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URUGUAY

LEVERAGING THE CONTRIBUTION OF EDUTECH TO IMPROVE LITERACY

(UR-T1267)

DONORS MEMORANDUM

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PROJECT SUMMARY
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Latin America needs more and better investment to promote quality, inclusive educational systems for all. One of the areas where it particularly lags behind is in learning how to read and write Spanish, a skill that has proven to be key and determines the level of achievement reached in subsequent levels of child education.

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), the acquisition and ongoing improvement of literacy skills throughout life is an inherent part of the right to education, and has a multiplier effect since it facilitates the empowerment of people and societies. Literacy enables people to fully participate in society and helps improve the quality of livelihoods, since it leads to greater participation in the labor market and improves the health and nutrition of children and the family as a whole. This in turn reduces poverty and expands opportunities for development over the course of life, thereby becoming a driver of sustainable development.

The COVID-19 pandemic demonstrated the need for innovative teaching methods that make a system resilient during these times of crisis, but also take into account the needs and specific situation of students in the system. In this context, the objective of Fundación Ceibal, which is responsible for research and innovation within Plan Ceibal, is to digitally transform methodologies for initial literacy processes, which will make it possible to offer personalized learning that is tailored to the needs of first-grade students in primary school, and prepare teachers who support this process.

The project will develop and implement an application on a collaborative basis to support the learning of reading and writing in the Spanish language for students in the initial stage of literacy. This application will be geared to the first year of primary education, with a particular focus on social vulnerability contexts, and may be used in a remote, hybrid, or assisted self-learning form.

The final beneficiaries will be 2,200 students in the first year of primary school at public schools in Uruguay who are in the initial stage of literacy. The project will also impact 50 private innovators who participate in this pilot experience and will be better prepared to implement solutions with the public sector.

Through this project, IDB Lab and the IDB Education Division will be able to extract lessons learned from the business model in order to reach a wider audience in both the public and private sectors, as well as civil society organizations.

This project is aligned with the Bank's Vision 2025 and its Country Strategy with Uruguay since it uses digital technologies to enhance social inclusion and provide better opportunities that are more equitable for citizens, including having access to services such as education.

ABBREVIATIONS

ADELA Network	Alianza para la Digitalización de la Educación en Latinoamérica y el Caribe [Alliance for the Digitalization of Education in Latin America and the Caribbean]
OECD	Organisation for Economic Co-operation and Development
PISA	Programme for International Student Assessment
TERCE	Tercer Estudio Regional Comparativo y Explicativo [Third Regional Comparative and Explanatory Study]
UCU	Catholic University of Uruguay
UNESCO	United Nations Educational, Scientific and Cultural Organization

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EXECUTIVE SUMMARY

Country and geographic location:	Uruguay		
Executing agency:	Centro Ceibal para el Estudio de las Tecnologías Digitales de la Educación [Ceibal Center for the Study of Digital Education Technologies]		
Focus area:	Knowledge economy/Education		
Coordination with other donors/ Bank operations:	This project complements the following operations of the Bank's Education Division: (i) "Aprendamos todos a leer" [Let's all learn to read] (RG-T3754) which seeks to teach teachers how to teach reading to children from an early age, (ii) the loan operation "Generation C: Consolidating Educational Innovations for 21st Century Skills and Competencies" (UR-L1141); (iii) the technical cooperation project "High Touch High Tech: Teachers and Artificial Intelligence building an enhanced response to the COVID emergency by fostering knowledge and skills (UR-T1244). It also complements the IDB Lab technical cooperation project "Transforming Urban Service Delivery through Private Innovation" (UR-T1224), which seeks to connect private innovators to address challenges in the private sector.		
Direct and indirect beneficiaries:	The final beneficiaries will be 2,200 students in the first year of primary education in public schools in Uruguay who are in the initial stage of literacy. The project will also impact 50 private innovators who will participate in this pilot experience and be better prepared to implement solutions with the public sector.		
Financing:	Nonreimbursable technical cooperation resources:		
	Total IDB Lab contribution:	US\$575,000	50%
	Counterpart:	US\$575,000	50%
	Total budget:	US\$1,150,000	100%
Execution and disbursement period:	Execution: 36 months Disbursement: 42 months.		
Special contractual conditions:	Conditions precedent to the first disbursement: (i) the appointment/selection of the person responsible for project management (coordination), and (ii) submission of the first annual work plan and the respective milestones.		
Environmental and social impact review:	This operation was screened and classified in accordance with the requirements of the IDB's Environment and Safeguards Compliance Policy (Operational Policy OP-703) on 12 October 2021. Given the limited nature of the impacts and risks, the project is proposed as a category C operation.		
Unit responsible for disbursements	Country Office in Uruguay		

