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Empowering fiscal reporting with digital and interactive approaches

Fiscal reports published by governments are often criticized for not meeting the needs of users. Digital and interactive fiscal reporting approaches are an opportunity to address this criticism.

This paper examines features of digital and interactive platforms developed by selected countries for fiscal reporting and discusses opportunities for the integration of more datasets and explores the use of Artificial Intelligence. It notes that digital and interactive fiscal reporting is currently at a crossroad between an advanced form of open-data and a tool for better public communication on fiscal issues. Delegates to the Committee of Senior Budget Officials are invited to approve this report for publication. Please provide any comments by 22 July 2024.

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Abstract

This paper takes stock of the practices with fiscal platforms developed in many OECD countries to communicate government fiscal data and information. These fiscal platforms enable “rationalized fiscal reporting”, which involves i) using digital channels to allow parliamentarians and citizens to access comprehensive data, structure their own queries rather than only read data the way governments want them to, and delve into the detail of data based on their needs; and ii) communicating data in a way that is tailored to key users’ groups and uses effective approaches, including clear language and visual stories. The first part of this paper identifies the objectives of governments for their fiscal platforms, as well as these platforms’ key features. The second part outlines opportunities and challenges for making fiscal platforms more powerful, including by harnessing artificial intelligence and improving communication approaches. It concludes with a suggestion to bring fiscal platforms more clearly into the orbit of fiscal reporting, of which it is a modern, digitalized and interactive form.

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1 Introduction[1]

1. Traditionally, fiscal reports have served as a ledger, detailing the inflows and outflows of public funds. Later, governments started integrating management and performance information into fiscal reports. Most recently, governments started including climate, gender, and sustainability information in fiscal reports. Today, fiscal reporting needs to evolve further and go beyond demonstrating transparency on government spending and policy achievements: it should become a tool for empowering public understanding of key fiscal issues, fostering scrutiny and dialogue, and promoting trusted fiscal information.

2. Such an evolution is essential to support informed and inclusive discourse on fiscal challenges, opportunities, and choices, but this is also where the challenge lies. Fiscal reports must cater to a wide spectrum of users who vary greatly in their requirements and expertise, while conveying comprehensive, consistent, and reliable fiscal information to all of them. From policy analysts, economists, and public finance experts to the general public, each group has different informational needs and levels of financial literacy. In particular, fiscal reports laden with technical terms and complex tables can be a barrier to understanding for the non-expert.

3. This can lead to a disconnect between fiscal realities and the perception of them by some users, undermining the very essence of fiscal transparency. For instance, a recent Financial Times article highlighted the phenomenon of “number numbness” in the context of fiscal events. This term refers to the difficulty that the public often faces in grasping the meaning of exceptionally large financial figures. The problem is not figures themselves, but how they're presented, without adequate context or scaling. This means that, when confronted with fiscal announcements and reports, “the only thing most people hear on such occasions is “big number, big number, big number, big number”” (O’Connor, 2023[1]).

4. Governments are increasingly recognizing that the effectiveness of fiscal reporting is significantly diminished if the information provided is not customized to its intended audience. They have explored different ways to address this issue, including publication of i) “citizens” or “parliamentary” versions of budget and public accounts and ii) open fiscal data (in open licence and machine-readable format). More recently, governments have developed fiscal platforms that make both fiscal data and fiscal information available to the public.2 On these platforms, data is combined with business intelligence (BI) software to offer users an experience evolving towards data analytics. Fiscal platforms are available already in around three-quarters of OECD countries (Figure 1.1).

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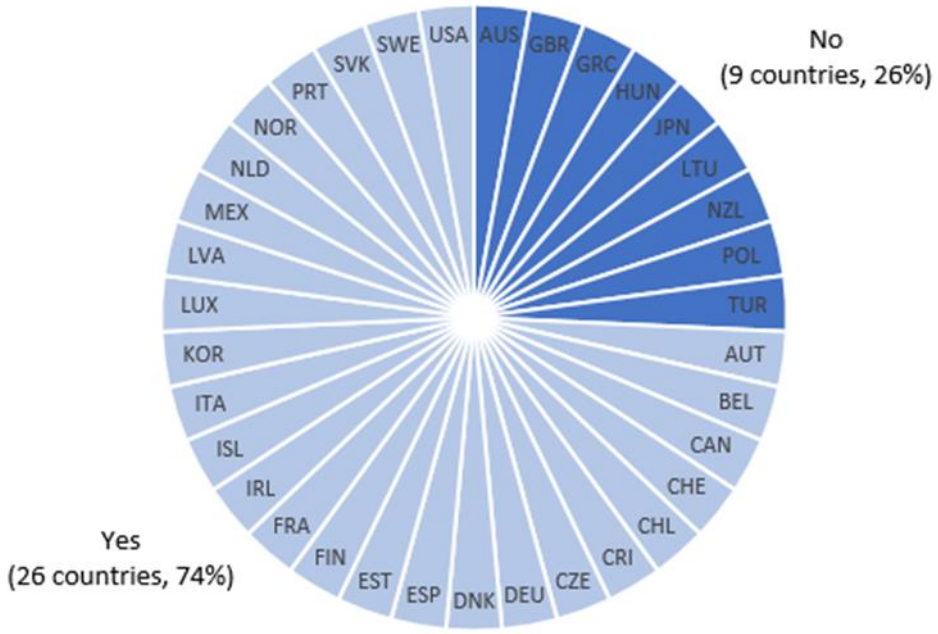
[1] This working paper was authored by Delphine Moretti, Senior Policy Analyst in the same Division. Section 4.2 was co-authored with Nicolas Botton, OECD Consultant. Arron Rabbite, former Intern in in the Public Management and Budgeting division as part of the Allen Schick OECD Internship, prepared the case studies underpinning this working paper.

[2] Fiscal data refers to unprocessed numbers and figures related to the government's financial operations. Fiscal information includes description, analysis or interpretation of fiscal data.

Figure 1.1. Use of fiscal platforms in OECD countries



Note: Approaches to digital and interactive fiscal reporting vary across OECD countries. Data for Colombia, Israel and Slovenia are not available.
Source: Authors' analysis, based on own research and analysis of weblinks for digital financial reporting provided in question 34 of the 2022 OECD Financial Management and Reporting Survey.

5. The spread of fiscal platforms in OECD countries is an important development, not only because such platforms are already recognised as an important component of a country's fiscal transparency (GIFT, 2019[2]) but also because they provide an opportunity for governments to develop "rationalized" fiscal reporting frameworks, characterised by the OECD (Box 1.1) as frameworks that:

- Use digital channels to allow parliamentarians and citizens to access comprehensive data, structure their own queries rather than only read data the way governments want them to, and delve into the detail of data based on their needs.
- Communicate data in a way that is tailored to key users' groups using effective approaches, including clear language and visual stories.

6. Furthermore, fiscal platforms could help bring government fiscal reporting frameworks closer to key principles of digital government – that is, becoming i) "digital by design" (OECD, 2021[3]), in that data and technology would be leveraged to rethink fiscal reporting processes and communication channels; and ii) "user centric", as defined in the OECD Digital Government Policy Framework (OECD, 2020[4]), in that user-oriented design and delivery focus would be become key objectives of fiscal reporting.

