

Gabriela Rodrigues Matias

CivicsHub:
A Digital Talent Platform for the Legal Sector

SÃO PAULO
2025

Gabriela Rodrigues Matias

CivicsHub:
A Digital Talent Platform for the Legal Sector

Final Course Project submitted to the Institute of Technology and Leadership (INTELI), to obtain a bachelor's degree in Computer Engineering.

Advisor: Prof. Rafael Jacomossi

SÃO PAULO
2025

Cataloging in Publication
Library and Documentation Service
Institute of Technology and Leadership (INTELI)
Data entered by the author.

(Cataloging record with international cataloging data, according to NBR 14724. The record will be completed later, after approval and before the final version is deposited. The completion of the cataloging record is the responsibility of the institution's library.)

Sobrenome, Nome

Título do trabalho: subtítulo / Nome Sobrenome do autor; Nome e
Sobrenome do orientador. – São Paulo, 2025.
nº de páginas : il.

Trabalho de Conclusão de Curso (Graduação) – Curso de [Ciência da
Computação] [Engenharia de Software] [Engenharia de Hardware] [Sistema
de Informação] / Instituto de Tecnologia e Liderança.

Bibliografia

1. [Assunto A]. 2. [Assunto B]. 3. [Assunto C].

CDD. 23. ed.

Acknowledgments

I would like to thank the Institute of Technology and Leadership (Inteli) for the academic training and for providing an environment that enabled the development of this project. I would like to express my sincere gratitude to my advisor, Rafael Jacomossi, for his guidance, availability, and valuable contributions throughout the development of this work.

I am grateful to the students and law firms who participated in the platform validation process, whose collaboration and feedback were essential to the improvement of the proposed solution.

I would like to thank my family for their continuous support throughout my academic journey. I am especially grateful to my mother for her strength, encouragement, and belief in education as a path to transformation. To my father, who unfortunately passed away before being able to witness this stage of my journey, I express my gratitude for his values and teachings, which remain a fundamental part of my personal and academic foundation. I also thank my partner, Rafael Emidio, for his support, understanding, and companionship throughout the development of this work.

Finally, I would like to thank my life mentor, Felipe Neves, for his continuous support, guidance, and encouragement throughout this journey, which significantly contributed to my personal and professional development.

Epigraph

“Educação não transforma o mundo. Educação muda as pessoas. Pessoas transformam o mundo.”

Paulo Freire

Resumo

MATIAS, Gabriela Rodrigues. **CivicsHub**: Plataforma Digital de Talentos para o Setor Jurídico. 2025. xx f. Trabalho de Conclusão de Curso (Graduação em Engenharia da Computação) – Instituto de Tecnologia e Liderança, São Paulo, 2025.

O mercado jurídico brasileiro apresenta desafios estruturais relacionados ao acesso, à eficiência e à inclusão, especialmente no que diz respeito à inserção de estudantes de Direito e profissionais em início de carreira. Processos seletivos tradicionais tendem a ser genéricos, pouco estruturados e limitados na avaliação de perfis além de credenciais básicas. Este trabalho apresenta o CivicsHub, uma plataforma digital de banco de talentos desenvolvida para conectar estudantes e jovens profissionais do Direito a escritórios de advocacia, por meio de perfis estruturados, mecanismos de avaliação e organização orientada por dados.

O objetivo deste projeto é projetar, desenvolver e validar um Produto Mínimo Viável (MVP) capaz de suportar o cadastro de candidatos, o onboarding de escritórios, o gerenciamento de perfis e uma funcionalidade de avaliação baseada em quizzes. A solução foi desenvolvida utilizando uma arquitetura web moderna, composta por frontend em Next.js, backend em Node.js com Express, banco de dados relacional PostgreSQL e Prisma ORM para modelagem de dados. Foram adotadas práticas de desenvolvimento ágil, com foco em validação iterativa junto aos stakeholders.

A validação da plataforma ocorreu por meio de uso real, resultando em 36 usuários cadastrados com perfis completos, três escritórios participantes, mais de 200 execuções da funcionalidade de quiz e 20 testes completos dos fluxos de cadastro e perfil. Esses resultados demonstram a viabilidade técnica da solução, sua usabilidade e seu potencial de contribuição para a melhoria dos processos de recrutamento no setor jurídico.

Palavras-chave: tecnologia jurídica; banco de talentos; recrutamento digital; desenvolvimento web; inclusão digital.

ABSTRACT

MATIAS, Gabriela Rodrigues. CivicsHub: A Digital Talent Platform for the Legal Sector. 2025. xx p. Final Course Project (Bachelor's Degree in Computer Engineering) – Institute of Technology and Leadership, São Paulo, 2025.

The legal job market in Brazil presents structural challenges related to access, efficiency, and inclusion, particularly for young law students and early-career professionals. Traditional recruitment processes are often generic, poorly structured, and limited in their ability to assess candidate profiles beyond basic credentials. This project presents CivicsHub, a digital talent platform designed to connect law students and legal professionals with law firms through structured profiles, intelligent matching mechanisms, and data-driven assessment tools.