I. PROBLEM ADDRESSED AND OPPORTUNITIES

- 1.1 **Challenges in the educational system: literacy.** Latin America, the most unequal region in the world, needs more and better investment to promote quality, inclusive educational systems for all. One of the areas where it particularly lags behind is in learning how to read and write Spanish, a skill that has proven to be key and determines the levels of achievement reached in subsequent levels of child education.
- 1.2 According to UNESCO, the acquisition and ongoing improvement of literacy skills throughout life is an inherent part of the right to education, and has a multiplier effect since it facilitates the empowerment of people and societies. Literacy enables people to fully participate in society and helps improve the quality of livelihoods, since it leads to greater participation in the labor market, and improves the health and nutrition of children and the family as a whole. This in turn reduces poverty and expands opportunities for development over the course of life, thereby becoming a driver of sustainable development.
- 1.3 The importance of literacy skills contrasts with low performance rates in this area in Latin America, as illustrated by the results of the Programme for International Student Assessment PISA-D¹ as well as PISA-2018,² which ranked Latin America in the lower half of the international ranking in reading. In Latin America, 51% of students have low performance in this area, which is nearly twice as high as what was reported by OECD countries (23%) and more than four times the percentage of students in countries with the best results (12%). According to PISA, this low performance is related to difficulties in basic reading skills, such as identifying the main idea of an average length text, or connecting several pieces of information from different sources.
- 1.4 According to the Tercer Estudio Regional Comparativo y Explicativo [Third Regional Comparative and Explanatory Study] (TERCE)³ study conducted in 2013, the results in the Language area (Reading and Writing) are hardly encouraging. The data show that 40% of third-grade primary students in Latin America do not achieve minimum reading levels (i.e. they do not understand what they read).
- 1.5 In Uruguay, despite some progress made, the most recent PISA tests revealed that 42% of students are still in the lowest performance levels in reading, compared to 32% of Chilean students and 23% of the average in OECD countries. This low performance (level 2) means that students are unable to interpret and recognize questions that require more than an indirect inference.⁴

¹ https://publications.iadb.org/publications/spanish/document/Nota_PISA_D_-_Internacional_-_vf.pdf.

² Nota_PISA_18_PISA_2018_en_Am%C3%A9rica_Latina_C%C3%B3mo_nos_fue_en_lectura_es.pdf.

³ <https://cima.iadb.org/en/regional-overview/learning/terce>.

⁴ Percentage of 15-year-old students with a performance below level 2. In reading, this means that they cannot interpret or recognize questions that require more than an indirect inference. In mathematics, they cannot use basic algorithms, formulas, or processes to solve problems using whole numbers or interpret results literally. PISA 2018.

- 1.6 **COVID-19 and its impact on the educational system.** As a result of the COVID-19 pandemic, the closure of schools in Latin America and the Caribbean left more than 156 million students unable to attend in-person classes, with vulnerable countries and sectors being those hardest hit.
- 1.7 In the specific case of Uruguay, because of early momentum for the digital transformation of education with Centro Ceibal para el Apoyo a la Educación de la Niñez y la Adolescencia [Ceibal Center to Support the Education of Children and Adolescents] (Plan Ceibal),⁵ the country was in a better position to face the challenge of remote emergency teaching than any other country in the region. In the nearly two decades of its existence, Plan Ceibal has universally provided devices and learning content and management platforms, as well as training for teachers, and has promoted new pedagogical practices.
- 1.8 According to the most recent Aristas report of the Instituto Nacional de Evaluación Educativa [National Institute for Educational Assessment] (INEED)⁶, Plan Ceibal was effective in countering the effects of the pandemic, and helped improve student achievement in reading and mathematics. The use of its platforms, especially CREA, helped coordinate the learning process.
- 1.9 Ceibal adapted its platforms and content to the new circumstances caused by the pandemic. The number of teachers and students that logged into the learning management system has quadrupled compared to before the pandemic, with more than 75% of students and more than 84% of teachers connecting to the platform. However, the gap in accessing the resources available on Plan Ceibal's CREA platform among students in quintile 1 and 5 is still 22 percentage points.⁷
- 1.10 **Remote education and literacy.** One of the skills that was affected the most by the closure of educational facilities and remote education was precisely reading and writing.
- 1.11 In the case of mathematics, initiatives were developed over the last decade that were adapted to the specific situation in Latin America, such as Bettermarks, known as the Plataforma Adaptativa de Matemáticas [Adaptive Mathematics Platform] (PAM), Matific, and Conecta Ideas from the University of Chile.
- 1.12 However, in the case of reading and writing, there are still no platforms for learning the Spanish language that could be implemented by educational systems in the region. This was demonstrated in surveys with public policy makers in the various

⁵ Centro Ceibal [Ceibal Center] was created by Law 18,640 (amended by Law 18,719 approving the National Budget for the period 2010-2014), which was enacted and published in January 2010. The Ceibal Center is a nongovernmental legal entity governed by public law that reports directly to the Ministry of Education and Culture, with a budget of funds provided by the national government in an approximate amount of US\$50 million per year. Alvarez Marinelli, et al., (2020)

⁶ <https://www.ineed.edu.uy/aristas-2020-primer-informe-de-resultados-de-tercero-y-sexto-de-educacion-primaria.html>.