7. Against this background, the purpose of this paper is to explore i) government objectives for their fiscal platforms and features of these platforms, based on case studies of selected OECD countries (Section 2), and ii) opportunities and challenges for making fiscal platforms more powerful, including by harnessing the power of artificial intelligence (AI) and improving communication approaches (Section 3). It concludes with a suggestion to bring fiscal platforms more clearly into the orbit of fiscal reporting, of which it is a modern, digitalized and interactive form.

Box 1.1. Key considerations for rationalizing fiscal reporting

1. **Ensuring consistency**
   - Presentation of fiscal reports (forecasts, budgets, and accounts) should be consistent or bridging tables should be systematically provided.
   - Financial and non-financial data, including performance data on gender equality, climate action or sustainable development goals, should be brought together into unified fiscal reports.
2. **Enhancing amenability**
   - Fiscal reports should present financial and non-financial data in a multi-faceted way suited to users' main needs (consolidated/aggregated format and entity-level format; classification by type, administration or programme; etc).
   - Digital channels should be used to allow parliamentarians and citizens to:
     - access comprehensive data.
     - structure their own queries rather than only read data the way governments want them to.
     - delve into the detail of data based on their needs.
3. **Effectively communicating**
   - Communication of data should be tailored to key users' groups using effective approaches, including clear language and visual stories.
   - Analysis and interpretation of complex and technical government financial information should be available to users, including those produced by independent fiscal institutions.
4. **Building trust**
   - Forecasts, budget plans, performance information and accounts should be subject to independent review, audit or scrutiny to ensure their integrity.
   - Government should make available a mix of in-year provisional fiscal data for timeliness and year-end externally reviewed data for reliability.
5. **Performing two-way assessment(s)**
   - Regular and formal dialogue about fiscal reporting should be held among governments, parliaments and other key groups of users to ascertain whether their needs are met, how it could be improved, etc.
   - Governments should measure the benefits and full costs associated with reporting requirements to inform reviews of fiscal reporting requirements.

Source: Authors based on (Moretti, 2018[5])

2 OECD countries' experience with fiscal platforms

Government objectives

8. Across the ten case studies produced for the preparation of this report a central theme in implementing fiscal platforms is, unsurprisingly, the commitment to transparency, often translated into availability and accessibility of fiscal data. For instance, in the United States, the creation of the fiscal platform began with the signing into law of the Federal Funding Accountability and Transparency Act in 2006, with the goal of making both the government and Congress "accountable for their spending decisions by allowing regular taxpayers to follow the money" (Williamson, 2007[6]). In 2013, the Canadian Government stated that "technology is providing alternatives to static reports for making data available" (Canadian Government, 2013[7]). Another example is Germany, where the Federal Ministry of Finance aims to provide a reference source for information on federal public finances in a way that is "equally accessible to all" (Init, 2023[8]).

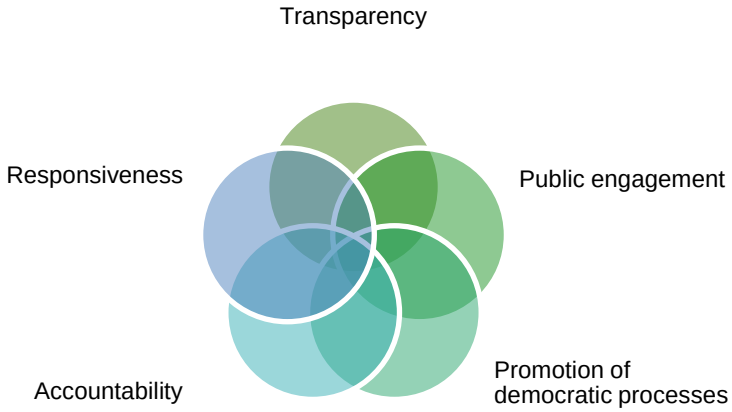
9. The case studies, highlight other core objectives for fiscal platforms, however. The first one is accountability. For instance, in the United States, the fiscal platform was launched when legislation required that federal contracts, grants, loans, and other financial awards be displayed on a "publicly accessible and searchable platform to give the American public access to information on how their tax dollars are being spent" (Bureau of the Fiscal Service, 2023[9]). In Italy, the fiscal platform is expected to provide "a tool for the analysis, control and monitoring of public accounts, based on data collected and managed by the State General Accounting Office" (Ragioneria Generale dello Stato, 2009[10]).

10. Another one is responsiveness. In Canada, for instance, the target users of this platform are parliamentarians, public servants, and Canadian citizens. Concerning parliamentarians specifically, the platform is highlighted as an important source of accessible information for those members of parliament who struggled to understand – and thus scrutinize – public finances.

11. Another common objective for some of the countries studied is enhancing public engagement on public resource allocation decisions and promotion of democratic processes. This reflects a broader shift towards inclusive governance, where informed citizens can contribute more meaningfully to public discourse and decision-making processes. For instance, in Germany, the fiscal platform is expected to help citizens gain "insights into political decisions" and "form their own opinion" (Init, 2023[8]). In Ireland, the government developed its fiscal platform with the expectation that citizens would use it to help "formulate and interrogate policy proposals" (Department of Public Expenditure, 2017[11]).

12. Interestingly, in both Ireland and Mexico, the fiscal platforms were launched in the wake of the global financial crisis (GFC), in "response to the need to make the use of public resources and public finance policies transparent to citizens" (Government of Mexico, 2021[12]). In Ireland, the GFC was perceived by the government of the time to have developed "in part because of a lack of rigorous and informed public debate" supported by appropriate fiscal information (Department of Public Expenditure, 2017[11]).

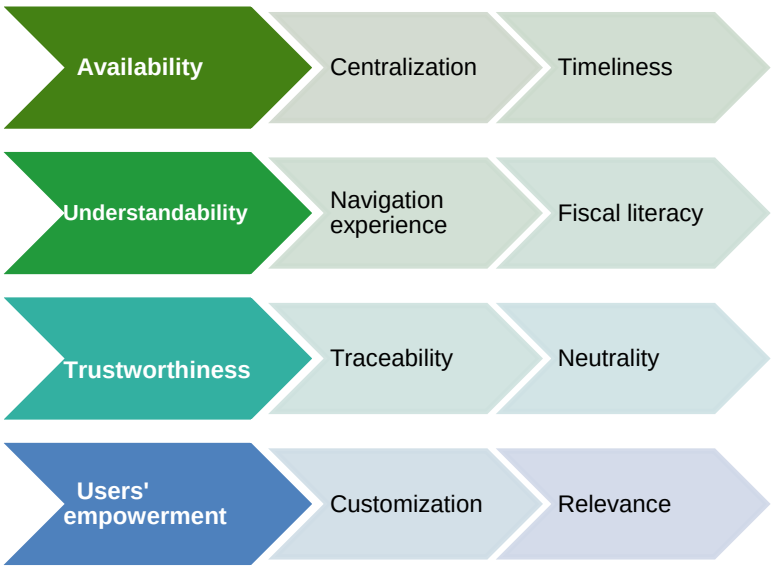
Infographic 2.1. Objectives of fiscal platforms



Key Attributes of fiscal platforms

13. Each individual fiscal platform studied for this paper has a unique combination of objectives. The way the fiscal platforms are designed, and the nature of the fiscal data and information provided on these platforms are, therefore, aligned with these stated objectives, and differ according to the countries studied. Based on case studies, it is possible, however, to identify some key attributes, discussed below.