The objective of this project is to design, develop, and validate a minimum viable product (MVP) capable of supporting candidate registration, firm onboarding, profile management, and a quiz-based assessment feature. The solution was developed using a modern web architecture composed of a Next.js frontend, a Node.js backend with Express, PostgreSQL as the relational database, and Prisma ORM for data modeling. Agile development practices were adopted, emphasizing iterative validation with stakeholders.

The platform was validated through real usage, resulting in 36 registered users with fully completed profiles, three participating law firms, over 200 executions of the quiz functionality, and 20 complete tests of the registration and profile workflows. These results demonstrate the technical feasibility of the solution, its usability, and its potential contribution to improving recruitment processes in the legal sector.

Keywords: legal technology; digital talent platform; recruitment systems; web application development; social inclusion.

List of Illustrations

Figure 1 – System architecture and technology stack	page 19
Figure 2 – System functionalities overview	page 23
Figure 3 – User journey diagram	page 24
Figure 4 – Relational database model (ER diagram)	page 26

List of Tables

Table 1 – Legal market analysis	page 14
Table 2 – Porter's Five Forces analysis	page 15
Table 3 – Blue Ocean strategic analysis	page 16
Table 4 – Key Performance Indicators (KPIs) of the project.....	page 32

List of Abbreviations and Acronyms

API – Application Programming Interface
CRUD – Create, Read, Update and Delete
JWT – JSON Web Token
KPI – Key Performance Indicator
MVP – Minimum Viable Product
ORM – Object-Relational Mapping
UX/UI – User Experience/User Interface

Summary

1 Introduction.....	10
1.1. Partner Company Context.....	10
1.2. Problem Definition (Corporate Pain Point).....	11
1.3. Proposed Solution and Expected Contribution.....	11
1.4. Business Objectives.....	12
1.5. Structure of the thesis/dissertation.....	12
2 Solution Development.....	13
2.1 Applied Rationale.....	13
2.1.1 Business Area Rationale.....	13
2.1.2 Technological rationale for the solution.....	16
2.1.3 Fundamentals of Management and Development Methods:.....	20
2.2 Specification and Development:.....	21
2.2.1 Requirements and Specifications:.....	21
2.2.2 Architecture and Technology:.....	23
2.2.3 Development and Implementation (MVP):.....	26
2.2.4 Testing and Technical Evaluation.....	27
2.2.5 Product and Software Documentation.....	28
2.3 Assessment of Impact and Contribution to the Business.....	30
2.3.1 Defining Corporate Success Metrics:.....	30
2.3.2 Results and Impact Analysis:.....	31
2.3.3 Cost-Benefit Analysis:.....	33
2.3.4 Social Impact and Contribution to the Next Generation of Lawyers.....	33
2.3.5 Critical Success Factors and Lessons Learned.....	34
3 Conclusion.....	35
References.....	38

1 Introduction

This chapter introduces the CivicsHub project, outlining its business context, the problem addressed, the proposed solution, and the objectives that guide its development within a corporate track perspective.

1.1. Partner Company Context

The project is situated within the legal services sector, specifically in the context of law firms and early-stage legal talent recruitment. The affected area corresponds to talent acquisition and recruitment processes, which are traditionally managed through manual procedures, informal networks, and generic job platforms.

Law firms—particularly small and medium-sized offices—often operate with limited digital infrastructure for recruitment, relying on résumé screening, email-based communication, and subjective evaluation criteria. This scenario results in operational inefficiencies and limited visibility of candidate potential.

From a strategic perspective, this project addresses a critical business need: improving recruitment efficiency and access to qualified early-career legal professionals. CivicsHub is positioned as a strategic digital initiative that supports more structured, scalable, and data-driven recruitment practices, aligning technology with business needs in the legal sector.

This project is strategic for the Next Generation of Lawyers initiative as it strengthens its ability to support young law students and early-career legal professionals through a structured and scalable digital solution. By addressing challenges related to limited visibility, access to opportunities, and fragmented recruitment processes, CivicsHub enables the initiative to offer a concrete technological infrastructure that improves employability, enhances engagement with partner law firms, and supports data-driven decision-making for the continuous development of young legal talents.

1.2. Problem Definition (Corporate Pain Point)

The recruitment process in the legal sector presents recurring operational issues. Candidate information is often unstructured, dispersed across multiple channels, and difficult to compare objectively. As a result, law firms experience prolonged screening cycles and inconsistent evaluation standards.

From the candidate perspective, opportunities are frequently poorly described, inaccessible, or misaligned with individual academic profiles and career interests. These issues reduce engagement and limit diversity in recruitment outcomes.

Baseline observations from the initial project context indicate:

- High dependency on manual résumé analysis;
- Long and non-standardized screening processes;
- Limited availability of quantitative data to support recruitment decisions;
- Absence of structured metrics to evaluate candidate engagement or process efficiency.

These factors constitute the core corporate pain point addressed by this project: the lack of a dedicated digital system capable of structuring recruitment data, supporting objective evaluation, and enabling measurable process improvement.

1.3. Proposed Solution and Expected Contribution

To address the identified problem, this project proposes **CivicsHub**, a web-based digital talent platform tailored to the legal sector. The solution enables candidates to create structured profiles containing academic, professional, and personal information, while law firms gain access to organized and searchable talent data through a centralized interface.