⁷ <https://blogs.iadb.org/educacion/en/uruguayreopening/>.

countries of the region that are part of the Adela Network,⁸ and by the Bank under the Aprendamos Todos a Leer program.⁹

- 1.13 To respond to this situation, Plan Ceibal has recently launched the Language Platform, the first in the region, which targets 4th, 5th, and 6th grade students in primary school, and 1st, 2nd and 3rd year students in basic middle school.¹⁰
- 1.14 However, a remaining challenge is the development of digital tools that can incorporate reading and writing skills for four- to eight-year-old children in the initial stage of literacy. Students at this stage cannot read or write, which impedes their use of digital applications where typical interactions are based on written messages, which points to the need to design intuitive tools with accessible interfaces, multimedia content, and eventually other, more sophisticated improvements such as voice messaging.
- 1.15 **The problem. The teaching of literacy skills is not achieving the expected results.** According to the results of the Aristas test administered in 2020, 39.8% of third-grade students do not have minimum reading skills. This situation is even worse for students in schools in highly disadvantaged contexts, where the percentage rises to 58.7%.¹¹ This is primarily due to:
 - (i) The existing methodologies that are effective for teaching reading and writing are unavailable in a digital version, and have limitations in terms of being personalized (motivating) and relevant for the age group they target, particularly those in the most vulnerable sectors.
 - (ii) The pandemic has shed even more light on learning gaps that primarily hurt students from households in the lowest quintiles, which poses a challenge to closing these gaps. This points to the need to supplement the in-person work of teachers with tools that make it possible to expand learning spaces and times beyond the classroom.
 - (iii) The lack of accessible, interactive digital tools for achieving literacy and learning to read and write in Spanish, which are designed with elements to support the teacher in the classroom and provide support for families in the home. This limits teachers to giving more personalized attention to students in the classroom, and requires parents to reinforce content at home.
- 1.16 **Gender gaps** are also evident in the educational area. There is a growing number of studies showing how the stereotyping of women can affect the life expectations and aspirations of girls (Hoyle et al., 2019). Children's books are dominated by male characters who are usually the heroes in the stories, which could lead to the idea that men have a more important place in history than women (McCabe et al., 2011). Only 31% of children's books feature a female as the main character in the story, and 7.5% when the stories are about animals.

⁸ ADELA, coordinated by Fundación Ceibal, is a network of public policy makers and research centers, universities, and think tanks in Latin America and the Caribbean, which promotes good practices in digital education and the formulation of evidenced-based public policies (<https://adeladigital.net/es/sobre-adelala/>).

⁹ <https://www.iadb.org/en/sector/education/aprendamos-todos-leer>.

¹⁰ <https://www.ceibal.edu.uy/plataformadelengua>.

¹¹ <https://www.ineed.edu.uy/aristas-2020-primer-informe-de-resultados-de-tercero-y-sexto-de-educacion-primaria.html>.

- 1.17 Like other hard-to-solve problems facing the public sector in terms of fulfilling its most critical functions, this one requires multidisciplinary capacities and the creation of a collaborative ecosystem that can unite the public sector with innovators such as entrepreneurs, researchers, and academia.

II. THE SOLUTION

A. Project description

- 2.1 The **general objective** of the project is to help develop mechanisms for collaboration between the public education system, academia, and private sector innovators, so that they can develop new solutions to improve the academic performance of four- to eight-year-old children, particularly those living in vulnerable conditions.
- 2.2 Specifically, the project will develop and implement an application on a collaborative basis to support literacy learning in the Spanish language for students in the initial stage of the literacy process. This application will be geared to first graders in primary schools, with a particular focus on social vulnerability contexts, and may be used in a remote, hybrid, or assisted self-learning form.
- 2.3 **Intervention model:** To achieve the proposed objective, a new platform will be co-created with private innovators that will become a motivating learning resource with an entertaining narrative and multimedia content, which may help improve the initial stage of literacy and come closer to emerging expectations of fun and entertaining experiences in digital environments for children in this age group.
- 2.4 The intervention model is based on collaboration between the public education system, the innovation sector, and academia:
- (i) The public sector has identified the need for a digital tool to teach reading and writing to students in the initial stage of literacy.
 - (ii) The academic sector will contribute knowledge and prior experience in the development of a proposed curriculum and methodologies to teach reading and writing to four- to eight-year-old children, which has produced significant improvements in the critical skills needed to learn a written language in a context of social vulnerability.
 - (iii) The innovation sector, represented by entrepreneurs, innovative companies, and technology centers, etc. will provide robust solutions based on their creative capacity and experience in the market.
- 2.5 This will facilitate the creation, along with actual users (teachers and students), of an ecosystem that includes the different sectors and facilitates collaboration among entrepreneurs, to address the specific challenges of Uruguay's public education system in the classroom and at home.
- 2.6 This pilot project gives the public education system a new way to perform its role, working with innovators from the private sector to continue to implement new solutions that address the country's educational challenges and increase the demand for technology solutions for education provided by innovative companies.