Infographic 2.2. Attributes of fiscal platforms



Availability

14. The main purpose of fiscal platforms, with few exceptions, is to enhance the availability of fiscal data and information. Availability is achieved by centralizing a wide range of fiscal data in a single, accessible location; ensuring that this data is available in a prompt manner; and that it covers a relevant time-range. This strongly differentiates these platforms from traditional fiscal reports, which often have a

more limited institutional scope; cover shorter time-periods and usually take significant time to produce and publish.

Centralization

15. Centralization means bringing key fiscal data on a single platform.3 For instance, in Korea, the fiscal platform is described as "an integrated fiscal data platform for the public" (Ministry of Economy and Finance, 2023[13]). In Iceland, also, the stated goal for the platform is to publish "a range of information on Government operations and human resources" on a single interactive platform (Government of Iceland, 2021[14]).

16. The range of the data presented varies from one country to another, depending on stated objectives for the platform. In the case of Italy, for instance, the fiscal platform provides subnational fiscal data for "comparisons between different departments and government entities", which in turn supports Italy's system of fiscal federalism (Ragioneria Generale dello Stato, 2009[10]). In Czechia, similarly, the fiscal platform provides access to budget and accounting information "for all levels of state administration and territorial autonomy" to allow for comparability (Ministerstva Financí, 2023[15])

17. Although the time-range of data provided on fiscal platforms is large, the nature of the data provided remains limited (Table 2.1.). Backward-looking expenditure data is the focus of most fiscal platforms, with revenue, debt, investment spending or tax expenditure data provided less systematically. Performance and HR data are rarely available.

Table 2.1. Case studies: Data available on FISCAL PLATFORM platforms

	Expenditure	Revenue	Debt	Other financial data	Performance
Backward looking	10	7	3	8	1
Forward looking	4	3	2	1	0

Source: Authors, based on case studies

18. Beyond the centralization of fiscal data, a "one-stop-shop" approach to fiscal information is adopted in certain countries. This involves providing users with a comprehensive resource for accessing both traditional fiscal reports, fiscal datasets, and other relevant information such as evaluation reports. The benefit of this approach lies in its convenience for users, who have insurance that can access a wide range, or even the full range, of fiscal resources from a unified platform without the need to navigate through multiple sources. It can also be argued that it allows a higher level of fiscal transparency, as users are able to better "connect the dots".

19. Such an approach was for instance a driver of the DFIR initiative in the Netherlands, where the platform was developed with the intention to offer to professionals in the government financial domain a "one-stop shop" for all their public finance related queries. To this end, the platform combines traditional budget documents with open data, visualisations, information on legislative matters, policy evaluations and other information from the statistical office and relevant ministries. In the United States, the fiscal platform offers access to spending including federal awards such as contracts, grants, and loans.

[3] This does not mean necessarily centralizing management of fiscal data.

Timeliness

20. The dynamic nature of updating data on fiscal platforms offers a significant advantage over traditional fiscal reporting in PDF formats. Unlike PDFs, which are static and require distribution of updated versions, platform data can be refreshed continuously and are instantly accessible to users. This real-time updating ensures that users always have access to up-to-date data, an essential factor for relevance of fiscal reporting in our fast-paced environment.

21. Case studies show that the process of updating data on fiscal platforms varies by country, reflecting unique opportunities and constraints existing at national level, such as whether fiscal data is produced by one or more agencies and whether IT systems are centralised or not. For instance, in the United States, data on the platform are updated from various data sources after the "nightly data pipeline runs". In other countries, updates may be done less frequently – e.g., on a monthly basis in Czechia.

1.1.2. Understandability

22. Another main purpose of fiscal platforms is to foster understandability of fiscal data and information, which distinguishes them from open fiscal data initiatives. Examples include Germany, where the fiscal platform has been developed with the explicit aim of making fiscal data and concepts "understandable for everyone" (Init, 2023[8]), or Mexico, which aimed to make public finance information more attractive to citizens through the presentation of budget information in an intuitive, accessible and user-friendly format. Thoughtfully designed navigation experiences, including welcoming home pages and engaging visualizations, and the provision of comprehensive learning resources form the cornerstone of fiscal platforms' user-friendliness and ease of comprehension.

Navigation experience

23. Homepages conceived as entry points from which users can easily navigate to different areas of the platform are a common feature across all case studies. The objective is for users find answers to simple questions without having to make a discouraging number of clicks or fruitless searches within platforms. Approaches to making homepages more intuitive and easy to use vary but often rely on a dashboard where key data are easily and quickly accessible to familiarise users with basic information before directing them to more detailed information.

24. The case studies show a tendency to use different visualizations for different types of data – e.g., bar charts for comparisons, pie charts for proportions, line graphs for trends over time, geographical maps for subnational governments' fiscal data (e.g., Italy and Czechia). – and colour codes to enhance the readability and appeal of the visualizations. In addition, some complex datasets include interactive elements such as hover-over details, sliders, and filters to allow users to engage more deeply with the data.

25. Furthermore, most of the countries studied identify at least two user profiles (public and experts) for their fiscal platforms, with many of them identifying additional profiles. For instance, the developers of the United States' fiscal platform conducted meetings, workshops and user interviews and used analytics to determine the needs of different users. From that, they developed a set of targeted user types, called "personas". The current platform thus targets a number of different groups: citizens, journalists, developers, budget analysts, recipients of federal awards, chief financial officers of government agencies, and repurposes of data (Federal Spending Transparency Collaboration Space, 2023[16]).

26. Platform navigation can be customized for these different profiles to provide a more targeted and effective user experience. This might entail:

- Steering or navigating users to tailored pieces of information or data points on the platform: for instance, in the case of Mexico, the homepage of the fiscal platform provides different starting

points for students, public servants, researchers, and data specialists. Each provides links and directions to parts of the platform that would be of interest for each profile.

- Relying on different formats (e.g., visualizations and a drill-down approach for the public and quick access to in-depth data and traditional tables for experts): for instance, in Italy, under each fiscal theme, data are presented in three different ways to cater to the different audiences targeted by the fiscal platform.