A key feature of the platform is a **quiz-based assessment mechanism**, designed to complement profile information with structured evaluation data. This functionality supports more objective initial screening and contributes to improved decision-making.

The expected contributions of the solution include:

- Reduction in manual screening effort;
- Increased visibility and comparability of candidate profiles;
- Generation of structured usage and engagement data;
- Support for scalable and data-driven recruitment workflows.

Although the project focuses on MVP validation, the platform establishes a measurable foundation for future process optimization and data-driven recruitment decisions.

1.4. Business Objectives

The primary business objective of CivicsHub is to validate a digital recruitment platform capable of improving efficiency and organization in legal talent acquisition processes. The expected results include:

- Structured registration and completion of candidate profiles;
- Successful onboarding and interaction of law firms with the platform;
- Initial validation of assessment and evaluation features;
- Collection of usage metrics to support future performance analysis.

These objectives aim to demonstrate the feasibility and strategic value of adopting a dedicated digital solution for recruitment within the legal sector.

1.5. Structure of the thesis/dissertation

This work is organized into three main chapters. Chapter 1 introduces the project context, defines the corporate problem, presents the proposed solution, and outlines the business objectives. Chapter 2 details the development of the solution, including the applied rationale, technical specifications, system architecture, implementation process, and an assessment of impact and business contribution. Chapter 3 concludes the work by summarizing the results obtained, discussing the main contributions of the project, and indicating directions for future development.

2 Solution Development

2.1 Applied Rationale

This section presents the rationale that supports the CivicsHub solution from a business, technological, and managerial perspective. It discusses the characteristics of the legal recruitment market, relevant best practices and benchmarking, the technological foundations that justify the proposed architecture, and the management and development methods applied throughout the project.

2.1.1 Business Area Rationale

The legal recruitment sector in Brazil is one of the largest in the world, with more than 1.3 million registered lawyers, according to data from the Brazilian Bar Association (OAB). Despite its scale, the market presents significant structural inefficiencies, particularly for law students and early-career legal professionals. Entry-level opportunities are highly fragmented, vacancies are dispersed across multiple channels, and recruitment criteria are often poorly standardized, resulting in limited visibility and restricted access to professional opportunities for emerging talent.

From the perspective of law firms and organizations, recruitment processes are predominantly manual, time-consuming, and resource-intensive. Candidate screening is frequently based on unstructured résumés and subjective evaluation criteria, which hinders objective comparison and increases operational effort. Industry reports and preliminary interviews with legal professionals indicate recurring challenges in attracting qualified early-career talent, especially through digital channels. Moreover, informal hiring practices, such as personal referrals and professional networks, continue to play a relevant role in recruitment decisions within the legal sector.

At the same time, the legal recruitment market is undergoing a period of transformation driven by the **digitalization of human resources processes**, growing demands for **diversity and inclusion**, and the adoption of **more flexible work arrangements**. These changes intensify the need for recruitment solutions that combine efficiency, transparency, and accessibility while addressing the specific characteristics of legal careers.

A consolidated overview of the market context and its main challenges is presented in **Table 1**.

Table 1 – Legal Market Analysis

Aspect	Description
Market Size	Brazil has one of the largest legal markets globally, with over 1.3 million registered lawyers.
Recruitment Practices	Predominantly manual résumé screening, informal referrals, and non-standardized evaluation processes.
Challenges for Candidates	Low visibility, fragmented opportunities, reliance on personal networks, limited ways to demonstrate potential.
Challenges for Law Firms	High screening effort, long recruitment cycles, lack of structured candidate data.
Digital Maturity	Lower adoption of digital recruitment tools compared to other sectors.
Informal Hiring	High reliance on informal practices
Strategic Trends	HR digitalization, diversity and inclusion demands, and flexible work arrangements.
Market Opportunity	Lack of specialized legal recruitment platforms enables sector-focused digital solutions.

To further analyze the competitive environment, **Porter's Five Forces framework** was applied. The analysis, summarized in **Table 2**, highlights the main competitive pressures affecting the legal recruitment sector and reinforces the strategic relevance of a specialized digital solution.

Table 2 – Porter's Five Forces Analysis

Competitive Force	Intensity	Description
Competitive Rivalry	Medium	Presence of large generalist platforms competing for candidate volume.
Threat of New Entrants	Medium	Moderate entry barriers due to credibility and partnerships, despite low technological costs.
Bargaining Power of Buyers	High	Law firms can easily switch between recruitment channels.
Bargaining Power of Suppliers	Medium	Dependence on technology and infrastructure providers, mitigated by open-source tools.
Threat of Substitutes	High	Informal hiring, networking, and generic job platforms act as strong substitutes.

The analysis shows that although the market is competitive and subject to strong substitution threats, there is clear strategic space for differentiated solutions. Generalist platforms such as **LinkedIn Jobs, Gupy, and Vagas.com** offer high candidate volume but lack segmentation, contextualization, and evaluation mechanisms specific to legal recruitment. These platforms often prioritize scale over match quality and impose complex selection processes that are misaligned with the needs of young legal professionals.

