

# Framework for Estimating National Costs

## ICILS 2028

October 2024

This framework for estimating national costs has been developed to describe the types of tasks, infrastructure, and staff needed within countries to run the IEA International Computer and Information Literacy Study (ICILS) 2028. The total national costs for running ICILS will depend on individual country circumstances and cost structures.

ICILS 2028 is a digital-format assessment with a field trial scheduled for February–May 2027 and the main survey data collection scheduled for March–June 2028 (Northern Hemisphere) and September–November 2028 (Southern Hemisphere).

The costs in this framework have been described with reference to one grade level participating in each country. For ICILS 2028, the target grade in most countries will be the eighth grade, or its national equivalent.

The major budget requirements needed to implement the ICILS 2028 assessment in each country are described below. For additional information on the required roles and expertise of the National Research Coordinator (NRC), as well as the necessary tasks to take place in each participating country, please refer to the separate document titled National Roles and Tasks for IEA ICILS 2028.

### National Study Center

An ICILS National Study Center (NSC) is established in each participating education system. The ICILS NSC is organized and led by the National Research Coordinator and is usually staffed with one or two full-time employees plus some part-time staff to assist them at particular times during the project life cycle (e.g., content and curriculum expert, sampling coordinator, data manager, statistician, and office staff).

Additional temporary employees will also be necessary. These short-term tasks and positions include:

- Coordinating the sampling process;
- Encouraging school participation (to ensure participation rate requirements for reporting are met) and clerical assistance;
- Translating and reviewing the assessment instruments and manuals;
- IT support for testing and preparing school or external computers for ICILS compatibility and providing support during the administration window;
- Preparing the assessment instruments (installing/copying software, labeling materials, etc.,) and providing these to the participating schools;
- Survey administration in schools (school coordinators/test administrators);
- National quality control monitor(s);
- Scorers for the constructed-response items;
- Reviewing draft national and international data and summary statistics.

Please consider that staff who work directly with the International Study Center (ISC) and IEA require a high level of proficiency in written and spoken English.

## Equipment

The NSC needs to be equipped with computer infrastructure sufficient to manage work on large-scale assessment. ICILS 2028 assessment instruments (achievement test and context questionnaires) will be developed, translated, and administered using electronic (computer-based) platforms. It is expected that both the ICILS assessment and questionnaire instruments will be prepared and administered using IEA's StudyExpert.

The assessments will be delivered to students via ICILS Players. The offered delivery methods are online administration and via individual PCs/USBs. The chosen delivery method will determine the infrastructure costs related to test delivery (e.g., purchase and configuration of USB drives or laptops to be taken to schools).

Each student must have access to a computer with an external keyboard and mouse. These can be desktop or portable devices.

Each device should have a power supply (to ensure sufficient charging). The minimum device requirements for ICILS compatibility will be confirmed at a later stage.

### For online administration:

Each device needs to be connected to the internet. Browser recommendations will be confirmed at a later stage, but materials are designed to be compatible with most modern browsers. It is recommended to prepare some USB-based versions of the test instruments as a backup solution in case of any unforeseen technical issues associated with internet access and delivery.

Each student's computer needs to have uninterrupted internet access during data collection.

### For individual PC/USB administration:

No network or internet connection is required for the assessment administration, as everything is contained on USB sticks. It is crucial to use quality USB sticks. Typically, any relatively new (less than 1 year old) model produced by a reputable brand will meet the requisite technical criteria. We strongly recommend that countries do NOT purchase cheap USB drives from small providers. Any cost saving between purchasing high quality USB drives and ones of unknown quality is very quickly lost if USB drives fail and additional data collection is required in schools to make up for these failures. Specifications regarding the minimum OS and storage capacity will be confirmed at a later stage.

Data upload will require internet connection and can be done from a single computer connected to the internet.

Systems provided by IEA (within-school sampling software; StudyExpert) are designed to work on PCs.

Communication with the international centers will be via email and materials will be exchanged by uploading/downloading to/from the IEA's secure servers.

## Travel

Throughout the assessment cycle, there will be five in-person NRC meetings to attend. Each in-person meeting will be held in a different participating country and will last for approximately one working week (five days). There may be additional virtual NRC check-in meetings as needed at different points throughout the study cycle.

Before each of the field trial and main survey administrations there will be a scoring training meeting and a field operations training meeting (four meetings in total). These will also be conducted in person. Where feasible, we may consider including a hybrid option for the field operations training, however, this option cannot be guaranteed. At least one person will need to attend in-person scoring training meetings (for the field operations training it should be the person who will oversee field operations and for the scoring training it should be the scoring supervisor/lead who will be responsible for training scorers within countries). There will be one scoring training meeting for the field trial and one for the main survey. Some countries choose to send more than one person to the training meetings (such as the NRC and persons with specific responsibility for scorer training, data management, and field operations).