- 2.7 This will be possible through a business model that has already been tested by some companies that work with open source software, which combines community versions with commercial versions; in other words, an open, public, and free model with the potential to create commercial products using the same ecosystem of solutions. Successful examples of this business model are MongoDB (database systems), ODOO (enterprise resource planning system), and VTiger (a customer relationship management software), which have free versions and commercial versions that offer additional functionalities and services.
- 2.8 The design **will promote gender equality**, thereby avoiding stereotypes. The digital solution that is developed for literacy learning will, through its narrative, characters, and plot, be conducive to gender equality and the empowerment of women in digital educational content.
- 2.9 Uruguay has good enabling conditions for this model since the educational digital transformation process has been ongoing since 2007, and there are close ties with academia and an entrepreneurial sector that is eager to work with the education system.
- 2.10 **Innovation.** This proposal is innovative because there are currently no digital tools, i.e. a digital public good in the Spanish language, that support the acquisition of literacy skills for students in the initial stage of literacy as part of the proposed formal education system. Furthermore, it addresses a very important problem, which is the literacy lag. “Learning to read and understand” is key for “reading to learn.” If this first step is not taken in the first three years of primary education, academic trajectories and therefore life prospects are seriously compromised.
- 2.11 It is also innovative in that it: (i) develops mechanisms for collaboration between the public education system, academia, and innovators in the education area, (ii) facilitates the learning of reading and writing in Spanish for first grade students in primary school, through the development of an entertaining pedagogical platform that can be used in the assisted self-learning mode and in different learning environments, with a particular focus on social vulnerability conditions; (iii) creates a solution based on scientifically-developed methods, which is open source, free, and can be adapted to the different student learning modes and specific contexts in the region; and (iv) develops pedagogical resources that facilitate the incorporation of the solution into teaching and learning practices by teachers and families, using emerging formats associated with cultural uses by children that motivate them and therefore enhance educational quality.

B. Project beneficiaries

- 2.12 The final beneficiaries will be first grade students in public schools in Uruguay (rural and urban) who are in the initial stage of literacy and currently have difficulty learning reading and writing skills in a remote, hybrid, or self-assisted learning environment. Priority will be given to those in more vulnerable contexts.
- 2.13 A typical beneficiary of this project is Juan Martín, a first grade student.

Juan Martín is a first grade student in Full-Time School number 118 of Villa Olímpica in Playa Pascual, in the department of San José. Nearly 7 years old, he is the third of five siblings who live in a housing cooperative with their mother. His mother travels every day of the week to work at a store in the city of Libertad and Juan Martín is

cared for by his older sisters. The oldest sister, who just started secondary school, takes her younger siblings to school and comes to pick them up at the end of the school day. Juan Martín, like many Uruguayan children, experienced interruptions in his level 5 classes, and between March and June of the first year of school, he took classes through the Ceibal CREA platform. He still does not read or write with the fluency that would be expected of a child of his age.

- 2.14 The direct beneficiaries of the project will be 2,200 students in the first year of primary education in the public system. The project is also expected to benefit at least 50 private innovators who will be selected through regional competitive open innovation processes, who will be better prepared to implement solutions with the public sector and specifically with the education sector.

C. Project components

Component I. Virtualization of initial literacy methodologies (IDB Lab: US\$425,416 – Local contribution: US\$234,924)

- 2.15 The objective of this first component is to digitally transform initial literacy methodologies, which will facilitate personalized learning and be tailored to the needs of first grade students in primary schools, and will prepare teachers who support that process.
- 2.16 To achieve this objective, a selection of analog content developed using the **Sophia Method** will be adapted and validated with actual users in an interactive digital format. This method, which was developed by the Catholic University of Uruguay (UCU) and Fundación Sophia,¹² has already been tested and validated for in-person learning with 300 students in schools in highly vulnerable contexts, and has produced significant improvements in the critical skills needed to learn a written language in conditions of social vulnerability.¹³
- 2.17 Based on this proof of concept, open innovation processes will be developed through challenges inviting Latin American entrepreneurs, technology centers, academia, and innovative companies to help turn the solution into a sufficiently attractive and entertaining product for students in the initial stage of literacy. Given that Fundación Ceibal has not previously worked with the innovation sector, a company or organization will be contracted that has experience in these types of challenges and networks for connecting with innovators in the region.
- 2.18 This component also includes the launch of the technology solution, which will be rolled out on the Plan Ceibal platform for first grade students in primary schools and a pilot group of 80 teachers.
- 2.19 The activities to be financed under this component include: (i) the proof of concept that was tested and evaluated with actual users; (ii) contracting of an entity or company specializing in open innovation; (iii) conducting of open innovation challenges; (iv) prototyping of the solutions; (v) production of the solution for the pilot; (vi) roll-out of the solution on the Ceibal platform; (vii) development of

¹² Fundación Ceibal entered into an agreement with Fundación Sophia and the UCU, in which they agree to transfer knowledge on a program, which was developed and validated in vulnerable education communities in Uruguay, for the initial learning of written language called the Sophia Method, in order to develop an initial prototype of the digital version.