Based on the Blue Ocean Strategy framework, the platform seeks to create value through differentiation rather than direct competition with generalist recruitment platforms. The platform differentiates itself by focusing exclusively on the legal sector,

simplifying recruitment workflows, prioritizing candidate potential and cultural fit, and offering free access to talent for companies. This strategic positioning is summarized in **Table 3**, which compares CivicsHub with existing recruitment alternatives.

Table 3 – Blue Ocean Strategic Analysis

Strategic Factor	CivicsHub	Generalist Platforms	Traditional Referrals
Sector Focus	Exclusive to legal sector	Multi-sector	Informal
Hiring Process	Simplified and structured	Complex and generic	Unstructured
Evaluation Criteria	Potential and cultural fit	Résumé-based	Subjective
Match Quality	High relevance	High volume	Network-based
Accessibility	Free for companies and candidates	Often paid or restricted	Limited
Strategic Positioning	Value innovation (Blue Ocean)	Competitive saturation	Informal practice

2.1.2 Technological rationale for the solution

The CivicsHub (Next Generation of Lawyers) project was developed with a strong focus on **technology, data, and applied intelligence**, aiming to create a precise and efficient bridge between legal talent and the job market. The technological decisions adopted throughout the project were guided by the need for **scalability, reliability,**

performance, and long-term sustainability, while remaining compatible with the maturity level of an MVP.

From a conceptual standpoint, the solution is grounded in modern approaches to **Artificial Intelligence (AI)**, **data-driven decision-making**, and **cloud-based architectures**, which are increasingly applied in digital recruitment platforms across multiple industries.

One of the core conceptual pillars of the platform is the use of **intelligent matching mechanisms**. In the current MVP, candidate screening is supported by a backend recommendation logic based on structured profile data, such as skills, interests, and academic background. Although this initial implementation relies on a simplified algorithm, it establishes the foundation for future evolution toward AI-based profile triage, intelligent matching between candidates and vacancies, and personalized recommendations powered by machine learning models. These capabilities are expected to progressively reduce manual screening effort and increase match quality.

Another key technological concept supporting the solution is **Business Intelligence (BI)**. CivicsHub was designed to generate structured and traceable data throughout the recruitment process. The MVP already provides dashboards for companies, enabling real-time monitoring of applications and visual representations of recruitment data, such as applications per vacancy and distribution of candidates by status. In future iterations, these dashboards can be expanded to support more advanced analytical capabilities, allowing recruiters to evaluate performance indicators, engagement levels, and process efficiency in greater depth.

From an architectural perspective, the platform adopts a **cloud-based client-server architecture**, prioritizing simplicity, reliability, and ease of deployment. Backend services are hosted on **Render**, a managed cloud platform that abstracts infrastructure complexity and provides an adequate level of scalability for MVP validation and early-stage growth. This approach minimizes operational overhead while allowing the system to scale horizontally as demand increases.

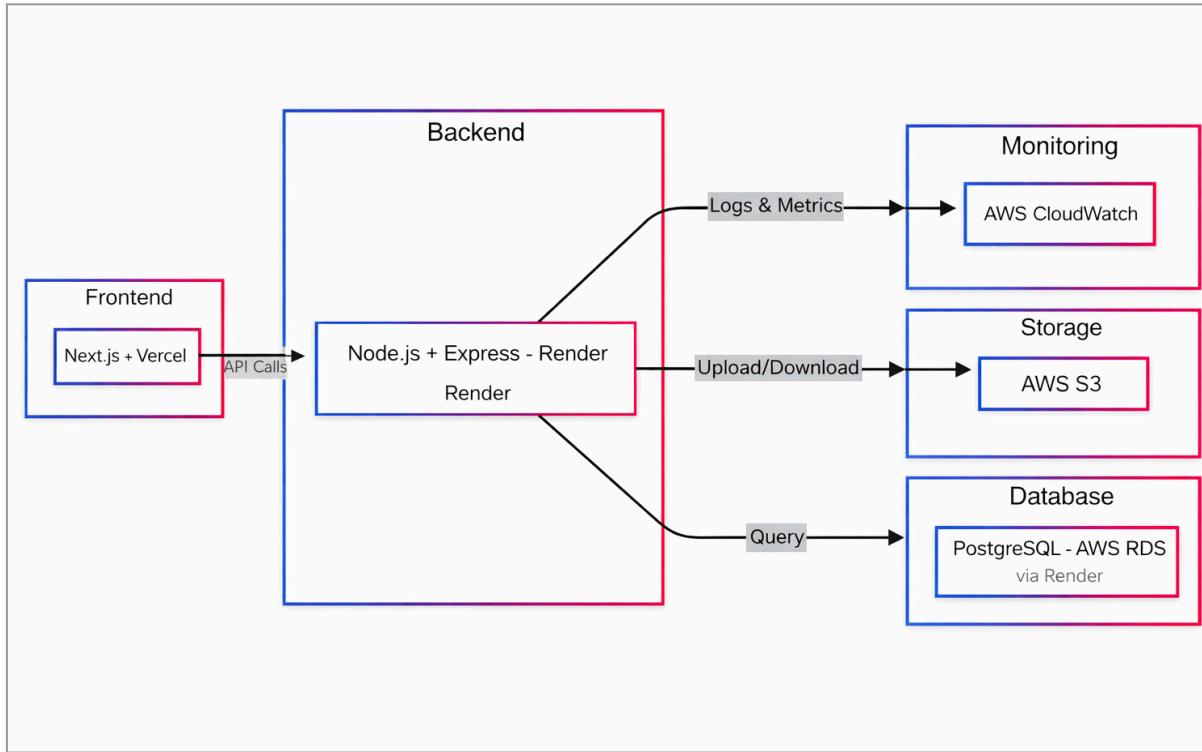
The core technology stack was selected to support modern development practices, performance optimization, and maintainability:

