PROGRAMME FOR INTERNATIONAL STUDENT ASSESSMENT (PISA) 2029

PRELIMINARY TECHNICAL INFORMATION FOR POTENTIAL BIDDERS FOR PISA 2029

TABLE OF CONTENTS

INTRODUCTION

The Directorate for Education and Skills (EDU) of the OECD will conduct the Call for Tenders (CFT) for PISA 2029 in 2024. The information in this note reflects planning for the technical design of PISA 2029 as of September 2023 and may change as part of the preparations for the Call for Tenders.

The first section of this document presents technical information regarding the main implications of PISA becoming a four-year cycle assessment from PISA 2029 onwards. The second section highlights the elements that will be implemented in PISA 2029 to achieve PISA's long term strategic objectives (2024-33).

1. A FOUR-YEAR CYCLE

Background

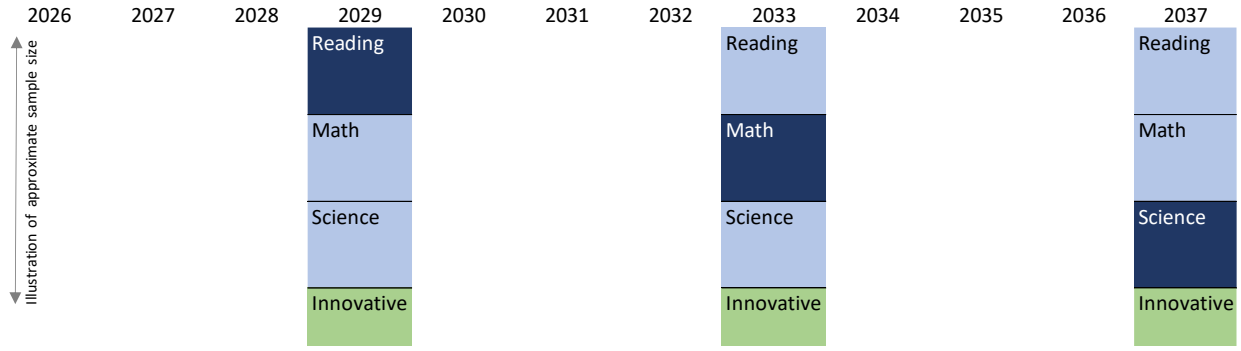
From PISA 2029 onwards, PISA will become a four year-cycle assessment. There are three main motivations for changing the frequency to four years. First, a longer gap between PISA cycles will reduce the workload for national centres, in particular in terms of the overlap between cycles. With the reduced frequency, there will be only one year per cycle with significant workload overlap related to the next cycle – this will happen when the analysis and reporting year of one cycle will overlap with the review of items for the next cycle. Second, an extra year will be useful to analyse the data from each survey in more detail for policy development and research. Third, the lower frequency will make it feasible to increase the sample size per country without increasing the overall burden on schools over time. This increased sample will facilitate a change to a balanced design with an equal allocation of testing time among the three domains, which will enhance overall measurement precision and ensure more robust trend measures across the three domains.

The change of frequency will come into effect after PISA 2025. The next three cycles will be 2029, 2033 and 2037, as shown on Figure 1. This change will be combined with a new survey design – called balanced design – that will provide more robust results and better trend measures across the three core domains of reading, mathematics and science. With the balanced design, the three domains are allocated the same weight in the sample distribution in each cycle. This will increase measurement precision for the two domains that would have been given less emphasis in the existing design (the minor domains). A balanced design will also keep the test content more constant between cycles and improve the precision of conclusions about countries' trends.

The new design will have a "focal domain" in each cycle, which will rotate between reading, mathematics and science. The focal domain will be similar to the previous notion of a "major domain", except that the focal domain will not be given a larger share of the sample allocation than the other two domains. In each cycle, the framework and test items will be updated for the focal domain, and the contextual questionnaires will focus on questions related to teaching and learning in the focal domain. The international reports will, like in the previous design, focus on analysing the relationship between contextual factors and performance in the focal domain. The rotation of focal domains for PISA 2029, PISA 2033 and PISA 2037 is illustrated in Figure 1.

Figure 1. Four-year frequency with balanced design

Four-year frequency with balanced design and one focal domain (highlighted in dark blue). Sample size: 170 schools per country.