¹³ Based on the Technical Report of the Catholic University of Uruguay.

resources for training teachers; and (viii) design of a strategy to provide universal access to the solution.

- 2.20 The expected outputs of this component are: (i) validated proof of concept; (ii) two open innovation challenges; (iii) solution available on the Ceibal platform; (iv) 80 teachers able to use and promote the use of the solution; and (v) a scalability strategy within the Uruguayan education system.

Component II. Integration of resources for family support in literacy learning. (IDB Lab: US\$57,100)

- 2.21 The objective of this second component is to promote the use of the literacy solution in a hybrid, virtual learning context that promotes new teaching modalities.
- 2.22 To achieve this objective, new strategies are needed to “win over” students and actively involve family role models in the initial learning of reading and writing. Since the solutions promoted by the formal education system have not been effective in achieving a buy-in beyond the classroom, alternative solutions will be sought from private innovators.
- 2.23 The activities to be financed under this component include: (i) an open innovation challenge; (ii) financing of prototypes; and (iii) design of a communication strategy to reach the universe of family role models for first grade students.
- 2.24 The expected outcomes of this component are: (i) an open innovation challenge; and (ii) strategy designed for adopting the literacy solution outside the classroom.

Component III. Knowledge management and connections (IDB Lab: US\$31,200).

- 2.25 The objective of this component is to develop knowledge and connection activities that make the model sustainable and scalable.
- 2.26 As part of the connection and scaling activities included under this component, a number of meetings will be held with member countries of the ADELA network where the progress made in the project will be shared and the transfer of knowledge will be promoted.
- 2.27 The model is expected to create learning opportunities for a wide audience, including Spanish-speaking public education systems in the region, experts in the education sector, entities that promote innovation, public policy makers, innovative companies, etc. To achieve this, having a robust monitoring and evaluation system will be essential; this will be developed by Plan Ceibal. A series of studies will be conducted to evaluate different aspects of the model, such as evaluation of the process of making the solution available and an analysis of the entrepreneurial sector's contribution to solving public policy problems in an innovative manner.
- 2.28 In addition, the methodological foundations for a future impact evaluation will be established.
- 2.29 If deemed advisable, IDB Lab may commission these studies.
- 2.30 The expected outcomes of this component are: (i) monitoring and evaluation system implemented; (ii) four meetings of the ADELA network held to present the project; (iii) solution launch evaluated; (iv) study on the contribution of the entrepreneurial sector conducted; and (v) impact evaluation designed.

D. Project impact, monitoring, and evaluation

- 2.31 **Impact.** The design and operation of this new literacy teaching platform will not only make it possible to develop new tools to support the learning process for vulnerable first grade students in primary school, it will also complement the knowledge and know-how in the public sector, academia, and the entrepreneurial sector.
- 2.32 The main expected outcomes of the project are: (i) 2,200 users of the solution, among first grade students in primary schools in the rural and urban public education system; (ii) 70% of these student users will find the solution attractive and motivating for learning how to read and write; (iii) 70% of first grade teachers who were trained incorporate the solution into their teaching practice; (iv) 50 private innovators participate in this pilot experience by offering solutions; and (v) two countries in the region express interest in bringing the solution into their educational systems.
- 2.33 The project will contribute to the growing trend to provide GovTech solutions from the private innovation sector to governments, in Uruguay and the region. These solutions are expected to continue to expand after the project has ended.
- 2.34 **Monitoring and evaluation.** Plan Ceibal will be responsible for monitoring and tracking the project, using the indicators agreed upon in the results matrix as a reference. To this end, it will develop a monitoring and evaluation plan that is able to collect information on the project's activities, establishing a starting point or baseline with indicators, and a final report that will provide evidence validating the project's initial hypothesis. The monitoring plan will include the collection of data on the project's beneficiaries.
- 2.35 In addition, the financial data and information related to the project indicators will be compiled and monitored primarily through the IDB Lab system and used to prepare IDB Lab's standard semiannual project status reports.
- 2.36 Lastly, the project should also generate knowledge products that systematize the main lessons learned and best practices, and lay the foundations for an impact evaluation, which are important inputs for scalability.