- **Frontend:** Developed using **Next.js**, a modern React-based framework that provides optimized performance, support for server-side rendering (SSR), and improved user experience. Styling and responsiveness are handled using **Tailwind CSS**, while **Ant Design** is employed as a UI component library to ensure consistency and usability.
- **Backend:** Implemented using **Node.js with Express**, providing a lightweight, modular, and efficient RESTful API architecture suitable for handling concurrent user interactions.
- **Database and ORM:** **PostgreSQL** was selected as the relational database management system due to its robustness, reliability, and support for structured relational data. Database access is managed through **Prisma ORM**, which offers type safety, schema consistency, and improved development productivity.
- **Authentication and Security:** User authentication is handled using **JSON Web Tokens (JWT)**, enabling secure and stateless access control.
- **Frontend Deployment:** The frontend is deployed using **Vercel**, which enables fast and reliable delivery and supports automated Continuous Integration and Continuous Deployment (CI/CD) pipelines.

The technical justification for these choices is directly related to the operational needs of the project and the partner initiative. **AWS RDS (PostgreSQL)** ensures database reliability, high availability, and scalability, serving as a mitigation strategy against infrastructure failures and data loss. The use of **Render** for backend deployment provides a balanced solution between simplicity and scalability, appropriate for the MVP stage and capable of supporting increased demand without complex configuration. The combination of **Node.js (Express)** and **Next.js** enables efficient full-stack development while ensuring frontend performance through server-side rendering. **Prisma ORM** improves backend code quality and reduces

development errors, while **Vercel** simplifies frontend deployment and continuous delivery.

Figure 1 – System Architecture and Technology Stack



The overall system architecture and the adopted technology stack are illustrated in **Figure 1 (Architecture and Technology Stack)**. The diagram summarizes the interaction between the frontend, backend services, database layer, and authentication mechanisms, highlighting the cloud-based deployment model and the modular structure designed to support scalability and performance as the platform evolves.

Overall, the adoption of technologies such as AWS, Render, Next.js, and Node.js reflects the objective of building a **reliable, scalable, and modern digital infrastructure** tailored to the legal recruitment market. The adopted architecture was designed to support scalability and reliability through the use of cloud-managed services, stateless REST APIs, and a modular system structure, reducing coupling and enabling horizontal scaling as demand increases. These technological decisions support both the validation of the MVP and the sustainable evolution of the CivicsHub platform.

2.1.3 Fundamentals of Management and Development Methods:

The management and development of the CivicsHub platform were guided by a combination of **Agile development practices**, **DevOps-oriented principles**, and **project management concepts aligned with PMBOK**, ensuring flexibility, quality, and structured control throughout the project lifecycle.

Agile methodologies were adopted to support iterative and incremental development, enabling continuous delivery of functionalities and early validation with stakeholders. Development activities were organized in short cycles, with backlog prioritization based on business value and technical feasibility. Continuous stakeholder involvement, particularly through usability testing with students and law firms, allowed the project to adapt quickly to changing requirements and market feedback.

Although not formally implemented as a full DevOps framework, the project incorporated DevOps principles focused on automation, reliability, and code quality. Continuous Integration and Continuous Deployment (CI/CD) practices were applied through automated pipelines, enabling frequent and controlled releases. Quality and reliability were monitored using development metrics such as automated test coverage and mean time to repair (MTTR), supporting faster detection and resolution of issues.

In parallel, the project followed a structured management approach inspired by PMBOK guidelines. A project plan defined phases, scope, timeline, and deliverables, providing visibility and control over execution. Change management processes were applied to evaluate and prioritize scope modifications, while performance monitoring and regular reporting supported informed decision-making and stakeholder communication.

The integration of Agile flexibility with PMBOK-based planning allowed the project to remain adaptable while maintaining governance, traceability, and alignment with organizational objectives.

2.2 Specification and Development:

This section details the technical specifications, system architecture, and implementation methodology of the CivicsHub (Next Generation of Lawyers) Minimum Viable Product (MVP). The specifications were defined to ensure alignment with corporate standards related to scalability, security, reliability, and user-centered design.

2.2.1 Requirements and Specifications:

The MVP was designed with the primary objective of connecting young legal talents with companies through a simplified, structured, and accessible digital platform. The system requirements were defined based on essential business needs and validated through continuous interaction with stakeholders.

a) Functional Requirements (MVP)

The core functional requirements of the system are summarized below:

- **User Registration and Authentication:**

The platform must allow users to register and log in using email and password credentials. OAuth authentication via third-party providers (e.g., Google and LinkedIn) is planned for future iterations.

