Plan Ceibal

LP - Platform for the development of skills in Resolution of

Problems and Computational Thinking "

TECHNICAL ANNEX

CALL AIM 5

INTRODUCTION 6

FUNCTIONAL REQUIREMENTS 8

MANDATORY REQUIREMENTS 8

Usability 8

Contents 8

Thematic 8

Levels 8

Suitability for the target audience and thematic adaptation 8

Inclusion and gender 8

Modality 9

Guided use 9

Autonomous use 9

Track student progress 9

Personal monitoring and student activity 9

Users and profiles 9

Language 10

DESIRABLE REQUIREMENTS 10

Usability 10

Contents 10

Lower age ranges 10

Computational Thinking and Programming Practices 10

Concepts of Computational Thinking and Programming 11

Knowledge construction 11

Computational Thinking and Mathematics 11

Teacher materials and class lessons 11

Adaptability / AI Learning 12

Content distribution and / or evaluations 12

Block Programming Support 12

Modality 12

Autonomous use 13

Teaching space 13

Track student progress 13

Other users 13

Administrator 13

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Parents / Guardians 14
Language 14

NON-FUNCTIONAL REQUIREMENTS 15
MANDATORY REQUIREMENTS 15
Authentication 15
User provisioning 15
Web compatibility 15
Web technology 15
Device compatibility 15
General compatibility (Android laptops and tablets) 16
Compatibility with devices delivered by Ceibal 16
Functioning condition 17
Automated export of usage data 17
SLA - Service Level Agreement 18
Information security, confidentiality and data protection 19
Authentication 19
Confidentiality and data Protection 19
DESIRABLE REQUIREMENTS 21
User provisioning 21
Web compatibility 22
Functioning condition 22
Components 22
Device compatibility 22
Compatibility with Android cellphones and iOS Cellphones and Tablets 22
Compatibility with devices delivered by Ceibal in optional levels 23
Hosting from fixed IP for data exoneration 23
Offline content for web & app solution 24
Availability of environment for testing 24
Automated export of usage data 24
SLA - Service Level Agreement 25
Information security, confidentiality and data protection 25
Design and architecture 25
Session management 25
Access control 26
Coding and validation 26
Error handling and log verification 27
Communications 27

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Backups and contingency 29
Malicious code 30
Business logic 30
Setting 30
Certifications 31
Methodology 32
Vulnerability scan 32
API and Web services 32

INTELLECTUAL PROPERTY 32

IMPLEMENTATION PROJECT 33
PROJECT PLAN 33
TRAINING 34

EVALUATION 35
TEST USERS 36
DEMOS 36
EVALUATION CRITERIA 37

OFFER 37
ITEMS TO QUOTE 38
Flat fee 38
Implementation cost 40
Development Hours (required) 40
PRESENTATION 40

ANNEX I: COMPLIANCE TABLE 42

ANNEX II: QUOTE 45

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CALL AIM

Acquire an educational platform that encourages the development of skills and concepts for problem solving, such as algorithmic thinking, logical reasoning and skills related to programming. Bidders must present tools as a "finished product" in SaaS mode (content included), aimed at students and teachers, not accepting offers for custom developments.

Target audiences. The platform should be aimed at children between 9 and 12 years old, who are in grades 3 to 6 of Primary Education. Products that also offer lower and higher grade resources will be especially valued.

The quantity and diversity of materials available (in topics and levels) is especially valued.

***OFFER**. Centro Ceibal reserves the right to reject an offer that is not presented in accordance with this quote and pricing scheme.*

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1. INTRODUCTION

The platform must ensure a motivating and rewarding experience, ensuring that the student enjoys their understanding and learning processes through relevant, meaningful and appropriate proposals.

It seeks to acquire a platform focused on the user experience, with its usability and ease of appropriation by the target audience being a priority. It is important that students can find a guide in the tool itself that guides them, tracks their level and helps them advance in their learning.

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

2. BACKGROUND

Plan Ceibal has among its objectives the implementation of technologies at the service of education and the acquisition of educational skills through computational thinking and new learning methodologies such as project-based learning. Within this framework, tools have been used to support learning programs and Computational Thinking such as Scratch, Make Code, programmable boards, and educational robotics.

Since 2017, Ceibal has been promoting the Computational Thinking program, in the second cycle of primary education. The design of the program involves a remote teacher with expertise in the area, who in weekly classes of 45 minutes, together with the classroom teacher, works on pedagogical proposals that integrate computational thinking and programming content with the national curriculum. The guide projects on which they work include the contents and practices to be developed regarding computational thinking. The children iterate on the process of creating a project during 4 cycles in the year, with a progressive level in the complexity of approaching the concepts and practices. From

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programming, problem solving and unplugged activities, the development of skills related to computational thinking is promoted.

FUNCTIONAL REQUIREMENTS

This section describes the requirements for the desired product.

2.1. MANDATORY REQUIREMENTS

Compliance with the requirements presented under this subsection is an exclusive condition for the consideration of the offer.