III. ALIGNMENT, SCALABILITY AND RISKS

A. Alignment with the IDB Group and Sustainable Development Goals

- 3.1 **Alignment with the IDB country and sector strategy.** The operation is aligned with the IDB's Vision 2025, specifically in the digital economy pillar as the use of digital technologies is fundamental to enhance social inclusion and provide better and more equitable opportunities for citizens, including access to services such as education.
- 3.2 It is also consistent with the second Update to the Institutional Strategy (UIS) (document AB-3190-2). It is strategically aligned with the development challenges of social inclusion and equality, since its objective is to improve the quality of public education available to students from low-income households, by enhancing their educational opportunities. It is consistent with the Country Strategy with Uruguay 2021-2025 (document GN-3056) by contributing to the strategic objective of improving education and job training and supporting the most vulnerable populations, with the Skills Development Sector Framework Document

- (document GN-3012-3) contributing to Challenge 2 (Ensure that children and preadolescents develop the basic cognitive and socioemotional skills that will allow them to keep learning).
- 3.3 **Link with other operations:** The Bank has currently approved a number of different projects that help increase the impacts of this operation. The program “Aprendamos todos a leer” [Let’s All Learn to Read] (CO-T1359) seeks to teach teachers how to teach reading to children from an early age, and focuses on the development and consolidation of precursor skills in the initial stage, i.e.: phonological awareness, the alphabetic principle, learning new vocabulary, oral and reading comprehension, and writing letters, words, and sentences. The operation Generation C: Consolidating Educational Innovations for 21st Century Skills and Competencies” (UR-L1141), seeks to improve the learning and skills of primary and basic middle school students in Uruguay. The technical cooperation project High Touch High Tech: Teachers and Artificial Intelligence building an enhanced response to the COVID emergency by fostering knowledge and skills (UR-T1244) has the following objectives: (i) to support the Ceibal Center’s educational response to the immediate and midterm challenges posed by the COVID 19 pandemic; (ii) to develop and implement an innovative pedagogical approach with remote education technology for mathematics and computational thinking using High Technology-High Touch strategies (HT-HT); and (iii) to produce evidence on the outcomes and impact of HT-HT strategies on mathematics learning as well as computational thinking skills; and produce working knowledge on the implementation of both pilot projects.
- 3.4 The project is also aligned with the following Sustainable Development Goals (SDGs) set out by the United Nations General Assembly:
- SDG 1 “End poverty” through Target 1.4, since the tool targets students in vulnerable situations where the Sophia Method has been effective.
 - SDG 4 “Quality education” (Target 4.1), since the final beneficiaries will be first grade students in public primary schools in Uruguay who are in the initial stage of literacy.
- 3.5 The operation is included in the **Knowledge Economy** focus area by promoting an integrated educational innovation and entrepreneurial model that promotes the development of key skills for the present and the future of vulnerable children in Uruguay and the region.

B. Scalability

- 3.6 The scalability of this operation is ensured because it works with Fundación Ceibal, which is the research and innovation arm of Centro Ceibal para el Apoyo a la Educación de la Niñez y Adolescencia¹⁴ [Ceibal Center to Support the Education of Children and Adolescents] (Plan Ceibal). This center was formed to promote educational transformation that would help improve the quality of learning and social equity based on the introduction of new technologies, and will enable the rapid

¹⁴ Centro Ceibal [Ceibal Center] was created by Law 18,640 (amended by Law 18,719 approving the National Budget for the period 2010-2014), which was enacted and published in January 2010. The Ceibal Center is a nongovernmental legal entity governed by public law that reports directly to the Ministry of Education and Culture, with a budget of funds provided by the national government in an approximate amount of US\$50 million per year. Alvarez Marinelli, et al., (2020).

dissemination of the solution in the Uruguayan education system¹⁵ in coordination with the National Public Education Administration (ANEP). The joint work of Plan Ceibal and ANEP is expected to provide universal access to the tool for 40,000 primary school students as part of the regular activities of both institutions, without requiring any additional investment.

- 3.7 This solution will be developed in open code so that it can be freely used throughout the region. Fundación Ceibal, which acts as the coordinator of the ADELA network¹⁶ and includes 13 countries in the region, will ensure that the solution produced under the project is available to children in Latin American education systems.
- 3.8 In addition, the hybrid business model (community and proprietary) will enable the participating innovators to continue to scale their solutions in Edutech, since whatever was accomplished in connection with the project can continue to be upgraded or new functionalities can be added to the solution to serve a growing market such as the digital education market.
- 3.9 The IDB, through the Education Division, will leverage this dissemination through policy dialogue with countries in the region. Furthermore, the functionality and resources stemming from the development of the solution will continue to be available for the production, in subsequent stages, of a literacy learning software with more functionality and a larger scope (for example, the inclusion of AI), for students in the initial stage of literacy in Latin American countries and will be integrated into other platform solutions of Plan Ceibal and other educational plans of the region's countries.