Implications of the four-year frequency for PISA 2029

The main implications of the four-year-cycle for PISA 2029 are:

Balanced design

A balanced design with an equal allocation of testing time among the three core domains of reading, mathematics, and science, which will provide more robust results and better trend measures across all domains.

Reading, the focal domain

Reading will be the "focal domain" in PISA 2029, which is similar to the previous "major domain", except that it will not be given a larger share of the sample allocation than the other two domains. The framework and test items will be updated for reading, the contextual questionnaires will focus on questions related to the teaching and learning of reading, and the international reports will focus on analysing the relationships between contextual factors and performance in reading.

The framework and item update for the focal domain, reading, will need to reflect a longer timespan than in past cycles due to the longer time gap between cycles. The framework and item updates may as a result need to be more comprehensive to ensure that they remain relevant for a longer time. This may include more extensive expert reviews, stakeholder consultations and country involvement in framework and instrument development. Trend measures will remain a core principle of PISA and any new developments will be made in a balance between maintaining trends and introducing new elements that reflect developments in reading and in assessment methodology.

It is expected that the test content and design for each domain will remain intact and be revisited only once every three cycles, when it is the focal domain. This is a change from the existing design in which the major domain test is revised after the Field Trial, where a number of items can be dropped, and again at the preparations for the next cycle when the test is adapted to be a minor domain test. The fewer updates will result in more robust trend measures, but it also means that the Field Trial analysis, which guides the selection of trend and new items for a focal domain, will be more consequential for future cycles. A further implication is that it will only be possible to release Field Trial items as sample items. It will not be possible to release items from the Main Survey as sample items as the test will be kept identical between cycles, except when new items are included as part of the test renewal.

Subscale scores for non-focal domains

It could be considered to introduce subscale scores in all domains as part of the change to a balanced design as the calculation of subscales for the "non-focal" domains would be more reliable with the balanced design compared with the existing design. Bidders may be asked to make a proposal including the resources involved and the timeline for the release of subscale scores on time to align with the initial PISA volumes.

Increase in sample size

The balanced design requires an increase of the sample by 20 schools per country to obtain the desired goal of obtaining robust measures for all three domains and improving the stability of trends. With this increase in sample size, the current level of accuracy of a major domain will be obtained for all three domains in terms of the estimate of proficiency means and of covariance structures involving both test and background questionnaire data. The sample will thus change from 150 schools per country with the existing design, to 170 schools with the balanced design. The minimum sample size for adjudicated regions will remain unchanged.

Countries/economies with small sample sizes

For small countries/economies that cannot increase their current sample size, the sampling error component is already significantly smaller than for larger countries/economies due to the census nature of their school sample, and a balanced design would still provide sufficiently reliable data for reporting. However, some adjustments to the basic design or to the scaling model may be required to ensure sufficient power for differential-item-functioning analyses, particularly for small countries/economies with unique language versions; these could include deviating from a fully balanced design, augmenting the sample with non-eligible students for the purpose of performing the DIF analysis, borrowing item parameters from other language versions (as is currently the case for small minority languages), or imposing additional constraints in test assembly (e.g. testlets with more items, smaller item banks) to achieve sufficient samples. Therefore, bidders for PISA 2029 may be asked to consider the implementation of the balanced design across all countries/economies in PISA, in particular small countries/economies for which adjustments may be needed, as an integral part of their offer. Bidders may also be requested to propose any further adjustments or improvements that can be identified to the balanced design to align with PISA's long term strategic objectives.

Timeline

With the four-year cycle, the timeline for international development activities will be somewhat extended to ensure sufficient time for development, with an earlier Call for Tenders and contract establishment. This is to create more time for initial development activities in terms of methodology (balanced design) and technology development, and to ensure that framework development can be finalised before item development begins. In the national implementation timeline, the main change due to the four-year cycle is less overlap between cycles, allowing national teams to focus on working on one cycle at a time.

2. LONG-TERM STRATEGIC OBJECTIVES

PISA 2029 will be developed in accordance with the new long-term strategic objectives for PISA. The strategic objectives for the 2024-33 period will guide the development of the Call for Tenders for PISA 2029. The objectives are:

- Strategic objective 1: Develop assessments of competences for young people to become life-long learners and to build the future societies in the era of digital transformation, green transformation, and sustainable development.
- Strategic objective 2: Leverage digital technologies to make PISA more engaging and inclusive for students, and to offer more powerful and relevant measures for policy making.

