LPI – Math Platform

TECHNICAL ANNEX

1.

1. CALL AIM

The aim of this call is to acquire a **Platform for learning Mathematics** (content included) as a "finished product" in SaaS mode, aimed at students and teachers of Primary Education, with a focus on the population of grades 1 to 3. A product that adapts to the Uruguayan teaching program is sought.

The main objective of the tool is to make available to teachers and students, resources and activities that enrich the processes of teaching and learning mathematics, both within and outside the educational context, whereby the quantity and diversity of available materials (in topics and levels) is especially valued.

We aspire to acquire a product that allows us to personalize the teaching, taking into account the students' own abilities.

Offers of custom developments will not be accepted. The evaluation will prioritize the quality of the web experience, in particular the navigation, adaptability and content offered.

Plan Ceibal Uruguay currently has the Adaptive platform of Mathematics PAM (provided by the company Bettermarks) focused on grades 3 to 6 of Primary Education and Middle Education. As a reference, during 2017 and after three years of implementation, the platform reached a coverage of 22% of active users on total enrollment.

The minimum time horizon that Ceibal is able to guarantee for a contract is 3 years, provided that the project is successful in its first year of implementation.

Each bidder must submit their offer according to the specifications of section 7.

OFFER. Centro Ceibal reserves the right to reject an offer that is not submitted according to this quotation and price scheme.

2. INTRODUCTION

A Mathematic platform is sought, including content, focused on learning and teaching the discipline at an early age. It should ensure a playful, motivating and rewarding experience, making the student enjoy their learning process, through relevant, meaningful and appropriate proposals to the Uruguayan educational program.

In the event that the Platform requires the restructuring of its contents to reflect the Uruguayan program, it will be the mathematics team of Plan Ceibal who will be in charge of doing the curricular mapping. The bidder will be responsible for translating the aforementioned classification into the platform.

The content within the platform may include games, interactive digital content, audiovisual material, among others. They should be aimed at the target audience - primary students from 1st to 6th grade - it is not mandatory to have content for lower or higher levels.

It is important that students can find a guide in the tool itself in order to accompany their level and help them to advance in their mathematics learning.

At the same time, it seeks to support the teaching work, providing a tool that allows the teacher to accompany his or her students from their abilities and particular difficulties, serving as a source of relevant information for the efficient monitoring of their students.

The aim is to acquire a tool focused on the user's experience, with a focus on its usability and ease of appropriation by the target audience.

3.   FUNCTIONAL REQUIREMENTS

This section describes the requirements of the sought product.

3.1   MANDATORY REQUIREMENTS

3.1.1 Usability

Friendly, intuitive and easily appropriated by users. The platform must be available in its entirety in the Spanish language at the time of implementation, preferably in Spanish from *Río de la Plata*.

3.1.2 Contents

The contents in the platform must cover the curricular proposal of Mathematics education of primary education in the levels from 1st to 6th obligatorily.

The contents can offer a combination of interactive material, games, visual and auditory content. The materials must present different levels of difficulty, starting from the initial basic level for the target audience.

Both content and activities must involve the problematization of knowledge and encourage the analysis of the processes that allow the construction of knowledge. Teachers must have the space to apply personal strategies when dealing with content with students.

3.1.3 Content Adaptation

The Ceibal Mathematics Team will be responsible for mapping the contents available on the platform. On the other hand, the bidder will be responsible for translating the aforementioned classification into the platform.

3.1.4 Customization of the proposal

The materials should favor active learning and allow to accompany different modalities, capacities and levels of knowledge of the students. Functionalities developed will be valued so that the student can make their own learning process and consider personal paths and goals in relation to it.

3.1.5 Application for mobile devices

The application for mobile devices must work on Android 5.0, 6, 7 and 8. It will be evaluated if it works in previous versions.

The provider must allow Ceibal to distribute the application through its application repository and include it in the software images developed for its devices.

3.1.6 Monitoring

The platform must include functionalities developed so that the teacher can obtain continuous information on the evolution of the learning process of his or her students.