Fiscal literacy

27. Fiscal platforms in many cases are not only for providing fiscal data and information but are also educational tools for making fiscal concepts more accessible and understandable to a broader audience. To do so, the platforms rely on a range of learning resources, including lexicons, guides, and explanatory videos that walk users through key fiscal concepts and show how to read the data presented. Examples include:

- Italy, where the fiscal platform comprises a “discover” section for each type of data. For example, for public accounts data, it starts by explaining what public finances are, then shows the different indicators before showing how Italy compares to other countries in Europe. Explanations of technical concepts are placed in a dedicated column on the left-hand side of the webpage.
- Mexico, where the fiscal platform gives an overview of all the different educational opportunities available to users of the platform, which include online classes on the budget, online diplomas in evaluating public policies and programmes, and in-person training opportunities.
- Finally, Canada, where the fiscal platform makes use of hyperlinks that allow users to click on words and get definitions for technical concepts during their navigation. On each page, there also is a FAQ bar that provides context and further explanations where necessary.

28. Recognising the importance of using a language accessible to everyone, some countries, beyond providing definitions of technical terms, try using plain language on their fiscal platform to ensure that citizens can easily understand fiscal data and information. For instance, in the case of Canada, the fiscal platform operates within the broader policies on how the Government of Canada communicates with the public and consults with internal stakeholders prior to publishing. In the United States and Germany, the clarity and accessibility of language used in government communications and documents are also codified in laws and apply to the fiscal platform.

Trustworthiness

29. Several countries use fiscal platforms to provide trustworthy and neutral information to the public. For instance, in Ireland, the fiscal platform is seen as a means for better informing citizens “in an environment of growing mis- and dis-information" (Department of Public Expenditure, 2023[17]). In Czechia, the fiscal platform’s homepage states that one of the primary uses for the platform is obtaining “official, central and valid information about the economy of the state, cities, municipalities” (Ministerstva Financí, 2023[18]).

Traceability

30. In virtually all case study countries, the financial data available on fiscal platforms are extracted from the financial management information system (FMIS) of the government, providing traceability, and then formatted for the purpose of the fiscal platform:

- In Korea, the FMIS is an “extracting, transforming, and loading” environment that extracts the data from multiple sources, transforms them into data that can be presented in a single data environment, and loads the results in a user-friendly manner.

- In Canada, all financial data must make use of Canadian data reporting requirements and standards (e.g., the Financial Administration Act). These standardized data are then extracted and loaded into an intermediary "data warehouse" where the data are consolidated and structured for the fiscal platform.

31. Beyond such traceability, ensuring that reliable data are made available online is a challenging aspect of fiscal platforms that will likely have an important impact on their development going forward. For traditional fiscal reports, the main source of insurance of the quality of fiscal data is the review or audit performed by external watchdogs. Some countries, such as Chile, have therefore adopted a similar approach for their fiscal platforms, with data being externally reviewed or audited before publication. However, when data are uploaded automatically, and frequently, on a platform, such external reviews or audits cannot be carried out. Trust in data will therefore depend on several factors that may be independent from the platform's own functioning and therefore difficult to demonstrate. They include:

- Quality of upstream budgeting and accounting processes - e.g., quality of the chart of accounts, accounting principles and rules, financial management and information systems (FMIS), human capacities.
- Data governance principles – e.g., what rules and processes are in place to secure data quality across government, FMIS data validation and transformation methods.

32. Trust in fiscal data also derives from openness. In the United States, in the platform's section called "learn", a sub-section provides reference materials, including a glossary, an "about the data" page, a data dictionary, and agency submission statistics. Then, the final sub-section provides information for developers on the API (application programming interface); platform patch release notes; and the open-source code for the platform. In Ireland, the fiscal platform provides links to the open data on which this platform is built on the homepage.

Neutrality

33. Neutrality can be defined as the quality or state of being impartial, unbiased, and devoid of any favouritism or prejudice. It involves presenting information or data in an objective and balanced manner, without introducing any subjective interpretation, opinion, or judgment that could influence the perception of the information by the audience. Neutrality ensures that information is conveyed in a transparent and fair manner, allowing individuals to form their own conclusions and assessments based on the presented facts.

34. Virtually all platforms appear to aim at such neutrality by presenting fiscal data and information with limited alteration and interpretation - that is, with limited pre-formatting of figures or addition of commentary. Neutrality in how fiscal data are presented on the fiscal platform is even sometimes considered a primary factor for trust in this data. For instance, in Canada, the government emphasized that the fiscal platform supports trust in fiscal data by making them available in a neutral way.

Users' empowerment

35. Another common purpose for fiscal platforms is to empower users through the customization of their interaction with and exploration of fiscal data. In addition, fiscal platforms aim to provide users, in particular the general public, with information that is at the level of granularity relevant to their day-to-day life and main concerns as citizens.

Personalization

36. Many fiscal platforms recognize the importance of empowering users in their interaction with fiscal data. These platforms enhance the user experience by providing dedicated tools for personalization and

customization. These tools serve a dual purpose: they make the user's journey through the wealth of fiscal data more efficient and allow users to tailor extractions and visualisations to their specific needs and preferences.

- Search features are one common tool used to simplify navigation on fiscal platforms (e.g., Czechia). These search functionalities enable users to quickly locate the information they seek, reducing the time spent searching for specific data points. Users can enter keywords, departments, or specific topics to find relevant fiscal information.
- Another tool is the generation of personalized dashboards (e.g., Germany or Ireland). These dashboards provide users with the capability to curate their own set of visualizations and reports based on their unique interests and requirements. Users can create, save, and download graphs that are particularly relevant to their inquiries, ensuring that the fiscal data they extract align precisely with their objectives.
- Moreover, the flexibility of fiscal platforms extend to the formats in which users can save their customized reports. Graphs generated during the navigation can be easily saved as images or PDFs, allowing users to keep a record of their insights or share them with stakeholders. Additionally, the underlying data used to generate the graphs are available for download in formats like CSV or XLS.

Relevance

37. A distinctive feature of fiscal platforms is that they aim not only to provide large sets of data, but also to include, within this data, information that is most relevant to the needs of the users of the platform. The granularity of the data is tailored to address user concerns effectively, which may not be the case in traditional fiscal reporting.

38. For instance, in Czechia, the inclusion of fiscal data at municipality level as well as the search feature mentioned above support user-centric fiscal reporting. The search feature enables users to locate information about their municipalities directly from the homepage relatively effortlessly. The user then can compare spending across municipalities and regions through maps and graphs.

39. Another example is Mexico, where the fiscal platform displays local tax and fee collections at the state level through an interactive map. Users can hover their cursor over a given state to gather additional information – e.g., insights about regional financial health, enhancing their understanding of how local tax and fee collections contribute to the overall state revenue and how these funds might be allocated.

40. Relevance to users may also require providing both financial and performance information. The public does not only want to know how much is spent but also how much is achieved. For instance, in Canada, on the fiscal platform’s finance and results sections, users can drill down to sub-departmental levels to explore granular financial and results data (e.g., spending and performance of each program within the Departmental of Health).

3 The Digital and Interactive Fiscal Reporting journey

A short but evolutive history

An inherent capacity for change and evolution

41. Fiscal platforms can be considered a new development in fiscal reporting. In most of the countries studied, fiscal platforms were launched from the mid-2010s (e.g., Czechia, Ireland, Italy or Mexico) or to the early 2020s (e.g., Iceland). A few countries, however, have a longer experience with such platforms. For instance, the Canadian Department of Finance has endeavoured to make information more available and broadly disseminated to the public since as early as 1998 and 1999. At that time, the department had already engaged with public focus groups to transform its existing platform from being a static collection of documents to a more interactive and informative platform, as part of a broader initiative to enhance the digital dissemination of information.