2.1.1. Contents

2.1.1.1. Thematic

Activities and resources should focus on solving problems related to computational thinking, promoting precursor programming practices.

2.1.1.2. Levels

The contents must be organized and sequenced by levels of difficulty, starting from an initial level for the target audience.

2.1.1.3. Suitability for the target audience and thematic adaptation

The materials should be suitable for students between the ages of approximately 9-12 years.

2.1.1.4. Inclusion and gender

The contents must respect gender equity, inclusion and non-discrimination of any kind.

2.1.2. Modality

2.1.2.1. Guided use

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The contents must be enabled according to the progress of the students and / or be enabled by the teacher

2.1.2.2. Autonomous use

The tool must allow the student to use it autonomously.

2.1.3. Track student progress

The platform must include functionalities so that teachers can access information about the performance of their students.

2.1.4. Personal monitoring and student activity

Each student should be able to monitor and resume their own activity and progress.

2.1.5. Users and profiles

The tool must support the configuration of different user profiles and permissions. At a minimum, the following profiles are required:

- Student: For children who use the platform.
- Teacher: For tutors in charge of classes with children.

The platform must function taking into account the following characteristics of the educational system:

- Teachers and students can be in more than one school and class.
- Teachers and students may change schools and classes repeatedly throughout the school year.

2.1.6. Language

The platform must be available in the Spanish language at the time of the offer. It should also

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allow you to adapt your texts or translations to local needs.

2.2. DESIRABLE REQUIREMENTS

2.2.1. Usability

Friendly, attractive, intuitive and easily appropriated by users. A correct balance between the different types of content such as interactive material, games, visual and auditory content will be valued.

2.2.2. Contents

2.2.2.1. Older ages

It will be valued that the platform has contents and activities sequenced for levels of difficulty and ages between 12 and 15 years.

2.2.2.2. Younger ages

It will be valued that the platform has contents and activities sequenced for levels of difficulty and ages between 5 and 9 years.

2.2.2.3. Computational Thinking Practices

The quality, diversity and adequacy of the practices related to solving problems such as: planning, decomposition, abstraction, debugging, trial and error, iteration, modeling and simulation, modularization, design and construction of algorithms, and reuse will be valued.

2.2.2.4. Programming practices and concepts

The introduction of concepts related to programming such as sequences, instructions, variables, conditional logic, events and loops will be valued.

2.2.2.5. Computational Thinking and Mathematics

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It will be valued that the proposal includes contents that propose to work in an integrated way Computational Thinking and Mathematics, involving specific mathematical contents such as operations, numbering, calculation, divisibility, among others.

2.2.2.6. Teacher materials and class lessons

It will be valued that the proposal includes teaching guides or lessons for the use of the platform in class, intended for the teacher in charge of the class.

To be evaluated, a representative sample of this content must be presented or presented independently, in digital (or digitizable) format, as well as information on the coverage of these contents.

In addition, it will be assessed whether Ceibal can add and / or modify these contents or reorganize them as deemed necessary.

2.2.2.7. Adaptability / AI Learning

It will be appreciated that the platform has the possibility of suggesting activities, contents and sequences to the student based on their performance and history, providing personalized help if they cannot solve the tasks, recommendations to reinforce their learning and giving them the choice to review lessons or explore according to their interests associates.

2.2.2.8. Content distribution and / or evaluations

The possibility for administrator users (ceibal staff) to customize content shipments, individually or in batches, to user groups will be valued. For example, send the users of each grade the set of contents and / or evaluations corresponding to the grade.

2.2.2.9. Block Programming Support

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It will be valued that the activities to be carried out by the students use a block-based programming language, and that there is also a sandbox / playground mode that allows students to design their own projects (for example: laboratory or creation mode).

2.2.3. Modality

2.2.3.1. Autonomous use

It will be valued that the platform allows and encourages the student to carry out their own routes, setting personal learning goals without completely depending on the participation of the teacher.

2.2.3.2. Teaching space

It will be appreciated that teachers can have a free and / or configurable space to set up their own activities and work with students.

2.2.4. Track student progress

It will be especially valued that the information presented in the performance reports is easy to interpret, as well as its usefulness for decision-making.

2.2.5. Other users and profiles

2.2.5.1. Administrator

The availability of users with an administrator profile that will be used by Ceibal personnel who will be in charge of providing support to end users, as well as for general administration, will be assessed.

Ease and independence are sought for Centro Ceibal to access and operate, through users with this profile, information about the users, students and teachers registered on the

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platform, as well as their enrollments, interactions and progress, without requiring the continuous intervention of the bidder.

2.2.5.2. Parents / Guardians

It is desirable that there is an additional profile of parent or guardian within the platform that allows parents or responsible adults to monitor the progress of students.

3. NON-FUNCTIONAL REQUIREMENTS

3.1. MANDATORY REQUIREMENTS

Compliance with the requirements presented under this subsection is an exclusive condition for the consideration of the offer.