3.1.7 Reports

The platform should provide usage statistics at the user level, in the style of a blog of interactions with the site. As an example, a non-exhaustive list of certain indicators to be measured is listed below:

- Most visited activities
- Fulfillment of Tasks
- Consulted Topics.
- Resources / downloaded content.
- Online viewing time.
- Comments made and interactions.
- Marks.
- Number of users.
- Others

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3.1.8 Exports

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A mechanism must be provided to export all the information generated in the system, as well as documentation (data dictionary) of that information. For example, an API (preferably REST services) or possibility to export to .csv, or another format automatically to integrate with other Ceibal tools. At a minimum, it requires that all interactions made by users (enter the platform, content display, progress in tasks, etc), generate events, with date-time, user ID, event type, IP address, and specific information to each event. Specify.

3.1.9 Users

The tool must support the setting of different user profiles and permissions.

3.1.10 Authentication and authorization

The platform should be integrated with Ceibal's centralized login system using the CAS protocol. For more information see https://wiki.jasig.org/display/CAS/Home

You must also authorize the privileges of the user, interacting with the Ceibal API to obtain the profile of the user (students, teacher, supervisor, etc.)

3.1.11 Massive and incremental load

A mechanism and services must be provided for registrations, cancellations and modifications of educational centers and groups (and users if necessary) in a massive way to the platform. It will be valued that it can be done through REST services, Specify.

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3.1.12 Web compatibility

The platform and content should work correctly in the latest versions of the three most common browsers: Chrome, Firefox and Microsoft Edge.

3.1.13 Compatibility with devices (laptops and tablets) delivered by Ceibal

The platform and the contents must work correctly in the devices delivered by Plan Ceibal, both in its Web version and if it has a mobile version. The web version must work on Chrome version 48 and above.

The performance of the tool in Ceibal devices will be evaluated taking into account, among other aspects, the adequacy to the size of the screen and the performance in the device.

For more information about Ceibal's devices consult:
http://www.ceibal.edu.uy/es/dispositivos

3.1.14 Customization of the interface - web

Possibility of customizing the look & feel of the platform (web version) according to the aesthetic of Plan Ceibal.

3.1.15 Autonomy for the operation

Facility and independence of the bidder so that Ceibal manages and operates the platform. It is mandatory to provide guidance material such as manuals, FAQs, etc.

3.2   PREFERABLE REQUIREMENTS

3.2.1 Extra contents

It will be valued that the platform offers contents and resources outside the established target audience. They may be of lower grade or higher (Elementary Education and Middle School).

3.2.2 Integration with CREA (LMS Schoology)

Integration with the existing content management platform. Specify precisely the level and form of integration with Schoology, clarifying if it includes a feedback of data to LMS.

- For LTI see
  https://support.schoology.com/hc/enus/articles/204377963-A-How-to-Guide-for-Schoology-s-LTIIntegration)

- For API see https://developers.schoology.com/app-platform

3.2.3 Distribution

Possibility for administrators to personalize content shipments, individually or in batches, to groups of users. For example, send the users of each grade the set of contents corresponding to the degree.

3.2.4 Offline contents for web & app solution

Possibility of downloading contents to work or access offline.

In case of including this functionality in web mode, keep in mind that it should work in the following operating systems:

Linux (distribution Ubuntu 12 onwards), ChromeOS. and Windows 10.

For more information about Ceibal's devices see:

http://www.ceibal.edu.uy/es/dispositivos

3.2.5 Customization of the interface - app

Multiplatform operation will be valued and the possibility of adapting the look & feel of the app to that of Ceibal.

3.2.5 Use guidelines for students

It will be valued that the students can find guideline in the tool itself in order to guide them in the use and navigation of the platform that accompanies their level, and helps them to advance in their learning.

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4. NON- FUNCTIONAL REQUIREMENTS

4.1 SLA - SERVICE LEVEL AGREEMENT

The offer must include a description of the proposed level of service, including:

● A description of the service that is being provided (which areas are included in the service and which are the responsibility of Ceibal)

● UpTime: Percentage of uptime, and maximum limits for service interruptions.

● Problem notification procedure: who can be contacted, how problems will be reported, scaling procedure and what other measures are taken to solve the problem efficiently

- Response time to incidents: average time of response, resolution and recovery against failures; distinguishing different levels of criticality to agree with Ceibal.

- Monitoring and reporting - who monitors performance, what data is collected and how often, and how does Ceibal access performance statistics.

Ceibal may negotiate with the awardee the characteristics of this agreement, including penalties for non-compliance.