- Strategic objective 3: Enhance measures of equity in and through education, and make PISA assessment more inclusive.
- Strategic objective 4: Enhance the analysis and use of PISA data to make PISA actionable.
- Strategic objective 5: Support capacity development of education systems in competence-based assessments, by mobilising the experience and expertise of PISA as a global good.
- Strategic objective 6: Engage students, teachers, parents, and employers to reflect their needs in PISA and to support their engagement in the improvement of students' learning.

The following sections highlight the elements that will be implemented in PISA 2029 to achieve these objectives.

The Reading framework

The focal domain for PISA 2029 will be reading, which was also the major domain in PISA 2000, PISA 2009, and PISA 2018. In PISA 2018, reading literacy was defined as "students' ability to understand, use, evaluate, reflect on and engage with texts to achieve one's goals, to develop one's knowledge and potential, and to participate in society". In PISA 2018, as in the following cycles that used the PISA 2018 instruments, the assessment covered different types of texts and tasks over a range of difficulty levels. The assessment also required students to use a variety of processes: "Reading fluently", "locating information", "understanding", and "evaluating and reflecting".

The PISA 2018 reading framework was enhanced to fully integrate reading in a traditional sense, together with the new forms of reading that have emerged over the past decades and that continue to emerge due to the spread of digital devices and digital texts. Also, the revision considered how new technology options and the use of scenarios involving print and digital text can be harnessed to achieve a more authentic assessment of reading, consistent with the current use of written sources around the world. The major differences between the PISA 2009 and PISA 2018 reading assessments were: (i) a greater emphasis on multiple-source texts; (ii) the explicit assessment of reading fluency, defined as the ease and efficiency with which students can read text; (iii) the use of adaptive testing, whereby the electronic test form that a student saw depended on his or her answers to earlier questions; (iv) the digital, on-screen delivery of text, which facilitated these changes listed above.

Some ten years after the PISA 2018 framework was developed, it is expected that the framework for PISA 2029 will continue to consider the evolution of the nature of reading, notably due to the growing influence and rapid evolution of society and technology, with literacy requiring triangulating different sources, navigating through ambiguity, distinguishing between fact and opinion, and constructing knowledge. It is also expected that, in alignment with strategic objective 2, digital technologies will be used to offer more meaningful and engaging test experiences for students, by offering more realistic environments. For PISA 2029, the framework for reading will be developed by the OECD.

Innovative domain

In alignment with strategic objective 1, the PISA 2029 innovative domain will:

- continue to be chosen taking into account the evidence gap in emerging policy areas, relevance for international comparison, potential for innovation and new development to contribute to the enhancement of future PISA, and the availability of foundational research and expertise;
- introduce task types and analytical methods that better measure complex, multidimensional competences; and
- provide evidence on students' learning and problem-solving competences, including the social and emotional components of these competences.

New questionnaire modules will continue to be developed for each innovative domain. The OECD will continue to promote the successful development of innovative domains by pursuing research on definitions for new domains, prototyping new task types and testing innovative methodologies involving computational psychometrics and learning analytics.

International options

PISA has a long-term strategy for the international options in PISA that was established in 2019, which is based on a strategic approach that considers international options on a rotated basis over time. The main purpose with rotating the options is to maximise their comparative value while continuing to cover a wide range of topics in the long-term. The intention is that a more focused offer in each cycle will attract more countries to those options on offer and thereby provide richer comparative data for each participating country. This approach also enables more developmental work on the options on offer in each cycle. This approach was initiated with PISA 2025 and has allowed for the development of the new foreign language option.

Following the guidelines in the international options strategy, the options for PISA 2029 will be financial literacy, the parent questionnaire, the teacher questionnaire, as well as a new innovative context questionnaire for students (hereafter referred to as the emerging policy questionnaire), that aims at testing out policy-relevant topics that are new to PISA and/or new formats of questions. The foreign language option, introduced in PISA 2025, will not be offered in PISA 2029 as it is alternated with financial literacy, but will be offered again in PISA 2033. Similarly, the ICT questionnaire, offered in previous cycles, would not be offered in PISA 2029 as it is rotated with the emerging policy questionnaire, but will be offered again in PISA 2033.