C. Project risks

- 3.10 **Risk:** There is a risk of not properly addressing questions regarding privacy in the management and recovery of data. **Mitigating actions:** Fundación Ceibal and Plan Ceibal have strict protocols to ensure the privacy of the information, and their extensive experience in the implementation of these types of projects will be a key factor (Digital Principles).
- 3.11 **Risk:** There is a risk of low participation by all interested parties in the project (suppliers, innovators, academic sector, etc.) and the relevant stakeholders in the education community (users). **Mitigating actions:** Open innovation processes will be carried out to integrate innovators with contributions from academia and the private sector, together with a co-creation methodology with users involved from the very early stages.
- 3.12 **Risk:** There is a risk of difficulties arising in the redesign and adaptation of educational guidelines and activities to digital formats. **Mitigating actions:** Specialized staff from Plan Ceibal and Fundación Ceibal will be involved, along with experts contracted on an ad hoc basis to reach the project's specific milestones. The Catholic University will also provide support in the Sophia Method, in order to ensure the proper adaptation to digital format, while conserving pedagogical qualities.

¹⁵ Up to 40,000 students, at no additional cost.

¹⁶ The ADELA network is a network of public policy makers and researchers specialized in digital education in Latin America and the Caribbean, who share knowledge and good practices. More than 14 institutions from different countries in the region and associated researchers participate in this network.

- 3.13 **Risk:** There is a risk of not attracting the interest of private innovators. **Mitigating actions:** A hybrid business model will be implemented where open source software will be used, giving innovators the possibility of developing extensions with commercial value based on this solution. In addition, IDB Lab's participation in the project may provide its networks of contacts with the innovation ecosystem in Uruguay and the region, and its track record in the area of Edutech and GovTech will facilitate collaboration with the private sector.

IV. COST AND FINANCING

- 4.1 The total cost of the project is US\$1,150,000, with US\$575,000 (50%) contributed by IDB Lab and the remaining 50% by the local counterpart (at least 50% of which will be in cash).
- 4.2 The financing from IDB Lab will be provided as nonreimbursable technical cooperation funding, since the project involves an early stage innovation.

Summary Budget (US\$)

Expense categories	IDB Lab	Local contribution	Cofinancing	Total
Component I – Virtualization of initial literacy methodologies	425,416	43,799	191,125	660,340
Component II – Integration of resources for family support in literacy learning	57,100	-	-	57,100
Component III- Knowledge management and connections	31,200	-	-	31,200
Project administration	61,284	275,966	58,875	396,125
Contingencies and notes to financial statements		5,235		5,235
Total	575,000	325,000	250,000	1,150,000
% of total	50%	28%	22%	100%

V. PROJECT PARTNERS AND IMPLEMENTATION STRUCTURE

A. Description of the project's executing agency

- 5.1 Centro Ceibal para el Apoyo a la Educación de la Niñez y Adolescencia (Plan Ceibal) was founded in 2007. In addition to providing access to digital devices (2007-2009), it promotes their use in the classroom through the development of educational platforms—a digital library, learning management systems, Ceibal in English (CEI), and an online learning assessment system (SEA)—and the creation of digital educational content, as well as training for teachers (2010-2012). Since 2013, Ceibal has emphasized the use of digital technologies to make the most of new methods of teaching, transform teaching practices by integrating devices and new resources into the learning process, and strengthen its own assessment capacity. Over the years, as its initial objective of closing the digital divide shifted to its current focus on developing the maximum potential of learning, creativity, and

critical thinking in Uruguayan children and adolescents, Plan Ceibal has become a pioneering institution within the region and beyond.

- 5.2 Fundación Ceibal para el Estudio de las Tecnologías de la Educación [Ceibal Foundation for the Study of Educational Technologies]¹⁷ will be the executing agency for this project. This foundation is an autonomous organization created by Plan Ceibal in 2014, which seeks to promote, develop, and coordinate research projects, innovation, and dissemination activities on technology and learning, in collaboration with the national and international education and academic community. It is international in scope and aims to problematize and contribute ideas and solutions for the current and future implementation of innovations and solutions related to education and new technologies for improving Uruguay's education systems, in collaboration with the international community. Since its inception, it has been working with Plan Ceibal to share and scale up its experience and technical knowledge of digital education for public systems in the region.
- 5.3 The Foundation has developed in-depth knowledge about regional problems and their possible solutions, as well as connections with high-level public policy makers and technical teams of Ministries of Education in Latin America. It develops applied research projects in Uruguay and other countries in the region including Honduras and Nicaragua, with a special focus on vulnerable education communities.
- 5.4 Plan Ceibal will work on the project's design through an agreement with Fundación Ceibal, and will provide its experience and knowledge on the governance, management, and implementation of digital applications and platforms, where it has an extensive track record, as well as on the monitoring and evaluation of programs. In addition, the Catholic University will provide its experience with the Sophia Method and will be responsible for guiding the content to be included in the software from a pedagogical and methodological standpoint.
- 5.5 The co-lenders for this project will be the [IDRC](#),¹⁸ which has a history of working with Fundación Ceibal and the ADELA network, and [Reaching U](#), a civil society organization that works to improve the quality of education in vulnerable contexts.