It is also requested to describe the work methodology to inform and validate the management of changes (functional and technical) in the platform that may affect the operations of Ceibal, for example in terms of compatibility with the devices or integration with other systems.

4.2   CONFIDENTIALITY AND DATA PROTECTION

The Company that is the successful bidder expressly undertakes to keep in the strictest confidentiality all the information that it processes or uses during its relationship with Centro Ceibal. The Confidential Information includes, among others and by way of example, the following information: any strategy, business plan and procedure, proprietary information, software, tool, process, images, personal data, methodology, information and trade secret, and other information and material of Ceibal, as well as of the students, beneficiaries, teachers, study centers, that could be obtained by the Company from any source or could be developed as a consequence of this contract.

The Company undertakes to process the personal data to which it has access under this contract, in accordance with Law No. 18.331, of August 11, 2008 and Decree No. 414/2009, of August 31, 2009, solely for the benefit and in the framework of the contracted service, not being able to use them for another purpose, neither for their own benefit, free or expensive, nor to assign them, communicate them or transfer them to third parties, except with previous authorization from Centro Ceibal.

In no case may access to personal data be understood as assignment or permission for its free use by the Company.

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The Company is obliged to adopt the necessary security measures to guarantee the security and confidentiality of personal data and to prevent its adulteration, loss, consultation or unauthorized treatment, as well as to detect deviations of information.

In the event that personal data is hosted, even temporarily, outside the national territory, the Company is obliged that the importer is in countries considered to have levels adequate to European standards for data protection, in accordance with Directive 95/46 / EC, of the European Parliament and of the Council, amending, concordant and complementary. Otherwise, the Company undertakes to have the data holder's consent for the transfer to an unsuitable territory, or for the importer to adhere to the Privacy Shield framework, to subscribe standard contractual clauses with the exporter or to have a Code of registered Conduct, with the consequent authorization of international transfer of data processed before the Regulatory Unit and Control of Personal Data, in the last two cases.

Upon termination of this agreement, the Company undertakes to return or delete from all its physical and logical systems and files, whether owned or contracted to third parties, the personal data accessed, obtained or processed by virtue of this contract, as well as the associated metadata, in case of correspondence and without prejudice to the particularities of each service, which will be considered by Centro Ceibal in the specific case to consider this obligation fulfilled.

For the purpose of this agreement, personal information is considered information of any type referring to individuals or legal entities determined or determinable, by way of example, any numerical, alphabetical, graphic, photographic, acoustic or any other information that refers to them directly or indirectly, in accordance with the provisions of article 4 of Law No. 18,331 and articles 1 and 4 of Decree No. 414/009.

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4.3   INFORMATION SECURITY

The offer must include information about the security information, according to the following detail:

   ● Specify where your data will be hosted and present your privacy policy and terms of use of the tool.
   ● Specify if there are processes and certifications of information security management. Ex: ISO 27001/272002
   ● Specify if you have documented protocols for managing information access permissions. Include documentation detailing the roles and responsibilities of the staff providing the service, including third-party management.

● Specify the access protocols for domain information directories with which the product allows integration. Ex: Google, Active Directory, LDAP

● Protocols used for data protection:

   ■ Detail the service architecture

   ■ Specify data encryption method

   ■ Specify data transfer protocols

● Application security:

   ■ Detail the tools / processes used to manage and prevent vulnerabilities and threats in the application.

● Security of the IT infrastructure:

   ■   Detail the Network Security protocol

   ■ Detail backup protocols, including contingency plans and recovery of information and service tests.

   ■   Description of the log record

   ■   Specify the defined monitoring and alarms

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- Specify physical security protocols

5.   IMPLEMENTATION PROJECT

5.1   PROJECT PLAN

The offer must include a project plan for the implementation of the platform, as well as training in the administration and operation of it, which includes the following points:

- Work methodology.
- Detailed schedule.
- Test plan.

At least the following documentation must be submitted

- User's manual for all the user profiles that the tool contemplates (administrator, client, etc.)
- System requirements for all components of the solution.
- Dictionary of all the data generated by the platform.

5.2   TRAINING

A training plan should be proposed to the administrators, technicians and officials that Ceibal considers, in order to acquire the knowledge for the correct operation of the platform.

There are a maximum of 10 people who will receive the training, among the different profiles. The training can be face-to-face or remote.