The following provides an overview of the international options that would be offered in PISA 2029 according to the current strategic planning:

- **Financial literacy** was introduced as an option in PISA 2012. From PISA 2025 onwards it is offered every two cycles in alternating schedule with the foreign language assessment. This option combines a cognitive test and a questionnaire to gather a full picture of competency levels and the contextual factors related to acquiring these competencies. As in past cycles, financial literacy will in PISA 2029 include a combination of trend items and a small number of new items. In addition, following the guidelines of the second strategic objective of the PISA for 2024-33 that refers to leveraging digital technologies to make PISA more engaging and inclusive for students, adaptive testing will be explored. Making the financial literacy test adaptive may be explored, depending on costs and country interest.

- The **parent questionnaire** has been offered to countries every cycle since PISA 2006. This option asks parents questions about their involvement in their child's education, such as the educational and emotional support they provide, the expectations they have about their educational careers and their participation in school activities. In alignment with strategic objective 2, PISA 2029 will explore online delivery of the parent questionnaire to facilitate the distribution and collection of data and thereby improve the response rates.

- The **teacher questionnaire** has been offered to countries every cycle since PISA 2015. The main objective of this option is to gather additional information on students' learning environments. In addition to questions specific to the core and innovative domains, information on teachers' socio-demographics, qualifications, professional development, working experience, instructional practices and job satisfaction has been collected.

- The **new emerging policy questionnaire** for students will be implemented to measure constructs new to PISA, in terms of their substantive areas and/or formats, for possible future inclusion in the main student questionnaire. This space for innovation

could also be used to offer more comprehensive questionnaire modules on policy relevant topics that are already covered to some extent but cannot be fully covered within the core questionnaire. The length of the emerging policy questionnaire will not exceed 10 minutes.

Expanding PISA's global reach

The objective of PISA, as defined in its mandate is to support participating Members and Partners in achieving high quality lifelong learning by improving the quality of learning outcomes, increasing equity in learning opportunities, and enhancing the effectiveness and efficiency of education systems. PISA has acritical role in supporting monitoring against the United Nations' Sustainable Development Goal 4 (SDG 4): "PISA should continue to be the global standards for quality learning. What PISA assesses during the next ten years will contribute to the SDG4 monitoring. New development of PISA and what it will assess in the future should be an inspiration for the new global education goals when the international community develops new objectives beyond Education 2030 and SDG4. PISA will continue its efforts to make the assessment relevant and available not only for the member countries but also for a wide range of countries/economies, with due attention to maintain PISA's high standards."

PISA should continue to expand its global reach while maintaining the high standards and quality of PISA. It also includes as strategic objective 5 to support capacity development of education systems in competence-based assessments, by mobilising the experience and expertise of PISA as a global good. To achieve this, PISA has been contributing to the capacity development for student assessments. Building on the capacity support models of the previous PISA cycles, PISA for Development and PISA for Schools, PISA 2029 will further strengthen its role to share its expertise and help countries/economies for evidence-based system improvement by continuing to offer the Capacity Building and Implementation Support option (CBIS), the Analysis and Reporting partnership country support (A&R), and a paper-based (PBA) alternative to implement the assessment for countries that do not have the infrastructure to deliver a computer-based test.

- The CBIS offers an optimal level of support and capacity development for countries/economies that are new to PISA or returning to PISA with a new team, to ensure successful implementation of PISA according to the assessment's technical standards and timeline, and to build national capacity for implementing future international and national large-scale assessments. The partnership has benefited 13 countries in PISA or PISA for Development up to PISA 2022, and four countries have so far signed up for this option in PISA 2025. Their feedback indicates that they appreciated the capacity needs analyses and support provided to successfully implement PISA. This experience has also benefited the administrations of their national assessments and their participation in other international large-scale assessments. CBIS has been reviewed and updated in each cycle and will be reviewed again to make sure it achieves its objectives in the most efficient way.

- A&R, which is available also for countries/economies that have participated in PISA before, supports the participating country/economy in analysing its PISA data, interpreting the results, preparing a national report, disseminating the results, establishing an evidence-based policy dialogue on the results, and preparing national stakeholders for use of the results. Twenty-one countries have taken up the A&R partnership option in PISA or PISA for Development up to PISA 2022, and several countries are signing up for this option in PISA 2025. Feedback from these countries indicates that they appreciated the collaboration with the OECD over the preparation of national PISA reports. The capacity building for data analysis and reporting and the experience of communicating PISA results have contributed to a greater use of the PISA data in support of national policy discussions and decision making. The A&R programme will be continuously developed based on the lessons learned from PISA

2022 and PISA 2025 to strengthen long-term capacity building in the participating countries.