3.1.1. User provisioning

The platform must provide a mechanism for loading users, profiles, classes and enrollments (that is, linking users in classes), considering that data updates are daily.

This mechanism can be done through REST services or automatic processing of CSV files. Whatever the option, it must be able to process the daily news of users within the same 24 hours.

3.1.2. Technology

3.1.2.1. Web Platform

The platform must run completely in the browser, and must work correctly in the latest version of the Google Chrome browser.

3.1.2.2. Components

It is a requirement that the technologies used at the client level are current. As an example,

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products developed in Adobe Flash will not be supported.

3.1.3. Device compatibility

The platform must guarantee a good user experience, both on laptops and tablets, either in a responsive web format or a specific application. In the case of web platforms, their performance in Chrome 76 and higher versions will be evaluated, especially the experience in the devices delivered by Plan Ceibal to the target audience of the platform will be evaluated, taking into account, among other aspects: adaptation to the screen size , base software of the device and their performance. The list of devices to evaluate is as follows:

- Sirio
- Sirio 2021
- Murzim
- Clamshell SF20PA2
- Clamshell SF20PA3
- HP - Stream

For details of the equipment consult https://www.ceibal.edu.uy/es/dispositivos

3.1.4. Functioning condition

The minimum and recommended requirements must be specified both at the level of devices (processor, RAM, etc.) and Internet access (upload / download bandwidth, delay, jitter, etc.)

3.1.5. Automated export of usage data

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Centro Ceibal, as responsible for the information generated by the use of the platform to be acquired, requires access to all the data that is registered on said platform corresponding to Centro Ceibal (not other clients of the provider).
Considering that the platform to be acquired will manage personal data, the security conditions relating to them are those established in section 4.1.7.2 Confidentiality and Data Protection.
It will be required:

- Access to daily information on the activities carried out by users on the platform, maintaining the temporary identification of date and time (raw records without transformation or with an aggregation level, according to the use foreseen by Plan Ceibal).
- Maintenance of historical data at the source, for a period of no less than two months (60 days).
- Integration of data through user identification (country, type and document number).
- That the supported storage volume of the base, as well as for sending the information, is in accordance with Plan Ceibal's needs.

In addition, the bidder is required to submit a proposal that specifies the following aspects:

- Standard and secure methods of access to the data to be provided, such as:
    - Access to the database directly.
    - APIs
    - WS
    - SFTP
- Documentation with the Design of Data Models and Relationship Diagrams.

It must be made explicit if there are impediments to share some of the data that is registered on the platform. Given that it is not possible for Plan Ceibal to evaluate the completeness of

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all the existing data, in this instance, it will assume the commitment to provide all the data, with the exception of those that are expressly excluded with the corresponding justification.

3.1.6. SLA - Service level agreement

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

- A description of the service 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. Centro Ceibal requires an uptime of at least 99%.
- Problem notification procedure: who can be contacted, how problems will be reported, procedure for escalation and what other measures are taken to solve the problem efficiently
- Incident response time: average response time, resolution and recovery from failures; distinguishing different levels of criticality to be agreed with Ceibal.
- Monitoring and reporting: who is monitoring performance, what data is collected and how often, and how Ceibal accesses performance statistics (preferably in real time).

Ceibal may negotiate with the successful bidder 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 Ceibal's operations, for example at the level of compatibility with devices or integration with other systems.

3.1.7. Information security, confidentiality and data protection

3.1.7.1. User authentication

The solution must comply with secure authentication methods that allow verifying the identity of the users and protect the confidentiality of the information.

It must incorporate the following requirements:

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- The platform must be integrated with Ceibal's centralized login system using the CAS protocol (version 3.5.3 and higher). For more information, see https://wiki.jasig.org/display/CAS/Home
- In the case of offering administrator users (REQ. 3.2.5.1), authentication with username and password must comply with the password policies of Centro Ceibal.

3.1.7.2. Confidentiality and data Protection

The solution must ensure the confidentiality, integrity and availability of the information and personal data. To implement adequate data protection, the solution must ensure: legality, veracity, purpose, prior informed consent, data security, reservation, and responsibility. For this the solution must:

- Comply with current Uruguayan regulations on personal data (Law No. 18,331, of August 11, 2008 and Decree No. 414/2009, of August 31, 2009). Information of any kind referring to specific or determinable natural or legal persons, by way of example, any numerical, alphabetical, graphic, photographic, voice and image, acoustic or any other type of information that refers directly or indirectly to them is considered personal data, in accordance with the provisions of Article 4 of Law No. 18,331 and Articles 1 and 4 of Decree No. 414/009.
- Adopt the necessary security measures to guarantee the security and confidentiality of the data and avoid its adulteration, loss, consultation or unauthorized treatment, as well as detecting deviations of information.
- Protect information and data created, edited, deleted or accessed without the corresponding authorizations, particularly in massive amounts of data.
- Take the necessary precautions and controls so that information and personal data are not available in browsers, load balancers, temporary copies, cookies and other structures where it is not necessary.
- Ensure the confidentiality of all information that is processed or used. Confidential Information includes, among others, by way of example, the following information: all commercial strategy, plan and procedure, proprietary information, software,

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tool, process, images, personal data, methodology, information and trade secret, and other information and material of Ceibal, as well as the students, beneficiaries, teachers, study centers, which could be obtained from any source or could be developed.