- **Student Profile Creation and Management:**

Students must be able to create and maintain a complete profile containing academic background, professional experiences, awards, extracurricular activities, and interests. The upload of documents such as résumés is planned for future versions.

- **Job Search and Filtering (Students):**

Students must be able to search and filter job opportunities by legal area, location, and type (e.g., internship or trainee).

- **Simplified Application Process:**

The system must support a one-click application mechanism and allow students to track the status of their applications.

- **Company Registration and Institutional Profile:**

Companies must be able to register an institutional profile, including validation of corporate data such as the CNPJ through external APIs.

- **Job Posting and Talent Management (Companies):**

Companies must be able to publish job opportunities, define requirements, search for candidates using filters, view detailed profiles, and manage applications per vacancy.

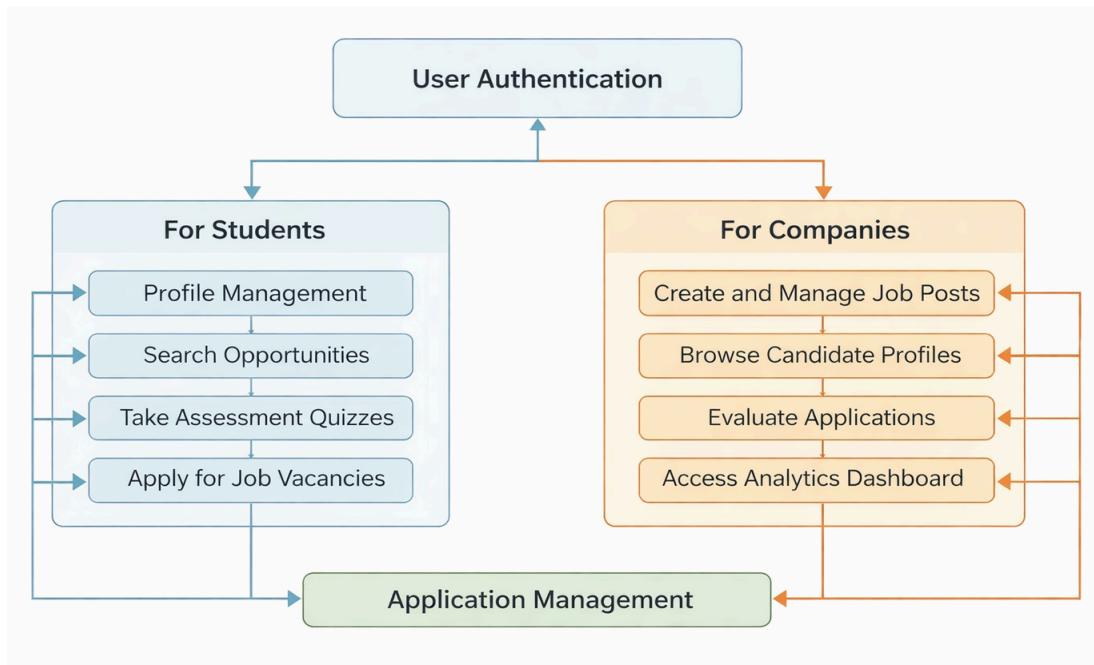
- **Analytical Dashboard (Companies):**

The platform must provide analytical dashboards with real-time information on applications, including status distribution (e.g., Applied, Screening, Interview, Offer).

Functionalities such as internal chat and mentorship features were intentionally excluded from the MVP scope to maintain focus on core recruitment workflows.

The main functional scope of the CivicsHub MVP is summarized in Figure 2. The diagram provides a consolidated view of the core system functionalities, highlighting the separation of responsibilities between student users and company users, as well as the shared services that support authentication and application management.

Figure 2 – System Architecture and Technology Stack



b) Non-Functional Requirements

Non-functional requirements were defined to ensure alignment with corporate expectations related to sustainability, performance, and security:

- **Security and Privacy:**

The platform must ensure data confidentiality and integrity through secure authentication mechanisms (JWT), encrypted communication, and compliance with data protection practices.

- **Scalability and Sustainability:**

The architecture must support future growth through modular design and cloud-based infrastructure.

- **Reliability and Performance:**

Database optimization, efficient API design, and infrastructure scalability must prevent performance degradation as the number of users increases.

- **Accessibility and Inclusion:**

The platform must be accessible to diverse users, ensuring usability across devices and inclusive design principles.

c) User Specifications and Use Cases

The system requirements were derived from two primary user personas: Young Legal Talent (Student) and Company Representative.