42. Irrespective of when their platform was first launched, case studies reveal that most countries have already undergone at least one cycle of evolution and enhancement. This is because:

- First, the rapid advancements in technology continually provide new opportunities to enhance user experiences, optimize data presentation, and improve accessibility. By embracing these innovations, platforms can stay at the forefront of usability and functionality.
- Second, as the needs of users change, platforms must adapt to meet these evolving requirements. For instance, the COVID-19 crisis generated new targeted reporting data needs, which have been fulfilled in many cases through the fiscal platforms (e.g., Canada and Netherlands).
- Last, over time, governments can put themselves in a position to gain a better understanding of potential shortcomings of their fiscal platforms and needs of their users.

43. Examples of countries that have relaunched fiscal platforms include Ireland, which has focused on improving visual appeal, updating datasets, enhancing interactivity in graphs, and emphasizing data "drilldowns" for in-depth analysis; or Canada, which made its data collection process adaptable to changing reporting requests with regular assessment of data relevance, timeliness, and archiving, along with attracting data scientists and developers.

44. Overall, the case studies highlight the inherent adaptability of fiscal platforms as one of the strengths of this type of fiscal reporting compared to more the more static traditional type. Fiscal platforms can be continuously updated and expanded to accommodate changing needs and priorities for fiscal information. Furthermore, as technology advances and new data sources become available, fiscal platforms can seamlessly integrate these developments. This makes them a singular and necessary component of any fiscal reporting framework in a rapidly changing world.

Achievements to date

45. Most countries monitor traffic on the fiscal platform with analytics -e.g., number of users, page views or duration of stay. Most ministries of finance identify spikes and dips throughout the annual budget cycle, e.g., when the budget proposal is published, and across years, e.g., during the COVID-19 pandemic. Fiscal platforms, however, appear to track achievements to date. For instance:

- In Canada, analytics show that number of users of the platform increased from around 13,000 in 2017 to more than 122,000 after COVID-19, representing an increase of 838%.
- In Italy, the year of its launch, the platform received more than 240,000 users, reaching more than 800,000 views and 25,000 downloads in 2018, representing an increase of 233%.
- In Mexico, page visits increased more than 108,000 to more than 175 000 from 2016 to 2019, representing an increase of 62%.

46. Despite this success, it is still important to promote fiscal platforms to achieve the ambitious objectives outlined by governments. First, people need to know the platform exists, ensuring it reaches its target audience. Second, they must be informed about the valuable features and information it offers, creating awareness of its benefits. Finally, users need to recognize that the fiscal platform is a credible alternative to traditional fiscal reporting, establishing it as recognized and even preferred source for fiscal information in the digital age.

47. Germany provides a noteworthy example of promoting a fiscal platform as a central and credible source of fiscal information. References to the national fiscal platform are incorporated into all government communications, including the Ministry of Finance's platform, print materials, social media, and campaigns. For instance, for a recent information campaign on the federal budget, launched in September 2023, the fiscal platform served as the primary landing page, reaching several million views.

Fiscal platforms at crossroads?

48. Fiscal platforms are defined in this paper as “the combination of open fiscal data with BI software, to develop platforms that offer a new experience in exploring fiscal data”. Case studies confirm that such initiatives are strongly linked to the open data movement, defined by the OECD as “promoting transparency, accountability and value creation by making government data available to all”, with for instance the United States’ DFIR platform stating on its homepage that it is “the official open data source of federal spending information (…)”.

49. While the link between fiscal platforms and the open data movement is undeniable, their objectives and features also relate to a large extent to public communication, defined by the OECD as a function aimed at “delivering information, listening and responding to citizens in the service of the common good” and supporting the strategic objectives of the government including “enhancing transparency; rebuilding trust in public institutions; delivering information” (Box 3.1).

Box 3.1. OECD Key principles for effective public communication

The OECD defines public communication as the government function to deliver information, listen and respond to citizens in the service of the common good. It is distinct from political communication, which is linked to political parties or election campaigns. Public communication is characterised as a core government function that can support several strategic objectives of governments, including enhancing transparency; enabling citizens' participation; rebuilding trust in public institutions; and supporting the design, implementation and evaluation of policies and services. The five key principles for effective public communication are:

Empowering the public communication function by setting appropriate mandates and developing strategies to guide the delivery of communication in the service of policy objectives and of the open government principles of transparency, integrity, accountability and stakeholder participation; and separating it, to the extent possible, from political communication.

Institutionalising and professionalising the function to have sufficient capacity, including by embedding the necessary skills and specialisations that are leading the transformation of the field, and ensuring adequate human and financial resources.

Transitioning towards a more informed communication, built around measurable policy objectives and grounded in evidence, through the acquisition of insights in the behaviours, perceptions, and preferences of diverse publics, and the evaluation of its activities against impact metrics.

Accompanying the **adoption of digital technologies and data** with considerations on their ethical use as well as the pursuit of inclusion and engagement.

Strengthening the strategic use of public communication to **counter mis- and disinformation**.

Features of good public communication include:

Inclusive communication: Practices for data- and insights- driven communications and the use of community messengers and influencers can serve to improve how inclusive communications are of diverse groups in society. They help to identify under-served groups and the barriers to information. insights then serve to reach them with more tailored messages or via relatable, trusted voices that are more likely to resonate than mainstream channels and content.

Responsive communication: Communicators have easier access to more frequent, precise and rich analytics on what information citizens are looking for that help them promptly respond to demand and adjust their strategies. Practices for social and organisational listening, which triangulate different sources of feedback and interactions with the public, are facilitating two-way communication in the place of top-down dissemination of information.

Compelling communication: including the use of behavioural insights (BI) to help shape how people navigate an increasingly complex, crowded information ecosystem.

Source: (OECD, 2021[19])

50. Whether fiscal platforms should be considered primarily as an open-data initiative or as a tool of public communication on fiscal issues will affect its development. If the platforms remain conceived as mainly an open data type of initiative, future enhancements are likely to be technical in nature. If the ambition is to empower citizens' understanding of fiscal issues, improving communication approaches will be key. Opportunities for developments in both directions are discussed the sections below.

Opportunities for technical enhancements

Broadening data's range and improving granularity

51. Most OECD countries have undergone budgeting and accounting reforms in the last decades that have often resulted in significant improvements in the quality, comprehensiveness and institutional coverage of financial data. However, the 2022 OECD Survey on Financial Management and Reporting suggests that data integration challenges probably remain significant as financial management information systems (FMIS) are often not integrated or may even be outdated (Keller, Beazley and Moretti, forthcoming[20]). Accordingly, DFIR approaches in individual countries have been both fostered by improvements in financial data centralisation, harmonisation, and quality, but also -- sometimes simultaneously -- limited by the obsolescence of IT systems and technologies.