- Host the data in Uruguayan territory, or in the case of international transfer, ensure that the server is located in countries considered with adequate levels in accordance with Directive 95/46 / CE. Otherwise, have the consent of the owner of the data for the transfer to an inappropriate territory, or that the importer has signed standard contractual clauses with the exporter or has a registered Code of Conduct, with the consequent authorization of international data transfer processed before the Regulatory and Control Unit of Personal Data, in the last two cases.
- Not to use the information / data for a purpose other than the one contracted, nor for their own benefit, be it gratuitous or onerous, nor assign them, communicate them or transfer them to third parties.
- Centro Ceibal will be responsible for the database and the treatment, being the awarded Company and its subcontracted companies, in charge of treatment, in accordance with the provisions of literals H) and K) of article 4 of Law No. 18,331 .
- Allow the publication of the privacy policies and terms and conditions of use of Centro Ceibal in development.
- Allow the right of access, rectification, updating, inclusion or deletion of personal data.
- 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, as well as the associated metadata, at the request of Ceibal.

If Ceibal requires it, material that demonstrates compliance must be presented.

3.2. DESIRABLE REQUIREMENTS

3.2.1. User provisioning

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It will be valued that the mechanism for loading users, profiles, classes and enrollments referred to in point 4.1.1 is through the REST API provided by Ceibal, which returns the information of the users (names, surnames, etc.), profile , and enrollment in classes.

3.2.2. Compatibility with other browsers

It will be valued that the platform and the contents work correctly in the latest versions of the following browsers: Safari, Mozilla Firefox and Microsoft Edge

3.2.3. Functioning condition

It will be valued that the platform consumes the least amount of resources possible, both at the device level (processor, RAM, etc.) and Internet access (upload / download bandwidth, delay, jitter, etc.), to get a good experience in using the platform.

3.2.4. Complements

It will be valued that the installation of applications or add-ons is not necessary for the operation of the platform.

3.2.5. Device compatibility

3.2.5.1. Compatibility with Android cellphones and iOS Cellphones and Tablets

The correct functioning at the level of usability and user experience on Android cell phones and the iOS operating system (cell phones and tablets) will be assessed.

In the case of offering an application, it will be appreciated that you remember the user's credentials once they log in and do not ask them to authenticate again unless the user has closed the session. Likewise, it will be valued that the application is available in the Google Play and App Store stores for download on personal devices.

In the case of offering a mobile application, it will be valued that the provider allows Plan Ceibal to distribute it through its application repository and include it in the software images developed for its devices, delivering the corresponding application (apk) to Ceibal.

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3.2.5.2. Compatibility with devices delivered by Ceibal in optional levels

In the event that content is offered for a range of ages older and / or younger than the mandatory ones (more developed in the point "Range of older ages and Range of younger ages" in Desirable functional requirements), Centro Ceibal considers it valuable that the product is compatible with the devices delivered to the beneficiaries of these levels.

The behavior of the tool will be evaluated on Ceibal devices delivered to the public to whom the contents of the platform are directed, taking into account, among other aspects: adaptation to the size of the screen and their performance. The list of equipment delivered for beneficiaries of other levels is as follows (for more information, consult https://www.ceibal.edu.uy/es/dispositivos):

- Betelgeuse
- Tablet Kiland T8 - TAB82_B_A
- Tablet T8 U800_B
- Rigel
- Positivo BGH 11CLE2Plus
- Acrux
- Tablet T10 - A102
- T10_H133_A_A_BETACRUX

Good performance will be assessed on devices with Android operating system 7 onwards and on different tablet screen resolutions (8 'onwards).

3.2.6. Hosting from fixed IP for data exoneration

Given the context of the suspension of face-to-face classes due to COVID-19, Centro Ceibal (in conjunction with Uruguayan telecommunications companies) have made efforts to exonerate the data traffic generated by browsing platforms for the end user. In this context, it will be especially valued that the service is hosted from a finite number of fixed public IPs since this condition is essential to ensure the total exoneration of the costs associated with Internet traffic for users who are in Uruguay.

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3.2.7. Offline content for web & app solution

The possibility of accessing a part of the contents and functionalities of the platform remotely and without the need for an Internet connection will be assessed. Rural schools in Uruguay have various connectivity solutions that in some cases do not allow continuous and sustained work online. To serve this population it is required a tool that allows access and offline work to some extent.

In case of including this functionality in web mode, it must be considered that it must work in the following operating systems: Linux (Ubuntu 16 distribution onwards), Chrome OS and Windows 10.