- **Young Legal Talent (Student):**

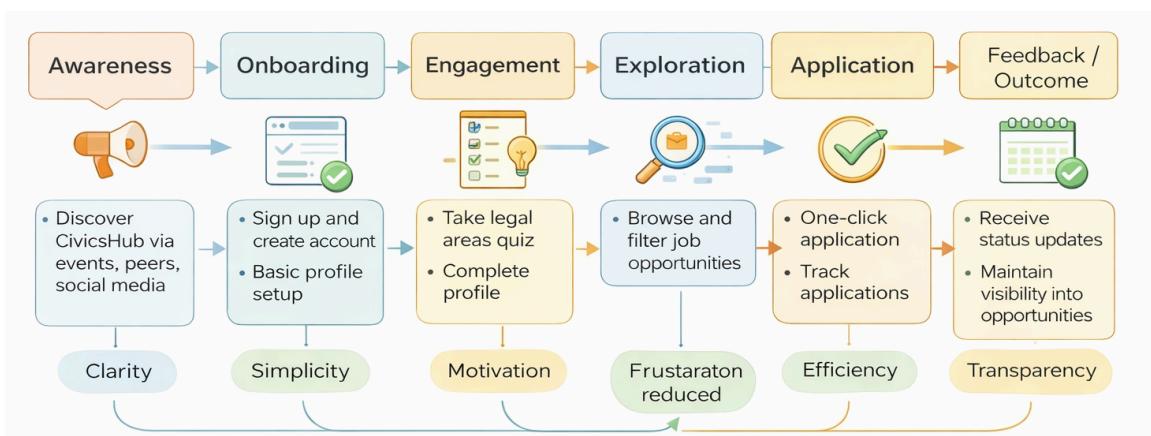
Main flow: *Create Profile* → *Explore Opportunities* → *Apply with One Click* → *Track Applications*.

- **Company HR Representative:**

Main flow: *Register and Validate Company* → *Publish Vacancies* → *Search and Filter Candidates* → *Manage Applications*.

For the student persona, the main interaction flow consists of creating a profile, exploring available opportunities, applying to positions through a simplified one-click process, and tracking application status. This end-to-end interaction was mapped through a user journey diagram, presented in Figure 3, which supported the definition of functional requirements and usability decisions throughout the development process.

Figure 3 – User journey diagram



These use cases guided the prioritization of features and interface design decisions.

2.2.2 Architecture and Technology:

The CivicsHub platform adopts a **cloud-based client-server architecture**, designed to ensure modularity, scalability, and separation of concerns. The system is structured around a clear division between the presentation layer (frontend), the application layer (backend API), and the data layer (database and storage services), all integrated through secure and standardized communication mechanisms.

At the presentation layer, the frontend is implemented using **Next.js**, a React-based framework that supports **Server-Side Rendering (SSR)**. This architectural choice improves performance, reduces initial load time, and enhances the user experience, particularly for dynamic interfaces such as dashboards and profile views. The frontend communicates exclusively with the backend through **RESTful API calls**, ensuring loose coupling and enabling independent evolution of each layer.

The application layer consists of a **REST API developed with Node.js and Express**, responsible for handling business logic, authentication, validation rules, and orchestration of data access. This layer centralizes domain logic such as user registration, profile management, job posting, application workflows, and status tracking. The modular structure of the API allows functionalities to be organized by domain (e.g., users, jobs, applications), facilitating maintainability and future extension.

The data layer is implemented using a relational database architecture, with **PostgreSQL** hosted on **AWS RDS**. This choice ensures high availability, reliability, and data consistency, which are essential for handling structured entities such as users, companies, vacancies, and applications. The relational model was designed based on an Entity-Relationship (ER) approach, defining clear entities, attributes, and relationships to support core platform functionalities and maintain data integrity. Database access is managed through **Prisma ORM**, which provides type safety, schema validation, and abstraction over raw SQL queries, reducing development

errors and improving productivity. The relational database model is illustrated in Figure 4.

Figure 4 - Relational database model (ER diagram)



Authentication and authorization are handled through **JSON Web Tokens (JWT)**, enabling stateless and secure access control to protected API endpoints. This approach supports scalability by avoiding server-side session storage while ensuring that only authenticated users can perform sensitive operations.

Regarding infrastructure and deployment, the platform leverages **managed cloud services** to minimize operational complexity. The frontend is deployed on **Vercel**, which provides automatic builds, optimized delivery, and integrated CI/CD pipelines.

The backend API is deployed on **Render**, a managed cloud platform that abstracts infrastructure management while allowing horizontal scaling as demand increases. This deployment strategy is appropriate for the MVP stage and supports gradual growth without the need for complex orchestration tools.

For file storage, the architecture includes the planned integration of **AWS S3** to support the storage of profile images and documents, such as résumés, in future iterations. This externalized storage approach prevents database overload and enables scalable handling of binary assets.

The complete architectural design, including the interaction between frontend, backend services, database, authentication mechanisms, and cloud infrastructure, is presented in **Figure 1 (System Architecture and Technology Stack)**

The CivicsHub platform was designed as a standalone digital solution, providing direct access to students and companies without requiring integration with external corporate systems or legacy IT environments. This architectural decision reduces technical complexity, accelerates adoption, and enables full control over the user experience during the MVP and early growth stages.

All core interactions—such as user registration, profile management, job posting, applications, and analytics—are performed natively within the platform, ensuring consistency, data integrity, and simplified operational workflows. By avoiding mandatory integrations with third-party systems, the platform minimizes external dependencies and potential points of failure, which is particularly relevant for early-stage validation.

The architecture remains integration-ready by design, as the backend exposes modular RESTful APIs that can support future connectivity if required. However, at the current stage, this capability is intentionally not activated, as the platform's go-to-market strategy prioritizes direct user acquisition, organic growth, and platform-centric engagement rather than enterprise system integration.