- Computer-based assessment (CBA) was introduced in PISA 2015, with a paper-based (PBA) alternative available for countries/economies that cannot implement the assessment on computer. The PBA will continue to be offered in PISA 2029 for new countries/economies that cannot take the CBA. While most countries have transitioned to CBA delivery, the PBA option is an essential entry point for some new countries joining PISA. PISA 2029 will only offer one version of the paper-based test, that will have been updated for PISA 2025 to strengthen the alignment with the CBA tests. Countries/economies that have participated in PISA 2025 with PBA will be encouraged to transition to CBA if it is possible for them.

Delivery mode

PISA transitioned to Computer-Based Assessment (CBA) as the main mode of delivery in PISA 2015. This has initially been with an offline USB solution, with a smaller group of countries delivering PISA online on Chromebooks as a pilot in PISA 2022. From PISA 2025, online delivery will for the first time be offered as the main mode of delivery, with alternatives for those systems and schools where the technical infrastructure does not permit for online delivery. In alignment with strategic objective 2, the main delivery mode for PISA 2029 will continue to be online, with an offline computer-based solution for those countries/schools that do not have good internet connection.

As was done for PISA 2025, a PISA IT Infrastructure Survey will inform the Call for Tenders for PISA 2029. It will cover information about the devices and technology available in schools, current practices in national examinations, as well as countries' requests and priorities for further development of PISA to better accommodate the countries' IT infrastructure. The questionnaire results will be shared as part of the Call for Tenders.

Enhancing measures on equity and the analyses and use of PISA data

In alignment with strategic objective 3 and based on an OECD project on the measurement of economic, social, and cultural status (ESCS), PISA 2029 will seek to improve the current metrics on socio-economic status. Particular attention will be dedicated to improving the index of household possession, testing new items that might lead to better measures of material well-being. The contractor may be asked to integrate findings of the project in the design of the questionnaire for PISA 2029.

In addition, PISA 2029 may explore how to enhance international comparisons by providing a measure of the rate of learning (per school year, or per grade level) around the age of 15, which could be achieved through additional samples.

Technology for analysing open-ended responses

In alignment with strategic objective 2, PISA 2029 will advance in the technology for coding open-ended questions. In particular, it will aim to extend the automatic coding routines that have already been developed for coding open responses in reading, mathematics, and science. It will also explore the use of AI technology to automatically map students' responses to the questions on parental occupation to ISCO codes.

The selected contractor may be expected to integrate automatic scoring methods in the scoring of open-ended responses in reading, mathematics, and science, and to operationalise the use of AI technologies for the coding of parental operations to the extent this can be done with results that are reliable and comparable to human coding.

Accessibility

In alignment with strategic objective 3, as part of PISA 2025 all science trend items are being reviewed to see how they can be adapted to follow universal design principles, and all the new items developed

in PISA 2025 will meet these principles. It will be a requirement for PISA 2029 that all new reading items will comply with these principles too. Further guidelines on universal design principles in the context of PISA may be provided by the OECD.

The OECD intends to include in the PISA data collection all students, including those with special needs, allowing for differential uses of the data. For example, students who are not considered capable to demonstrate their skills in the test given the available technology may only complete the questionnaire. New questionnaire items may be developed to collect information on students' experience in completing the test and questionnaire, to inform the design of assistive affordances. Data might also be collected from students with disabilities on the quality of the support they receive at school. The OECD may identify one specific 'need' that can be addressed with specific affordances (for example, addressing the need of students with low vision), and the bidders could be asked to submit in the response to the Call for Tenders a plan and budget to address this need, for example using technology solutions in the platform.

School and student participation

PISA is committed to involve various stakeholders in the development and implementation. One of the aims is to facilitate school and student participation in PISA, which in some jurisdictions is a challenge. As part of the preparations for PISA 2029, the OECD will facilitate the sharing of experiences and best practices to enhance participation rates at the PGB, while the contractor may be requested to contribute to the facilitation of idea sharing at the level of National Project Managers.

Further innovations

The elements and innovations to PISA 2029 included in this document are not exhaustive. Further elements and innovations are currently under consideration and may be incorporated in the Call for Tenders.