52. Overall, most OECD countries need to improve financial and non-financial data integration across entities of the public sector by:

- Adopting data standards, developing data-sharing agreements, and promoting a data-driven culture (OECD, 2019[21]), which will improve the scope and range of the data made available on fiscal platforms.
- Adopting appropriate technologies for data exchange, including rules and protocols for i) data access independently from the software applications used[4] and ii) for the use of external platforms[5] - e.g., what are considered safe, validated data that can enter the fiscal platform and what are not.
- Developing appropriate capacities and skills in ministries of finance, as validation at entry of data is not enough to ensure that data outputs on fiscal platforms are systematically accurate and continue to require significant human moderation and monitoring.

53. Furthermore, a fundamental shift in how financial and performance data are managed may be needed. Instead of expecting users to adapt to the nature and level of data available, standards and principles applying to accounting and non-financial data may have to be developed with the primary objective of collecting data that precisely meets users' needs, rather than focusing on the presentation of these data.

Providing new experiences in engaging with fiscal data

54. Despite providing a more interactive experience than traditional fiscal reporting, fiscal platforms may need to catch up with developments in media experiences, such as videos or links to external online content. It is notable that private sector corporations are already taking initiatives in this area. For instance,

[4] e.g., large ecosystem solutions like X-Road or protocols like Application Programming Interfaces – APIs, JavaScript Object Notation – JSON, Service-Oriented Architecture - SOA that can itself use Simple Object Access Protocol – SOAP or Representational State Transfer – REST protocols.

[5] e.g., through the use of an ETL – Extract, Transform, Load

Vodafone included in their 2023 annual report QR Codes linking the report to interactive online content, such as videos.[6] This approach is part of their "digital-first approach".

55. The use of virtual reality or augmented reality to improve visual representation of fiscal data or providing training could also increase the appeal of fiscal platforms and the understandability of fiscal data and information. For instance, augmented reality modules could allow users to visualise spending on infrastructure in the form of the future infrastructure being digitally integrated in the actual landscape.

56. Looking ahead, fiscal platforms could offer "expert simulation environments", which are platforms enabling experts to engage and test scenarios in simulated environments. For instance, spending forecasts often rely on models that incorporate various datasets and a set of variables. With expert simulation environments, users could gain ownership of these models, allowing them to challenge government assumptions. This would not only increase transparency, but also foster collaborative thinking and understanding of fiscal issues.

1.1.3. Harnessing the power of generative AI?

57. Defining what is an AI system in is not a settled debate. However, recently, OECD countries approved a revised version of the Organisation's definition of an AI system, which has been characterised as a "machine-based system that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environment" (OECD, 2024[22]).

58. AI systems are commonly grouped into a few broad types:

59. AI, a dynamic concept, manifests through a myriad of methodologies, technologies, and applications, evolving rapidly over time, making it challenging to delineate its landscape comprehensively. To gain a nuanced understanding of AI, it's therefore useful to contextualize it within three distinct categories of systems, forming a technological continuum: 7

- At one end of the spectrum are the systems called transaction-based that and have been in use for a relatively long time. Such systems use specific inputs (generally structured data, known as "transactional") to generate an output according to a pre-determined rule. These systems respond to current situations with limited or no memory of past actions, functioning purely on the inputs they receive at any given moment.
- At the other end of the spectrum are the systems referred to as Artificial General Intelligence (AGI), which are still in an experimental phase. Such systems would be powered by virtually limitless input types. AGI would be capable of understanding, learning, and performing intellectual task like a human and is envisioned to be able to ultimately outperform humans in many domains. There is however no consensus in the scientific community on whether such technology can be effectively developed.
- Between these extremes lie the systems that represent the heart of recent advancements, commonly designated as AI or Generative AI (GenAI). These systems are designed to manage a diverse array of inputs and generate original outputs in one or more delineated domains, such as speech recognition, face detection or image classification. Unlike transaction-based systems, AI can learn from training, interactions and adapt to new situations, thereby improving its performance

[6] 2023 Annual Report (vodafone.com)

[7] Such categories of system are illustrative only. Concerning AI technologies, the OECD's Framework for the Classification of AI Systems supports a more detailed classification by identifying five different dimensions of AI systems.

over time. However, these systems do not match the human mind, which is far more versatile (OECD, 2019[23]).

60. The core technology behind most AI systems is machine learning (ML), especially deep learning (DL) and reinforcement learning using big data and computing resources. AI systems include:

- Natural Language Processing (NLP) systems providing content translation, text classification, speech recognition, writing aids, and chatbots. They are commonly used for conversational interfaces like Google Assistant, Siri, or Alexa.
- Computer Vision and Image Processing systems using deep learning for recognition, classification, conversion, and other tasks. They are used for instance in smartphones security, video surveillance or self-driving cars.

61. OECD countries are already exploring potential uses of AI in public financial management. However, ministries of finance are understandably cautious in rolling out new approaches involving end-to-end process automation or narrow AI in the area of fiscal reporting. This can be explained by general risks with AI[8] and by fiscal reporting being specifically a highly regulated activity of governments, relying on strict nomenclatures and standards, as well as by the significant risks that AI involves in terms of false or deceptive outputs, which is at odds with the various principles (e.g., reliability, neutrality) underpinning fiscal reporting.

62. However, use cases in fiscal reporting, and risks associated with them, should be systematically explored as the rapid pace of AI innovation, coupled with the increasing use of AI-based technologies by the general public, will likely soon raise interest in and expectations of how these innovations can be used by governments to improve transparency and accountability. Specifically, as the public becomes increasingly accustomed to systems such as ChatGPT, Bard, Bing, and Jasper, the provision of similar functionalities on fiscal platforms may become necessary to avoid the risks that queries are directed towards random AI Chatbot platforms with limited safeguards in terms of reliable data and less expertise in public finance. In other words, there would be a risk in using AI, but also a risk in not using it.

63. Existing use cases of narrow AI provide interesting references for reflecting on how these technologies could be used in fiscal reporting. For instance:

- In the private sector, corporations in the finance sector are already exploring ways in which AI could be used for producing reporting and other output required for compliance purposes using the firm's data (OECD, 2023[24]).
- Chatbots are increasingly used in the public sector to answer users' information queries. In the public finance area, in particular, tax administrations have been early adopters and use them for instance for answering citizens' queries on tax legislation. In Mexico, the government developed an AI-powered search function as part of their fiscal platform, supporting users in finding information on subsidies through searches with plain language (instead of having to pre-research the names of official schemes and programmes).

64. Against this background, in the context of fiscal platforms, three levels of use of AI-based technologies could be envisioned (Infographic 3):

[8] The OECD Principles on AI, adopted in 2019, constitutes the first international standard agreed by governments for the responsible stewardship of trustworthy AI (OECD, 2019[23]). The AI Principles recognise the potential risks AI systems pose to human rights, privacy, fairness, and equality; robustness and safety; and the need to address these, such as by building transparency, accountability, and security into AI systems and enabling continuous monitoring and improvement (OECD, 2023[27]).