3.2.8. Availability of environment for testing

It will be especially valued that the platform has an environment or instance of tests or sandbox, which allows to carry out complete tests of the system and interoperability with Ceibal applications, without any impact on the productive instance.

3.2.9. Automated export of usage data

In addition to requirement 4.1.6., solutions that imply greater independence for Ceibal, in terms of availability and access to data, will be valued positively.

It is desirable that the storage of data in the cloud as well as its transfer does not imply an additional cost for Ceibal, so this point will be considered in the evaluation.

3.2.10. SLA - Service level agreement

The quality of the proposal at the service level will be especially valued in terms of information that will be provided to Ceibal, service uptime, management time in the event of incidents and times in access to information.

3.2.11. Information security, confidentiality and data protection

The following aspects regarding information security, confidentiality and data protection will

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be assessed. The applicant is expected to indicate the status of compliance in each of them to carry out the corresponding evaluation. In the event that Ceibal requires it, material that accredits what has been declared must be presented.

- Design and architecture: Incorporate security by design using best practices and incorporating security by design as part of the entire solution development cycle process. In particular, the following aspects are of interest:
    - Layered development (presentation, business logic and data)
    - Modular solution with separation and grouping of functionalities by categories or modules that allows the scalability of the solution and facilitates integration and compatibility with other solutions.
    - Reliable architecture that incorporates a comprehensive security vision covering the aspects of confidentiality, availability, integrity, non-repudiation and privacy through both qualitative and quantitative metrics and indicators.
- Session management: it must provide adequate user session management allowing to know the current status of the user or the connected device. For this you must:
    - Maintain unique sessions for each user that cannot be guessed or shared.
    - Sessions will be disconnected when they are no longer needed or during a period of inactivity (if possible, parameterizable).
- Access control: provide adequate access control management in order to authorize access to functionalities and data in accordance with the profiles and roles that are defined. This implies fulfilling that:
    - Users who want to access certain resources have the correct credentials.
    - Users are associated with an adequate set of roles and privileges according to the functionalities provided by the solution and the accessible resources.
    - The metadata of the roles and permissions must be protected from manipulation and reuse.
    - Assignment of access control follows the principle of least privilege.
- Coding and validation: the most common weaknesses in modern web applications are the failures to correctly validate the data inputs that come from the users and the

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environment, prior to the use of this information. These weaknesses generate most of the known vulnerabilities and attacks such as Cross-Site Scripting (XSS), SQL Injection, file system attacks, Unicode attacks and buffer overflows. It will be valued that the solution complies with:

- Ensure the validation of inputs and outputs through a coding architecture and secure information flows that prevent injection.
- The input data is robustly entered and validated or in the worst case filtered and refined.
- Ensure robust output encoding that takes into account the context of the information and is as close to the external interpreter as possible.

- Error handling and log verification: it must generate quality information in the logs and properly manage error messages, avoiding as much as possible the publication of sensitive information. The solution is expected to:
  - not collect sensitive information in the records unless it is necessary or specifically required.
  - Ensure that the information contained in the records is managed according to its classification level (for example, taking into account the life cycle of the information and its expiration).
  - Include useful information for auditing and troubleshooting, including at least date, time and details of events, configuration changes, attempts to access the system (successful and rejected).
- Communications: provide a secure communication of the information managed in order to ensure its confidentiality. This implies:
  - Publishing services through secure protocols (TLS or strong encryption) for all users and regardless of the sensitivity of the information transmitted.
  - Using protocols and algorithms considered safe by the industry and good practices, leaving as a last resort or for compatibility issues that are expressly authorized by Centro Ceibal the use of other less secure protocols.
  - That the solution is entirely compatible with the certificates used by Centro Ceibal and in case of using internally generated certificates, they must be

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validated by the certification authorities that Centro Ceibal establishes.

- All communications outside the HTTP protocol, such as e.g. remote accesses, communication between layers of the solution, middleware, databases, external data sources, monitoring, communication tools, etc., to be secure communications and, if possible, encrypted.

- Use of files and resources: it must provide controls over file management in order to guarantee information security. This implies that:
  - Insecure files must be properly managed in order to guarantee the confidentiality, integrity and availability of the information.
  - Controls must be implemented for uploading, executing, downloading and hosting files that shield the solution from malicious attacks and inappropriate settings such as: zip bombs, incorrect file types, pass-traversal attack, hosting with permissions or in directories wrong, SSRF attack.
- Backups and contingency: that the solution is compatible with an adequate data backup and recovery policy in order to ensure the integrity and availability of the information in the event of incidents. This implies:
  - Complying with a business continuity plan, which offers the necessary contingency to ensure the availability, integrity and confidentiality of the information in the face of different types of incidents.
  - Providing the necessary technological solutions (eg backups and disaster recovery plan) in order to ensure the levels of availability and integrity stipulated in the corresponding service level agreement (SLA).
- Cryptography: implies compliance with the following requirements at the level of cryptographic controls:
  - Allow the use of cryptographic modules to protect the solution's sensitive information such as financial information, personal data, and role and permission data, whether at rest, in use and in transit.
  - Use robust encryption algorithms (such as AES and RSA) with keys of adequate length to protect against attacks.
  - Generate suitable random numbers.