Some domestic travel within the country also needs to be budgeted for. This includes training school coordinators/test administrators, data collection (if test administrators are required to travel to schools), monitoring schools during the field trial and the main survey (National Quality Assurance Program), and coordinating the work with any outsourced agency or agencies, etc.

## Sampling

There will be approximately 25–30 schools, 500–1,000 students, and 250–300 teachers participating in the field trial and a minimum of 150 schools with approximately 3,000–4,000 students and approximately 1,900–2,250 teachers for the main survey. In each school there will be at least one class randomly selected from the target grade. All students in this sampled class are selected to participate in the survey. The number of classes to be selected may be increased to meet sample size requirements or countries' oversampling needs and interests. Per school, 15–20 teachers will be selected, where possible, unless otherwise agreed on.

Depending on the structure of educational/governmental systems within each country, costs may occur during the sampling frame preparation.

## Instrument Preparation

For the field trial and main survey, the major undertaking is translating and/or adapting the assessment instruments and manuals into the language(s) of instruction in each country. The student tests (of Computer and Information Literacy and Computational Thinking if the international option is being undertaken), the student questionnaire, the teacher questionnaire, ICT-coordinator questionnaire, and principal questionnaire will all need to be adapted and translated under the supervision of the NSC and with support from the ISC. First, the instruments and manuals will need to be translated/adapted for field trialing the newly developed items and then updated for the main survey.

For the main survey, countries will be responsible for reviewing the existing trend translations from the ICILS 2023 cycle. New countries will need to translate/adapt the trend items.

Finally, the NSC is responsible for testing the national player(s). If the individual PCs/USBs method will be used, a USB stick with the ICILS 2028 Player and Student Questionnaire application needs to be installed for each participating student.

The following information provides estimates on the scope of translating/adapting the assessment instruments and manuals. Note that some main survey materials do not include word counts because their content is similar to that of the field trial.<sup>1</sup>

For the field trial, NSCs will need to prepare national versions of:

- The Computer and Information Literacy (CIL) instruments and student questionnaire (~28,000 words) and, if applicable, the Computational Thinking (CT) instruments (~11,000 words)
- The teacher, principal, and ICT-coordinator questionnaires (~12,000 words)
- School Coordinator Manual (~9,000 words)
- Test Administrator Manual (~13,000 words)
- Preparing Computers for ICILS instructions (~3,500 words)
- National Quality Control Monitor Manual (~5,000 words) and Classroom Observation Record (~4,000 words)
- Scoring Guides for CIL (~23,000 words) and CT (~5,000 words)

For the main survey, NSCs will need to prepare national versions of:

- The CIL instruments and student questionnaire (~25,000 words) and, if applicable, the CT instruments (~5,000 words)
- The teacher, principal, and ICT-coordinator questionnaires (~11,000 words)
- School Coordinator Manual
- Test Administrator Manual
- Preparing Computers for ICILS instructions
- National Quality Control Monitor Manual and Classroom Observation Record
- Scoring Guides for CIL (~27,000 words) and CT (~1,500 words)

## Printing

No printing of materials is necessary. If desired, the NCS should plan for printing expenses for any paper versions of manuals to be provided to the School Coordinator and Test Administrator of each participating school.

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<sup>1</sup> Please note that expected word counts are preliminary and based on the 2023 cycle's word counts. They are provided for estimation purposes only and are subject to change.

## Shipping/Mailing Costs

For shipping any USB format materials to schools, a safe and efficient shipping method should be selected for the materials to remain secure at all times. Additional mailing might be necessary between the NSC and the schools, e.g., providing any missing or damaged testing materials.

NOTE: There are two rounds of shipping USB format materials to and from the participating schools—first for the field trial and then for the main survey.

## Scoring

Student responses to the constructed-response items will need to be scored in each participating country. In addition to the actual scoring, NSCs will need to budget for training the scorers and supervising the scoring process.

The ICILS ISC will provide international scoring training and scoring guides for the field trial and again for the main survey. Attending the international scoring training is mandatory. Scoring guides may either be used in English or translated.

The ICILS ISC will provide the NSCs with estimates of person days required for scoring activities based on the number of constructed-response items. The estimates provided below are based on the ICILS 2023 cycle and are subject to change.

For the field trial, it is estimated that this requires about 50 person days in total.

For the main survey, it is estimated that the scoring process requires about 200 person days.

## Data Entry

The ICILS 2028 assessment and context questionnaires data will be directly uploaded, so no manual data entry will be required.

## Data Processing and Weighting of the Data

Data processing and weighting is a joint effort between IEA and the NSC. IEA implements a series of standardized quality checks while cleaning and processing the data, and in a second step while weighting the data. The NSC needs to ensure that a National Data Manager is available to review the data and respond to any questions raised during these steps. In addition, someone with statistical expertise should be available to review the national and international data scaling and draft reports.

## Reporting

Each country needs to plan for producing a national report at the end of the assessment cycle. This includes the costs of preparation and publishing the report, a press conference for its release and/or any other form of the ICILS results dissemination.