alleviate public concerns, promote open data practices, and foster trust among data subjects by prioritizing data privacy and compliance (Moses & De Koker, 2018). Transparent communication regarding data handling practices is key to building confidence and ensuring responsible data management.

To address privacy concerns, businesses can enhance privacy measures by implementing stringent data protection policies and utilizing advanced encryption techniques to safeguard sensitive information (Lyeonov et al., 2023; Noveck, 2017). Therefore, organizations could have the ability to limit access to confidential information, ensuring allowing only approved individuals to access and use sensitive data through the implementation of strong data protection measures and encryption technologies.

Therefore, organizations could have the ability to limit access to confidential information, allowing only approved individuals to access and utilize sensitive data by implementing strong data protection methods and encryption technologies. Finally, addressing security, privacy, and confidentiality concerns in open information necessitates the implementation of robust security measures, clear guidelines on data sharing, and a delicate balance between transparency and confidentiality. By prioritizing data protection, compliance with privacy laws, and transparent communication, organizations can foster trust, uphold privacy rights, and promote responsible data sharing practices in the digital age.

### **Enhancing Coordination Among Stakeholders of Open Information**

The effective collaboration and coordination among stakeholders in open information initiatives is essential for promoting transparency, accountability, and collaboration across various sectors. By establishing mechanisms for better collaboration, coordination and communication among government agencies, the challenges arising from differing priorities and bureaucratic hurdles can be addressed, facilitating the sharing and management of public information (Hanida et al., 2019; Sayogo et al., 2014). This initiative can also streamline processes, ensure alignment in objectives, and enhance the efficiency of data sharing practices, ultimately leading to improved transparency and accessibility of information (Moses & De Koker, 2018).

Improving collaboration and coordination among different public entities is crucial in ensuring a cohesive approach to open data practices. Establishing a central body or task force can help synchronize efforts, ensuring that all entities are aligned in their commitment to open data initiatives (Dulong de Rosnay & Janssen, 2014; Moses & De Koker, 2018). Promoting a collaborative environment and promoting information sharing among stakeholders can facilitate the harmonization of data standards and terminologies by the central body, leading to a more unified and coherent approach to open science practices (Noveck, 2017).

Fostering interdisciplinary cooperation is paramount in bridging the gaps between different fields and promoting collaboration (Dulong de Rosnay & Janssen, 2014; Hogan et al., 2017). By encouraging the creation of common standards and terminologies, stakeholders can work together more effectively, share insights, and leverage diverse expertise to advance open science initiatives (Steinerová, 2019). This interdisciplinary cooperation can enhance the quality of research outputs, facilitate knowledge exchange, and promote innovation through cross-disciplinary collaborations (Charalabidis et al., 2018; Zuiderwijk et al., 2014).

In order to overcome the challenge of coordination and resource allocation in open access projects, it is imperative for universities and public authorities to collaborate closely and assign sufficient resources to support these endeavors (Borgerud & Borglund, 2020). Through this cooperation, stakeholders can ensure that all parties understand their roles and responsibilities, streamline processes, and enhance the accessibility of information (Charalabidis et al., 2018). This joint effort can result in the successful implementation of open access policies, ultimately benefiting researchers, institutions, and the wider academic community.

Engaging with multiple stakeholders, such as civil society, development communities, journalists, researchers, and scientists, is key for gathering valuable feedback and backing for open data projects (Hogan et al., 2017; Verma & Gupta, 2015). Through relationships with numerous stakeholders, organizations can advance the quality and accessibility of open information, and nurture a culture of transparency and inclusivity (Elena et al., 2015). Consequently, this participation might contribute to the unveiling of optimal approaches, the establishment of inventive solutions, and the improvement of data-driven decision-making processes.

To mitigate the risk of competitive disadvantage, businesses can strategically decide what information to share, focusing on transparency that builds trust with stakeholders while safeguarding critical competitive insights (Lyeonov et al., 2023). Organizations can protect proprietary information, maintain a competitive edge, and foster trust among stakeholders by striking a balance between transparency and confidentiality (Elena et al., 2015; Hogan et al., 2017). This strategic approach to information sharing can promote collaboration, innovation, and sustainable growth in the business environment.

Therefore, enhancing coordination among stakeholders of open information is crucial for promoting transparency, accountability, and collaboration across diverse sectors. By establishing mechanisms for better communication, fostering interdisciplinary cooperation, improving coordination and resources, collaborating with stakeholders, and mitigating competitive disadvantages, organizations can create a conducive environment for open data initiatives, ultimately benefiting society at large.

## CONCLUSION

The identified challenges in establishing open information, such as technical, cultural, and regulatory obstacles, underscore the complexities associated with achieving optimal open information. This research endeavors to enhance the theoretical construct of information

transparency through the integration of technical, cultural, and regulatory dimensions into a cohesive framework. Prior academic discourse has frequently examined these dimensions in a fragmented manner, this study provides a comprehensive understanding of the complexities involved in achieving transparency, thereby enhancing the theoretical discourse related to organizational transparency.

Practically, this study provides guidance on dealing with these challenges necessitates a comprehensive approach that emphasizes improving data accessibility, interoperability, and security, bridging gaps in information culture, and effectively navigating regulatory frameworks. Moreover, nurturing a culture of openness, trust, and teamwork among stakeholders is essential in advancing transparent information practices that benefit society. Strategies to cultivate an open information environment comprise promoting transparency and trust, bridging gaps in information culture, tackling cultural barriers, enhancing engagement, providing training and capacity building, and increasing awareness among stakeholders.

Through the application of these approaches, businesses can create a climate of receptiveness and teamwork that supports the streamlined spread and application of data. Furthermore, promoting regulation and ethics in open information involves simplifying legal frameworks, clarifying licensing terms, harmonizing regulations, navigating legislative and policy issues, ensuring regulatory compliance, developing information policies, addressing ethical concerns, implementing policy reforms, ensuring legal compliance, and establishing monitoring mechanisms. By prioritizing transparency, accountability, and responsible data sharing practices, organizations can create a conducive environment for open information initiatives that foster innovation, trust, and societal progress.

In conclusion, it is recommended that organizations explore and execute strategies that are customized to their specific situations and requirements. A universal approach may prove ineffective in tackling the distinct hurdles encountered by various organizations in surmounting the obstacles in achieving transparency of information. This necessitates cooperative endeavors, deliberate planning, and a dedication to fostering transparency, trust, and answerability. By addressing technical, cultural, regulatory, security, privacy, confidentiality, engagement, and resource constraints, organizations can forge the path towards a more transparent and inclusive information sharing ecosystem that benefits stakeholders across various sectors.

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