- Securely manage access to encryption keys.

- Malicious code: it must not contain malicious code of any kind. To accomplish this the solution should:
  - Use malicious code detection tools in the development process.
  - not include time bombs or other similar types of attack.
  - not transmit information or contact to malicious or unauthorized destinations.
  - not contain back doors, rootkits, "salami" attacks, Easter eggs and other types of malicious code or that do not follow good practices.
  - Take the necessary measures so that the solution does not incorporate malicious code through controls such as code signing, use of secure libraries and frameworks, expiration control over DNS, etc.
- Business logic: provide a business layer developed in a secure way and that allows to avoid the most frequent cyberattacks. This implies fulfilling that:
  - The flow of business logic must be sequential, consistent and cannot be altered.
  - The business logic includes controls and limits to detect and prevent automated attacks.
  - The business logic must take into account use cases that include malicious actors, abuse cases and must also contain protections against spoofing attacks, manipulation, repudiation, information disclosure and elevation of privileges, among others.
- Configuration: comply with the configuration requirements and controls that guarantee a secure application. They may include:
  - an environment that is as secure, repetitive and automatable as possible through the incorporation of good practices (e.g. DevSecOps model) with tools, processes and technologies that implement it properly (e.g. containers, automated deployments, etc.).
  - Up-to-date and well-maintained development tools and environments.
  - Development tools and environments correctly configured and verified for their security (hardening) such as for example. disable debug mode in

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production environments.
    - Default security in user settings and permissions.
- Certifications: certifications and compliance with standards related to secure development, information security and privacy will be valued, such as:
    - Common criteria certification (ISO IEC 15408)
    - CPA Build Standard
    - OWASP ASVS
    - ISO 27001
    - FIPS 140
    - SCAMP
    - CIS Benchmarks
    - AICPA SOC2-3
    - NIST CSF / 800
    - ISACA Cobit
    - PCI DSS
    - GDPR

- Methodology: proposals that incorporate software design and development methodologies with a comprehensive view of security in the development process will be valued.
- Vulnerability analysis: solutions that have undergone standardized vulnerability checks and / or penetration tests will be valued. If they exist, proof of them must be provided through a summary report or corresponding certificate. Report detailing threat coverage on the latest OWASP Top Ten in force will be valued.
- API and Web Services: the solution that makes use of APIs (commonly through the use of JSON, XML, GraphQL or other formats) must comply with:
    - Maintaining adequate authentication, session management and authorizations for all web services.
    - input validation for all parameters that are entered.
    - Effective security controls over all types of APIs, including cloud and serverless

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APIs.

4. INTELLECTUAL PROPERTY

The Company that is awarded is obliged to grant Centro Ceibal an authorization of use, 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 8.1., as well as to reproduce, distribute, publish, communicate to the public, modify them, and create derivative works from it and from the materials and pre-existing work, for the sole purpose of complying with the requirements of the agreement that celebrate the parties.

The successful bidder 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 Internet domain, trade secret, or undisclosed information, image rights or similar legal assets, and that are not encumbered, subject to inhibition or affected in any way that affects their free availability by Centro Ceibal. Likewise, 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 as a result of the use of the software and content offered, and will be liable for damages, fines, penalties, costs, costs, attorney's fees, expenses, and any other losses that may affect Centro Ceibal for such reason.

5. IMPLEMENTATION PROJECT

5.1. PROJECT PLAN

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The offer must include a project plan for the commissioning of the platform, as well as training in its administration and operation, including the following points:

- Work methodology.
- Detailed schedule that includes the start-up, specifying the milestones of the corresponding modifications / adaptations.
- Testing plan.
- Content adaptation plan
- The following documentation must be submitted, as a minimum:
  - User manual for all user profiles included in the tool (administrator, teacher, student, etc.)
  - System requirements for all components of the solution.
  - Dictionary of all the data generated by the platform.

It is understood that the platform may not have the requirements for authentication (REQ. 4.1.7.1), user provisioning (REQ. 4.1.1) and automated export of usage data (REQ. 4.1.6) at the time of the offer. For these cases, development should be included in the project plan implementation phase, bearing in mind that its fulfillment is a requirement for the implementation of the platform.

The platform must be implemented and available no later than 90 days after the award. If the previous deadline is not met, Ceibal may negotiate with the successful bidder the continuity of the implementation schedule.

5.2. TRAINING

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

A maximum of 10 people are contemplated who will receive the training, among the different

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profiles. The training can be face-to-face or remote.

EVALUATION

In order to confirm the level of compliance with particular requirements, if Plan Ceibal requires it, material that proves what has been declared in the different compliance matrices must be available and presented. As an example, some documents that could be requested are detailed:

- Backup test set and disaster recovery plan for cases in which the solution is provided in SaaS mode.
- Certification that proves the physical location of the data in accordance with the regulatory requirements of territoriality.
- Architectures and protocols used.
- Privacy policy and terms of use of the platform.