- First, using AI/chatbots as tools for advanced search functionalities, data mining or ability to understand and process requests in various languages, as already implemented by some countries.
- Second, using AI/chatbots as virtual assistants using conversation (natural language processing, or NLP) for handling "simple" queries of users such as producing figures, graphs, reports that use government's own nomenclature, classifications, etc. Importantly, in such cases, the chatbot would have a limited set of authorized functions and would not be authorized to interpret a query that would use imprecise terms or re-state the data downloaded on the platform (e.g., changing a pre-set classification).
- Third, using AI-powered virtual assistants for handling "complex" queries. This would involve AI using successive interactions with the user to deduce the context of a question, interpret its meaning and be granted autonomy in re-stating data to answer it. NPL and GenAI, in particular, offer functionalities that could be used on fiscal platforms to help user generate reports or summaries, or analytics and visualizations.

65. Furthermore, AI could be used to improve the range and quality of fiscal data available on fiscal platforms, such as large language models that can translate raw data into a desired format, extract data from text, etc.

66. Advancing on such a path would, however, require that AI-related policies in the public sector be strengthened in areas such as transparency on models' governance, accountability mechanisms for models' training, prevention of risk of bias and discrimination, security around models, etc.

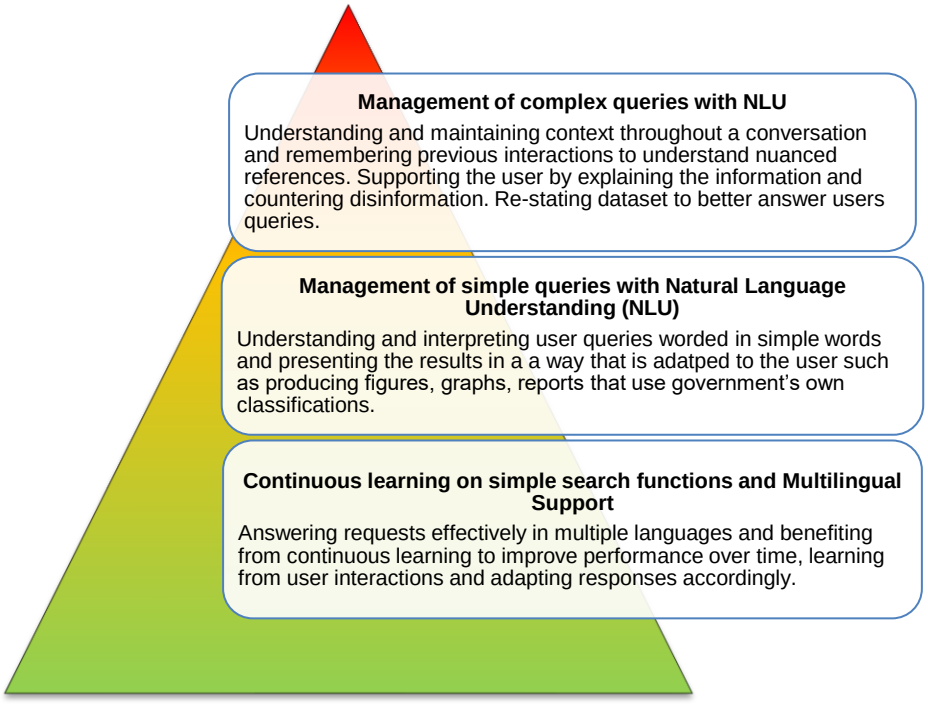
67. It would also require addressing challenges and risks specific to fiscal reporting:

- The use of GenAI and specifically large language models require reliable datasets. Data quality and management, already mentioned above, would have a fundamental role in enabling reliable models and accurate outputs. Lack of quality, inappropriate granularity, gaps in data would generate risks of misleading outputs and inaccurate or unreliable trained models.
- Even with appropriate data quality and management, GenAI models may intentionally or inadvertently generate false, biased, or discriminatory results. Involving public finance experts as "moderators" would be necessary for a relatively long period of time before any AI model could be considered reliable.

68. Finally, although AI and GenAI present opportunities to enrich the user interaction with fiscal platforms, it is also necessary to clearly define the limits of what the technology, in particular GenAI, will do. Beyond forbidding the use of non-governmental data, it would be also important to delineate the types of questions that the technology can or cannot answer.[9]

[9] Examples of restricted functionalities could include answering "is the budget fair?", "when is the public debt going to become unsustainable?" or "which public service budget should be reduced in priority in case of reduced revenues?"

Infographic 3.1. Opportunities offered by advanced Chatbots for fiscal platforms, by level of risk



Source: Authors.

Opportunities for improving communication

Engaging the public

69. During the preparation of this report, some countries underlined the importance of understanding visitors' use of their fiscal platform to improve its design and content, and the limited usefulness of website analytics for this purpose. Users' feedback is therefore sometimes collected ex post. Germany, for instance, has sought to better align its platform with users' needs by conducting workshops with representative groups (citizens, experts such as journalists or academics and legal experts) whose requirements, wishes and user behaviour have been studied to guide the new structure, user guidance and the design of the platform.

70. Beyond ad hoc consultations of users, another approach, which nonetheless appears less explored as of today, would be to incorporate features that would allow for ongoing public feedback, such as forums, Q&A sections, or comment areas on fiscal data and information. A further step would be to use fiscal platforms to engage citizens in decisions on fiscal issues or gather their reactions to fiscal decisions.

Increasing understandability

71. Fiscal platforms are already recognizing the importance of explaining technical terms and concepts, as well as using, where possible, language that is accessible to everyone in communicating fiscal data. However, beyond efforts to enhance the understandability of fiscal data with digital glossaries and plain language, there is potential for greater impact by examining the effectiveness of traditional fiscal terminology and concepts in conveying fiscal information. This is already being done outside of fiscal platforms in some countries.

72. An example is New Zealand's introduction of an Investment Statement to make the government balance sheet information more user-friendly by classifying assets and liabilities in a way that explains how they support essential services for citizens rather than their technical, accounting nature (New Zealand Treasury, 2023[25]). This does not alter the substance of the fiscal information presented, but improves its form and presentation, making it not only more understandable, but also more relatable, which is echoes the objectives and features of fiscal platforms.

73. Also, the difficulties for citizens to relate to large budget figures (or "big numbers") are starting to be recognised. The presentation of budget figures on a more relatable basis has been tested, for instance, by France's Ministry of Finance with a visualisation entitled "what is funded by 1000 euros of public spending", breaking down government expenditures into more relatable numbers (572 euros on social protection, 28 euros on debt interests, etc.).10

74. Fiscal platforms could also be used to experiment further with innovative ways to present "big numbers" to make them more comprehensible and relatable for citizens, and to foster understanding of the relative proportions of different expenditure areas and revenue streams, as well as their evolution over time – e.g., presenting spending on a per capita basis – even if such approaches often involve approximations.