B. Implementation structure and arrangements

- 5.6 Within Fundación Ceibal, there will be a project execution unit that will be headed by a General Administration and Management Coordinator. To supplement the team, a full-time project manager and an expert in the execution of technology projects will be contracted, who will be responsible for implementing the project in terms of planning and supervising activities and the staff appointed to carry them

¹⁷ Fundación Ceibal was created by Centro Ceibal para el Apoyo a la Niñez y la Adolescencia (Plan Ceibal) as an autonomous organization, which seeks to solve challenges related to the learning and use of technologies, through innovative methodologies and a practical, social, and participatory approach. It aims to problematize and contribute ideas and solutions for current and future implementation by Plan Ceibal and other national and international educational stakeholders. The Ceibal Center was created by Law 18,640 (amended by Law 18,719 approving the national budget for the period 2010-2014), which was enacted and published in January 2010. The Ceibal Center is a non-government legal entity governed by public law that reports directly to the Ministry of Education and Culture, with a budget of funds provided by the national government in an approximate amount of US\$50 million per year.

¹⁸ The International Development Research Centre (IDRC), under Canada's foreign relations strategy, seeks to share high quality knowledge to promote a more sustainable and inclusive world. IDRC is one of the ADELA network's main sources of funding.

- out, as well as for preparing reports for the Foundation's Board of Directors and the Bank.
- 5.7 Fundación Ceibal has an agreement with Plan Ceibal under which Plan Ceibal will provide its administrative structure.¹⁹ Plan Ceibal will be responsible for specific additional activities such as supplying the technical specifications for the development and functioning of the monitoring and evaluation system. The work team will be supplemented by a professional with extensive experience in software development and team management.
- 5.8 In addition, the execution unit will be supported by Plan Ceibal's IT, RDI, Technologies for Education, Training, Communication, and Trademarks, Procurement and Finance divisions and the department responsible for evaluating Plan Ceibal, as well as a part-time staff from the administrative-accounting unit who will be responsible for conducting the administrative, accounting, and procurement processes required for the project. This team: (i) has extensive knowledge and experience in the execution of IDB loans and technical cooperation projects; and (ii) is the government agency in charge of innovation in the area of education as well as in the implementation of digital transformation projects and policies for Uruguay's education sector.
- 5.9 The project will have a management team comprised of Fundación Ceibal's Director and its Board of Directors, which will be responsible for designing and approving project strategies, planning, and reporting.

VI. FULFILLMENT OF MILESTONES AND SPECIAL FIDUCIARY ARRANGEMENTS

- 6.1 The executing agency will agree to IDB Lab's standard arrangements on results-based disbursements and the Bank's procurement and financial management policies applicable to the private sector, as set out in the "Operational Guidelines for Management of Milestones and Financial Supervision for MIF and SEP Technical Cooperation Projects."
- 6.2 The level of risk determined by the Diagnostic Assessment of Integrity and Institutional Capacity was low. This shows that the executing agency has a financial management system that is acceptable to IDB Lab and has a suitable monitoring and reporting structure for submitting its institutional financial statements to the Bank, in accordance with the applicable financial policies of IDB Lab.
- 6.3 **Disbursements** will be determined based on the project's liquidity needs as agreed by IDB Lab and the executing agency, and will be subject to verification of fulfillment of milestones and the activities and costs scheduled in the annual planning exercise. Fulfillment of milestones will not release the executing agency from its responsibility to achieve the agreed upon outcomes.
- 6.4 Unless otherwise specified by the Bank during project execution, the executing agency's policies will be used for **procurement**. The annual planning of procurement items required for implementation of the project and fulfillment of

¹⁹ The agreement establishes the costs and scope of services that Centro Ceibal provides to Fundación Ceibal to support its operations in the areas of building infrastructure, administration, accounting, human resources, and other IT activities, as well as the roles and responsibilities of each entity in the processes included in the service.

milestones will be submitted along with the annual work plan. IDB Lab may conduct an ex ante review of any technical aspects of procurement that it deems necessary, particularly those considered critical.

- 6.5 Under the executing agency's procurement policies, the Catholic University of Uruguay will be contracted directly, since it has valuable experience in the development, implementation, and evaluation of the Sophia Method. The Catholic University has a track record of over 30 years in education training and research at the post-graduate level, and its team has developed similar strategies with good results.

VII. ACCESS TO INFORMATION AND INTELLECTUAL PROPERTY

- 7.1 **Access to information.** The information contained in this document is classified as public upon approval under the Bank's Access to Information Policy.²⁰
- 7.2 **Intellectual property.** The Bank grants a nonexclusive, free, noncommercial license to the executing agency to use, copy, distribute, reproduce, exhibit, and publically perform any work or outcomes of the product within the country of execution and other borrowing member countries of the Bank.
- 7.3 The Bank may disclose, reproduce, and publish any information associated with the project and include the executing agency's name and logo therein.

²⁰ Link to the [IDB Access to Information Policy](#).