5.3. TEST USERS

Trial users are required (at all levels, profiles and sufficient quantities) so that Centro Ceibal can evaluate the tool, verify its benefits and compliance with the requested requirements, prior to the award. Centro Ceibal may request the bidder technical assistance during this process.

5.4. DEMOS

Centro Ceibal may request a demonstration of the solution, in person or remotely, on a date after the opening of bids and in coordination with the bidder. The demonstration will evaluate, among other aspects, all the functionalities presented by the platform and the user experience on Ceibal devices.

5.5. EVALUATION CRITERIA

Without prejudice to what is established in the General Specifications regarding the

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evaluation of the offers, they will be evaluated taking into account the fulfillment of the mandatory and desirable requirements.

Each of the offers submitted must comply with all the functional and non-functional mandatory requirements to be technically evaluated. The technical evaluation will have a total of 100 points attributed to the desirable functional and non-functional requirements as indicated in the table of Functional and Non-Functional Requirements available in ANNEX I. The maximum score per item is provided based on the weighting of the functional requirements and non-functional respectively. The following table illustrates the criteria depending on the type of importance assigned to each requirement: High, Medium or Low.

Weighting of Functional Requirement			**Weighting of Non-Functional Requirement**	
Importance	***Score range***		**Importance**	***Score range***
HIGH	7		*HIGH*	3
MEDIUM	4		*MEDIUM*	2
LOW	2		*LOW*	1

With the aim of objectively evaluating all the requirements regardless of their importance, a five-level absolute evaluation rubric is configured:

Evaluation rubric		
0%	Does not comply	It does not present any degree of compliance
25%	Partially complies	It presents a degree of compliance less than 50%
50%	Partially complies	It presents a degree of compliance of 50%
75%	Partially complies	It presents a degree of compliance greater than 50% and less than 100%
100%	Totally complies	It presents a total degree of compliance at 100%

The score for each desirable requirement is constituted by multiplying the percentage

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assigned by the rubric and the corresponding range, obtaining the final technical score by adding all the multiplications generated.

Once all the technical scores have been obtained, a technical-economic evaluation of the submitted proposals will be carried out, where the desirable requirements will have a weighting of 70% and the economic offer of 30%. The final score of each offer, considering both the Technical Evaluation and the Economic Evaluation (Licenses and Implementation Cost), will be given by the following formula: (POME / PO) * 30 + (PTO / PTOMC) * 70. In this scheme evaluation "POME" is the price of the most economical offer, "PO" is the price of the offer being evaluated, "PTO" is the technical score of the offer being evaluated and "PTOMC" is the technical score of the highest rated offer.

Ceibal estimates a use of the first year being located in the band of # 1, a second year in the band of # 2 and the third in the band # 3 (see item 8.1.1), for which it will take that range of users + the implementation cost to apply in the economic formula.

OFFER

5.6. ITEMS TO QUOTE

5.6.1. Flat fee

The objective of Ceibal is that the products and services that are acquired can be used by all the beneficiaries, having said this, at present this type of content is not part of the official academic programs such as subjects such as language, science or mathematics. Neither is programming and robotics.

The mode and frequency of use of the platform is determined by the classroom teacher. Likewise, it is important to understand that this platform coexists and competes in its use with the LMS platform, two math platforms, the digital library, the platform for learning English, Makecode and the microbits boards, Scratch, and other resources available at Ceibal Plan. Moderate and eventually scaled use is to be expected in the following years.

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The objective is for the educational community to have access to the platform, which does not imply that users make use of the platform. For this, it will be counted by active users in the modality of licenses by band.

Ceibal will only count ACTIVE LICENSES, which are licenses associated with a user that exceed a certain level of use. An active license is considered to be a user who enters and records activity on the platform for at least 5 days * during a calendar year.

The payment method is for each of the bands and not the individual license (see example).

Plan Ceibal has an approximate annual budget according to the number of active users registered each year:

- Up to 50,000 active users - Ceibal has approximately USD 50,000
- Between 50,001 and 100,000 active users - Ceibal has approximately USD 100,000
- More than 100,001 active users - Ceibal has up to approximately USD 150,000

The minimum time horizon that Ceibal is able to guarantee for a contract is 3 years, provided that the project is successful during its first year of implementation. The project will be considered successful when there is good service from the supplier and good receptivity from Ceibal's target audience.

The active license will be audited from the usage data extracted by Ceibal by ranges.

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

For details of the elements, quote table and how to quote, consult Annex II - Quote where the table that must be completed is presented.