Fostering fiscal insight

75. Fiscal literacy and fiscal insight represent two distinct layers of understanding public finance:

- Fiscal literacy revolves around the foundational knowledge of fiscal terminology and concepts. It's akin to learning the language of finance, enabling users to comprehend the basic concepts that underpin the budget and accounts. This includes understanding terms such as budget deficits, public debt, etc.
- Fiscal insight is a deeper knowledge that involves an understanding of broader implications of budget figures, including the understanding of the principle of fiscal sustainability; the role of fiscal rules; as well as their implications (such as budgetary prioritization and trade-offs involved). It is about connecting the dots between budgetary decisions, economic outcomes and societal priorities, over the short to long term.

76. Fiscal platforms are commonly used to increase fiscal literacy. However, they rarely engage in fiscal insight. Initiatives in this area may have been hindered by the tension between presenting data neutrally and weaving it into a narrative to improve insight into fiscal issues, constraints and opportunities.

77. The case studies nonetheless reveal some initiatives in fostering fiscal insights of users. For instance:

- Germany's fiscal platform has a section on key fiscal concepts, with a focus on explaining the concept of fiscal sustainability and familiarizing users with budgetary trade-offs, through a video using the metaphor of a "budget as a cake".
- The Netherlands' fiscal platform includes visualisations on compliance with expenditure ceilings, which are the cornerstone of the government's fiscal framework and policy.
- Korea's fiscal platform allows the user to benchmark Korea to other countries in terms of fiscal revenue, expenditure, fiscal balance and general government debt, using international organizations' data.

78. Such initiatives make a compelling case for fiscal platforms to further cultivate users' abilities to interpret and critically evaluate budget figures within a broader economic and societal context. Without

[10] Que financent 1000 euros de dépenses publiques ? | Agence France Trésor (aft.gouv.fr).

compromising neutrality and objectivity, platforms could provide users with some analytical tools needed to understand the implications of fiscal figures. This could involve the creation of interactive scenarios that simulate the effects of different budgetary decisions on public debt and net worth, and implications on tax levels and interest spending over different time frames. This would not only enrich the user experience but also promote a more informed citizenry, helping with developing more meaningful to public dialogue on complex fiscal policy issues.

4 Conclusion

79. "Traditional" fiscal reporting is the undisputable cornerstone of fiscal transparency. It, however, is also characterised by its static and complex nature, making it difficult for non-specialists and digital natives to understand and engage with its information. As noted in the introduction of this paper, rationalized fiscal frameworks should provide other, more modern and user-centric ways for citizens and other stakeholders to access and read fiscal data and information.

80. The objectives and features of fiscal platforms discussed in this paper illustrate their vital role in improving rationalized fiscal reporting. By leveraging technology, these platforms facilitate direct and open access to fiscal data and information, while also supporting the use of innovative communication techniques. Moreover, fiscal platforms align with digital government initiatives, transitioning to a digital-by-design approach where data and technology are used to transform fiscal reporting processes and communication channels. Additionally, they embody a user-centric focus as outlined in the OECD Digital Government Policy Framework, prioritising user-oriented design and delivery as central aims of fiscal reporting.

81. However, if current features of the platforms are impressive, it is uncertain that they have addressed some of the bigger issues with fostering fiscal understanding in the general public, e.g., "big number numbness", because data are often presented with limited context, narrative, or scaling. This can be explained by a dilemma with fiscal platforms that can be summarized as follows:

- On one hand, neutral presentation allows data to stand on its own merits, free from bias or influence, providing a clear, unaltered picture of the facts. However, this neutral approach may prevent understanding of wider picture and issues, with users being deterred by a succession of "big numbers" that are not necessarily connected together.
- On the other hand, storytelling can enhance comprehension. Transforming raw data into a narrative that helps contextualize the numbers can make fiscal policies and issues more understandable and relatable for the general public. However, this approach may impart a subjective angle to the information, potentially leading to suspicions of partisan storytelling.

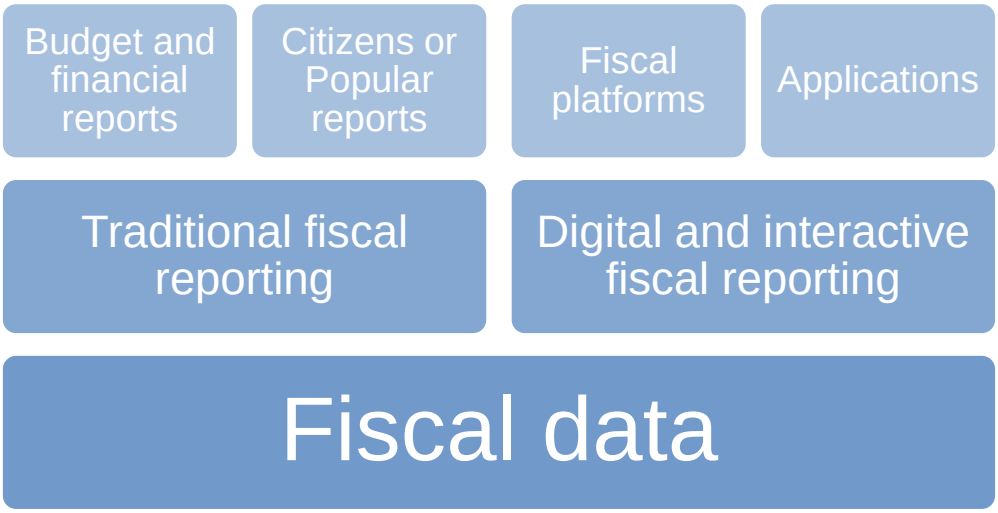
82. Approaches to better balancing the two needs in fiscal platforms— the need for objectivity of fiscal data and the need to provide a narrative that will support greater understanding of fiscal policies and issues — could be explored. This would allow the platforms to help address the "schism (...) between citizens and leaders" on their perception of budget issues, with citizens concerned with lack of transparency, which fiscal platforms try addressing, and decision makers more concerned with lack of understanding by citizens of fiscal data and fiscal challenges11, which the platforms are less focused on.

83. Further improvements and enhancements are possible for fiscal platforms to reach their full potential. Such improvements could include, for instance, greater data quality, integration of more data sets, greater understandability, and AI-based new features to engage the public. Which improvements will be prioritized, and the amount of resources and capacities that will be put into them, is currently uncertain.

[11] This is encapsulated by past studies as decision makers view that the public holds "inconsistency and contradictory views", "wishful thinking", or "people "wanting it all" but unwilling to pay for it" (Tanaka, 2007[26])

84. For fiscal platforms to reach their full potential and have users' full attention, they may need to be more firmly anchored to a rationalized fiscal reporting framework, rather than being considered, as is often the case, as a separate initiative. To support such an integration of fiscal platforms into wider rationalized fiscal reporting frameworks, this paper suggests that they could be re-named "digital and interactive fiscal reporting" (Infographic 4). The value of such an integration would come from more user-centric fiscal reporting that meets the needs of different user groups, while also being fully integrated. Each reporting stream could also be streamlined accordingly. It is notable that such integration and streamlining has already tentatively started: Ireland, for instance, has implemented a trial in this area, by taking out a non-financial table from "traditional fiscal reports" to bring it online in real-time reporting after informing the legislature.

Infographic 2. Rationalized fiscal reporting



Source: Authors.

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