6 EVALUATION

6.1 TEST USERS

It requires test users (at all levels and profiles) so that Plan Ceibal can evaluate the tool, verify its benefits and compliance with the requested requirements, prior to the award. Plan Ceibal may request the bidder technical assistance during this process.

Ceibal may request access to the platform for a maximum of 10 classes during a period of no more than 3 weeks, with the objective of evaluating and collecting feedback from the final users.

For this instance, the provider must load the assigned classes and parameterize the platform so that the user can use 100% of the functionalities.

6.2 DEMO

Centro Ceibal may request a demo of the solution, in person or remotely, on a date subsequent to the opening of bids and to coordinate with the bidder.

In the demo it will be evaluated, among other aspects, all the functionalities that the platform and the user experience presents in the Ceibal devices.

7. OFFER

7.1 ITEMS TO BE QUOTED

7.1.1 Flat fee

The objective of Ceibal is that the products and services that are acquired can be used by all the beneficiaries of the Plan (students, teachers, relatives, etc.). That is why systems must be able to be configured in such a way that any user of the Plan who wants to access them can do it. However, this does not imply that all beneficiaries use the services or have the same level of use. And above all, the use of the content will never be mandatory within the academic curriculum. Currently, Uruguay has a population of around 40,000 students per academic degree.

Previous experiences have shown that any of these technologies entails a significant time of appropriation and adoption.

The provider must quote a flat fee that guarantees access to the beneficiaries of the plan, which implies that the cost must include the user license, but also the hosting and backup services, update services, maintenance and support.

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It should be quoted per year according to the following detail:

2018 6 months	2019 1 year	2020 1 year

7.1.2 Implementation Cost

The provider must indicate if there is a cost of deployment, or parameterization as part of the implementation process for the first time in the first year. If it exists, it is requested to indicate the equivalent cost in development hours [1].

7.1.3 Development Hours (required)

The item development hours must be quoted, which will be demanded in case Centro Ceibal requires adjustments for adaptation and integration with external services or customization of the platform independent to the changes to "look and feel".

This item should be quoted based on the following detail:

Until 200 hours*	Until 500 hours*	Until 1000 hours*

* Quote unit price Hour for each of the columns

[1] Ex: If the implementation cost is USD 100 and the development hour is quoted at USD 1, the equivalent cost amounts to 100 hours.

7.2   PRESENTATION

The bidder must present their segmented offer in folders, according to the following guidelines:

1. Folder with Annex I: TABLE OF COMPLIANCE, and Annex II:

   QUOTATION, complete.

2. Folder with functional description and technical specifications of the platform.

3. Folder with functional description, technical specifications and quotation of the optional functional requirements requested in section 4.3 OPTIONAL.

4. Folder with project plan as specified in section 6. PROJECT.

5. Folder with complementary technical information that the bidder considers pertinent.

6. Folder with background description of the bidder.

8. INTELECTUAL PROPERTY

The Company that is awarded is obliged to confer to Centro Ceibal a use authorization, non-territorial, non-exclusive, and for the duration of the contract, for access to the platform, developments, materials,

etc., in the terms provided in point 7.1., as well as to reproduce, distribute, publish, communicate to the public, modify, and create derivative works from this and the materials and pre-existing work, for the sole purpose of complying with the requirements of the agreement that the parties celebrate.

The awardee assures Centro Ceibal that the platform, developments, materials, etc. acquired will be original and do not infringe any right of Intellectual or Industrial Property of third parties, including, but not limited to, copyrights, trademarks and other distinctive signs, invention patents, utility models, industrial designs, trade names, names of domain on the Internet, trade secret, or undisclosed information, image rights or similar legal rights, and that are not taxed, subject to inhibition or affected in any way that affects their free availability by Centro Ceibal. In addition, the Company assumes full responsibility for legal actions and / or claims of any nature - including, but not limited to, extrajudicial, judicial, civil, criminal or administrative claims - that may arise from the use of the software offered, and will respond of the damages, fines, penalties, costs, attorney's fees, expenses, and any other losses that may be brought to Centro Ceibal for such reason.

9.   ANNEX I: COMPLIANCE TABLE

The bidder must complete the compliance table for all the requested requirements. For the evaluation team reference, it must also indicate in which part of the presented offer the information corresponding to the requirement is found.

