

Pontificia Universidad Católica de Chile

School of Engineering

Computer Science Department

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| **Organization:** | **CENIA** |
| **Date:** | **07/11/2024** |
| **Version:** | **0.2** |
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User Requirements

Specification Document

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| **Nombre del proyecto:** | **…** |
| **Organización postulante:** | **…** |
| **Contraparte oficial del proyecto:** | **…** |
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# Introduction

The document will begin with a brief description of the context, objectives, and scope of the system to be developed, as well as related documentation. The National Center for Artificial Intelligence (CENIA) is a public-private corporation funded by the National Agency for Research and Development (ANID) since November 2021. CENIA aims to put artificial intelligence at the service of people through three lines of action: cutting-edge scientific research, technological transfer, and engagement with society through projects on Artificial Intelligence (AI). Moreover, the center has four founding universities and more than 50 associated researchers. CENIA represents an opportunity in the national development of AI, as it is not only a space to study various AI contents, but also a key to the expansion of the entire national research and development ecosystem in this field.

The Sciencenia Hub project emerges as a response to the critical need to optimize the management and monitoring of scientific production within CENIA. The objective of the second version of the Sciencenia project is to develop an advanced platform for managing and tracking scientific production within CENIA. The need to optimize the management of scientific information, overcome the fragmentation of current systems, and provide deep analysis for strategic decision-making drives this development. Sciencenia Hub will centralize information dispersed across multiple sources, offering advanced analytical tools to improve planning and resource allocation, thus promoting efficiency and effectiveness in scientific research.

The main objective of the system is to develop an advanced scientific analysis platform that facilitates the synthesis and analysis of scientific production, providing key insights for strategic decision-making. The system also seeks to generate automated reports, ensure data security and privacy, and promote a culture of innovation within the organization.

Regarding the scope of the system, it will cover from initial design to the launch of web and mobile applications, ensuring quality and functionality through comprehensive testing. It will include the implementation of rigorous security protocols to protect information and comply with data privacy regulations. Additionally, the system will involve monitoring and continuous performance improvement.

The project documentation includes details about the constraints, requirements, and challenges of the project, as well as the proposed solutions for each of them. It includes the implemented security protocols and metrics for application evaluation. All this information is obtained from the client's needs, ensuring that their expectations are met.

## System Purpose

The application will provide a platform that handles the collection and analysis of scientific documents from CENIA researchers. This iteration focuses on the student, with special emphasis on improving the flow of requests for incentives and funds to provide detailed tracking of the application status. Additionally, it will feature a profile function, where users can edit their personal data and update their thesis information. It is also expected to implement a notification system, where students can receive alerts about their thesis, resolution of scholarship applications, resources, and events. This is planned for both the web and mobile applications.

On the other hand, the scientific observatory will be managed by executives who will upload large volumes of scientific production via a .csv file to avoid manual entry. Advanced filtering is also expected, with the ability to sort by keywords, dates, research areas, and authors.

Regarding user management, the executive is responsible for managing users, including creating and deleting accounts. They can create user accounts by uploading a .csv file with the corresponding information, allowing accounts to be automatically generated with a provisional password. Subsequently, students can update their password with a personal one and modify their personal data, except for their "student" role, which is not editable. Finally, the application must be intuitive and easy to use for the users, promoting greater adaptation to the application.

## Scope of the Project

The project involves the continuation of creating a website as well as improving and fully operationalizing the mobile application. Users of Sciencenia will be able to access scientific productions easily and orderly, and also generate an analysis of these productions. Regarding the users, there are three types: students, executives, and public users (including researchers).

Students will have a profile, which they can edit to keep it updated, will have their thesis associated on the page, and can edit non-sensitive data about it. They will also be able to submit applications for scholarships and resources for conferences and/or travel by sending a form containing all the necessary information for the application. Finally, they will be able to receive real-time notifications about the resolution of their request and also about CENIA events.

On the other hand, the executive will be able to receive applications from students and analyze the information sent to accept or reject the application. They can upload and update student thesis data. They are responsible for the mass data upload of the application, which includes research and user data, where they create student profiles and also generate information for researchers. Additionally, they can publish announcements of CENIA events for students to see and send notifications about them.

Each of the aforementioned users goes through an authentication process that secures personal information.

The public user type has access to the observatory where CENIA's research is located and also has access to the Researchers section, where they can view information about associated researchers. The “researcher” profile from the initial project, by client decision, becomes a public user, meaning they do not have a profile nor will they update information about their research.

## Context

The Sciencenia Hub application is presented as a platform designed to optimize and centralize the scientific production of Cenia members in a single space, making the search for information simpler and more efficient. This approach is innovative as it addresses a problem that had not been previously tackled.

This project is the result of the work of a previous team. In addition to continuing the development of the application, significant changes have been implemented, starting with a complete refactor and a switch from JavaScript to TypeScript in the backend.

As for the technologies used, we utilize Auth0 for user registration and login. The web application is developed with React, using Axios as the HTTP client, and is currently deployed through CloudFlare. For the mobile application, we have chosen Ignite as the boilerplate for building the platform, using TypeScript as the programming language, React Native and Expo for compilation, Zustand for state management, and Apisauce as the HTTP client. Lastly, the backend was built in TypeScript using Express and Sequelize with PostgreSQL to interact with the database, Bun as the runtime environment, Docker, and is deployed on an EC2 instance on Amazon Web Services (AWS).

## Definitions, Acronyms and Abbreviations

ANID: *Agencia Nacional de Investigación y Desarrollo*

AWS: Amazon Web Services

CENIA: *Centro Nacional de Inteligencia Artificial*

IA: Artificial Intelligence

VPC: Virtual Private Cloud

ECS: Elastic Container Service

ALB: Aplication Load Balancer

S3: Amazon Simple Storage Service

RDS: Relational Database Service

## References

List the documentation and literature used as support to build this document. Use dates and versions of documents where appropriate.

1. ESA Software Engineering Standards, PSS-05-0, URD (User Requirement Document) and SRD (Software Requirement Document). ESA Board for Software Standardization and Control (BSSC) - European Space Agency, 2006, URL: <https://goo.gl/RHfZ06>
2. User Stories Applied: For agile software development. Cohn, M., Addison-Wesley Professional, 2004.
3. Agile Estimating and Planning. Cohn, M., Prentice Hall, 2005.
4. Scrum and XP from the Trenches: How we do Scrum. Kniberg, H., InfoQ Enterprise Software Development Series, 2006, URL: <https://goo.gl/bbhcFk>
5. Implementing Lean Software Development: From Concept to Cash. Poppendieck, M., Poppendieck, T., Pearson Education, 2007.
6. Perfil Proyecto plantilla 2024 - Sebastián Martínez. URL: [P24 - [SCIENCENIA V2] IIC2154.PerfilProyecto.Plantilla.2024 - Sebastián Martínez](https://uccl0-my.sharepoint.com/:b:/r/personal/aneyem_uc_cl/Documents/OneDrive.2023/DCC-UC/Cursos/IIC2154/2024/2024-2/IIC2154.2024-2.CoordinacionGrupos/Seccion-4/IIC2154.2024-2.S4.Grupo1/Repositorio/Proyecto.DocumentoPerfil/P24%20-%20%5BSCIENCENIA%20V2%5D%20IIC2154.PerfilProyecto.Plantilla.2024%20-%20Sebasti%C3%A1n%20Mart%C3%ADnez.pdf?csf=1&web=1&e=pzmQhZ)