As an example: (merely illustrative numbers corresponding to a single year)

Up to 50,000 active users	***Between 50,001 and 100,000*** ***Active users***	***More than 100,001 active users***
USD 50.000*	USD 100.000*	USD 150.000*

Example 1: 15,000 active licenses are consumed so the amount to pay is USD 50,000

Example 2: 55,000 active licenses are consumed then active the amount to pay is USD 100,000

Example 3: 125,000 active licenses are consumed so the amount to pay is USD 150,000

- **In all cases, the active licenses refer to users who entered at least 5 days and registered some type of activity each day. The calendar year is taken as the period.**

5.6.2. Implementation cost

The supplier must indicate if there is a deployment cost, or parameterization as part of the one-time implementation process in the first year. The implementation cost must include the following requirements: Authentication, User provisioning and Automated export of usage data

5.6.3. Development Hours (mandatory)

The item development time must be quoted, which may be requested in the event that Centro Ceibal requires adjustments for adaptation and integration with external services or customization of the Platform.

5.7. PRESENTATION

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

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

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2. Folder with functional description and technical specifications of the platform. It must include the detail of the operating conditions, the documentation corresponding to the non-functional requirements (including the SLA and compliance status regarding Information Security, Confidentiality and Data Protection).
3. Folder with project plan as specified in section IMPLEMENTATION PROJECT
4. Folder with complementary technical information that the bidder considers pertinent to provide.
5. Folder with a description of the bidder's background.

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ANNEX I: COMPLIANCE TABLE

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

The **COMPLIANCE** column corresponding to the mandatory requirements will be completed with the Yes / No options.

MANDATORY FUNCTIONAL REQUIREMENTS			
SECTION		**CATEGORY**	**COMPLIANCE (Yes / No)**
3.1.1	**3.1.1.1**	**Contents / Thematic**	
	3.1.1.2	**Contents / Levels**	
	3.1.1.3	**Contents / Suitability for the target audience**	
	3.1.1.4	**Contents / Inclusion and gender**	
3.1.2	**3.1.2.1**	**Modality/Guided use**	
	3.1.2.2	**Modality/Autonomous**	
3.1.3		**Track student progress**	
3.1.4		**Personal monitoring and student activity**	
3.1.5		**Users and profiles**	
3.1.6		**Language**	

MANDATORY NON-FUNCTIONAL REQUIREMENTS			
SECTION		**CATEGORY**	**COMPLIANCE (Yes / No)**
4.1.1		**User provisioning**	
4.1.2	**4.1.2.1**	**Technology / Web Platform**	
	4.1.2.2	**Technology / Components**	

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4.1.3		**Device compatibility**	
4.1.4		**Functioning condition**	
4.1.5		**Automated export of usage data**	
4.1.6		**SLA - Service Level Agreement**	
4.1.7	**4.1.7.1**	**Information Security / Authentication**	
	4.1.7.2	**Information security / Confidentiality and data protection**	

In the case of desirable requirements, a score will be assigned in a range defined for each requirement, according to section

7.3 Evaluation Criteria.

DESIRABLE FUNCTIONAL REQUIREMENTS			
SECTION		**CATEGORY**	**MAXIMUM SCORE**
3.2.1.		**Usability**	7
3.2.2	**3.2.2.1**	**Contents / Older ages**	4
	3.2.2.2	**Contents / Younger ages**	4
	3.2.2.3	**Contents / Practices and concepts of Computational Thinking**	7
	3.2.2.4	**Contents / Practices and concepts of Programming**	7
	3.2.2.5	**Contents / Computational Thinking and Mathematics**	7
	3.2.2.6	**Contents / Materials for the teacher and class lessons**	4
	3.2.2.7	**Contents / Adaptability / AI Learning**	7

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	3.2.2.8	Contents / Content distribution and / or evaluations	4
	3.2.2.9	Contents / Block Programming Support	7
3.2.3	3.2.3.1	Modality / Autonomous use	7
	3.2.3.2	Modalities / Teaching Space	2
3.2.4		Track student progress	2
3.2.5	3.2.5.1	Other users and profiles / Administrator	2
	3.2.5.2	Other users and profiles / Parents / Guardians	2

DESIRABLE NON-FUNCTIONAL REQUIREMENTS			
SECTION		CATEGORY	MAXIMUM SCORE
4.2.1		User provisioning	3
4.2.2		Compatibility with other browsers	1
4.2.3		Functioning condition	2
4.2.4		Complements	2
4.2.5	4.2.5.1	Device Compatibility / Compatibility with Android Cell Phones and iOS Cell Phones and Tablets	2
	4.2.5.2	Compatibility with devices / Compatibility with devices delivered by Ceibal in optional levels	2
4.2.6		Hosting from fixed IP for data exoneration	3
4.2.7		Offline content for web & app solution	3
4.2.8		Availability of environment for testing	3
4.2.9		Automated export of usage data	2
4.2.10		SLA - Service level agreement	2
4.2.11		Information security, confidentiality and data protection	2

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ANNEX II: QUOTE

The quote must include:

- Flat fee

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

Range	2022	2023	2024
Up to 50,000 active users			
Between 50,001 and 100,000 active users			
More than 100,000 active users			

- Cost of implementation
- Development Hours: Quote the unit price of the development hour.

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