The **COMPLIANCE** column will be completed with the Yes / No options.

FUNCTIONAL REQUIREMENTS			Reference in the offer	Compliance	Comments
MANDATORY					
3.1.1	Usability	Friendly, intuitive			
		Easily appropriated by the users			
		Available in its entirety in Spanish language			
3.1.2	Contents	Contents cover curricular proposal of Mathematics in the levels from 1st. to 3rd. of Elementary School.			
		It contains a combination of written, visual and auditory material			
		Teachers have space to apply personal strategies			
3.1.3	Content Adaptation	The bidder can capture the classification of the contents mapped by the Mathematics Team of Ceibal			
3.1.4	Customization and Adaptability of the Proposal	It has functionalities so that students can make their own learning processes.			
		The student can consider personal paths and goals in relation to it.			

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3.1.5	Application for mobile devices				
		The application works at least on Android 5.0			
		The application works in previous versions to Android 5.0 (it will be valued)			
		Ceibal can distribute the application through its repository.			
		Ceibal can include the application in the software images developed for the devices			
3.1.6	Monitoring	It has functions for the teacher to obtain information about the evolution of the student's learning processes.			
3.1.7	Reports	Statistics at the user level (see examples in the specifications)			
		It includes indicators to be measured			
3.1.8	Exports	It has mechanisms to export all the information generated			
		It generates Events in all user interaction (date-time-id user-type of event)			
3.1.9	Users	It allows the configuration of different user profiles and permissions			
3.1.10	Authentication and Authorization	CAS Integration			
3.1.11	Massive Load	Specification of loading mechanism and services (API, Import .csv, REST services, etc.)			
3.1.12	Web Compatibility	Correct operation in Chrome, Firefox and Microsoft Edge browsers.			

			Reference in the Offer	Compliance	Comments
3.1.13	Device Compatibility	See device compatibility delivered by Ceibal (Web - Mobile)			
3.1.14	Customization of the Interface WEB	Customize the look & feel of the platform			
3.1.15	Autonomy	Facility and independence of the bidder so that Ceibal manages and operates the platform.			

The **COMPLIANCE** column will be completed with the options Yes / No / Partial. In case the compliance is partial it will be clarified in the **COMMENTS** column.

		PREFERABLE	Reference in the Offer	Compliance	Comments
3.2.1	Extra Contents	The platform offers content and resources outside the target public			
3.2.2	Integration with CREA	Specification of level and form of integration with Schoology			
3.2.3	Distribution	Sending content by admin users			
3.2.4	Offline Contents for web & app solutions	Download content to work or access offline			
3.2.5	Customization of the interface - app	Adaptation of look & feel for Ceibal			
		Multi-platform operation			
3.2.6	Use Guidelines	Orientation guide in the tool for the students.			

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The **COMPLIANCE** column will be completed with the Yes / No options.

NON-FUNCTIONAL REQUIREMENTS			Reference in the Offer	Compliance	Comments
4.1	**SLA**	Description of the level of the proposed service.			
4.2	**CONFIDENTIALITY AND PROTECTION OF PERSONAL DATA**	It complies with the legal provisions			
4.3	**INFORMATION SECURITY**	The offer specifies the requested information			

10. ANNEX II: QUOTATION

10.1   Flat fee Quotation

Quotation		
2018 6 months	2019 1 year	2020 1 year

Comments:

The bidder must quote a flat fee that guarantees access to the beneficiaries of the plan, which implies that the cost must include the user license, but also the hosting and backup services, update services, maintenance and support.

10.2   Implementation Cost

The bidder must indicate if there is a deployment or parameterization cost as part of the implementation process, for the only time in the first year.

10.3   Development hour Price

Development hour Quotation		
Until 200 hours	Until 500 hours	Until 1000 hours

Comments:

In each item, the unit price of the hour must be quoted.

1.   ANNEX III: CHECKLIST FOR OFFERS

1. Complete ANNEX I: COMPLIANCE TABLE

2. Complete ANNEX II: QUOTATION TABLES

3. Deliver PROJECT PLAN according to specifications in section 5.1

4. Deliver TRAINING PLAN according to section 5.2 specifications

5. Deliver description of proposed SLA

6. Segment bid in 6 folders as specified in section 7.2