From an infrastructure perspective, the use of managed cloud services (AWS RDS for the database, Render for backend hosting, and Vercel for frontend deployment) ensures that scalability, availability, and maintenance are handled independently of

partner IT environments. This allows the platform to scale based on user demand without imposing operational overhead on external organizations.

Overall, this approach aligns the technical architecture with the product strategy, supporting a focused MVP, a strong direct-to-user go-to-market, and a flexible foundation for future expansion, partnerships, or integrations as the platform evolves.

These architectural decisions directly support the non-functional requirements related to scalability, reliability, and security defined in Section 2.2.1.

2.2.3 Development and Implementation (MVP):

The development of the CivicsHub MVP followed a **product-oriented approach**, combining user-centered design practices with agile software engineering. The process was structured to ensure that technical decisions were consistently aligned with real user needs and validated through iterative cycles.

a) Product Discovery and User Understanding

The development process began with an in-depth **understanding of the target users**, supported by the definition of personas and user journeys. These artifacts allowed the identification of key pain points faced by young legal talents and company representatives, such as lack of visibility, complex application processes, and inefficient candidate screening. Insights obtained during this phase directly influenced feature prioritization and interaction design.

b) Prototyping and Validation

Based on the discovery phase, **wireframes and interactive prototypes** were created to validate navigation flows, information hierarchy, and usability before implementation. Prototypes were tested with potential users to collect early feedback, enabling adjustments to layout, content organization, and interaction patterns. This approach reduced rework during development and ensured a more intuitive user experience.

c) Data Modeling and Backend Structuring

In parallel with interface design, the **database model was designed and validated**, focusing on representing core domain entities such as users, companies, job postings, applications, and quiz results. The relational data model, implemented using PostgreSQL and Prisma ORM, ensured data integrity, normalization, and scalability. Early database modeling allowed backend development to progress in a structured and consistent manner.

d) Incremental Development and Implementation

The MVP was implemented incrementally following Agile principles. Features were developed in prioritized sprints, starting with core functionalities such as authentication, profile creation, job posting, and application workflows. Each increment was tested and validated before proceeding to subsequent features, ensuring stability and functional consistency.

The frontend implementation focused on **clear interface structure, responsiveness, and accessibility**, using reusable components and consistent design patterns. The separation between frontend and backend enabled parallel development and simplified maintenance.

e) Deployment and Operational Environment

Once validated, the platform was deployed to a cloud-based environment. The frontend was deployed using **Vercel**, enabling optimized delivery and automated CI/CD pipelines. The backend API was deployed on **Render**, providing a managed and scalable environment suitable for MVP validation. The database was hosted on **AWS RDS**, ensuring reliability and availability.

This deployment structure allowed the platform to transition smoothly from development to a real usage environment, supporting beta testing and early adoption without infrastructure complexity.

2.2.4 Testing and Technical Evaluation

a) Testing Strategies

The project prioritizes user validation and technical risk mitigation through multiple testing strategies:

- **User Acceptance Testing (UAT):**

Conducted with beta users during events and controlled testing sessions to evaluate usability, registration flows, and key features such as the legal area quiz.

- **Code Quality and Reliability:**

Development quality is monitored through metrics such as **Automated Test Coverage** and **Mean Time to Repair (MTTR)** for critical issues.

- **Security Testing:**

Planned mitigation strategies include encryption, multi-factor authentication (MFA), and periodic security audits.

- **Performance Testing:**

Performance risks are mitigated through database optimization, efficient query design, and scalable cloud infrastructure.

b) Technical Evaluation Results

Initial beta tests demonstrated that the solution meets the defined technical requirements:

- Users reported an intuitive registration flow and clear navigation.
- The legal area quiz was validated as an effective engagement and attraction mechanism.
- Identified issues (e.g., login errors, inactive buttons, and data persistence bugs) were documented and addressed through subsequent development

iterations.

These results confirm that the CivicsHub MVP satisfies the technical standards required for its intended corporate and user context.

2.2.5 Product and Software Documentation

The development of CivicsHub was supported by a structured and continuously updated **product and software documentation**, designed to ensure traceability, clarity, and alignment throughout the project lifecycle. This documentation played a central role in connecting business objectives, user needs, design decisions, and technical implementation.

From a product perspective, the documentation consolidated key artifacts generated during the **discovery and design phases**, including market analysis, personas, user journeys, value proposition definition, and MVP scope. These materials enabled a clear understanding of the target audience and guided feature prioritization, ensuring that development efforts remained aligned with real user needs and strategic goals.

From a software engineering perspective, the documentation described the **system architecture, technology stack, database model, API structure, and core functionalities** of the platform. Architectural diagrams, database schemas, and interface descriptions were used to formalize technical decisions and support maintainability, scalability, and future evolution of the system.

In addition, the documentation included detailed descriptions of **development workflows, testing strategies, and deployment processes**, enabling transparency regarding how the platform was built, validated, and delivered. Test documentation, including beta testing results and functional validation, supported continuous improvement and risk mitigation during development.

The documentation was organized and made accessible through an online documentation portal, allowing iterative updates as the project evolved. This approach ensured that the documentation remained a **living artifact**, reflecting the current state of the product rather than static initial assumptions. It also facilitated

knowledge transfer, onboarding of future contributors, and long-term sustainability of the platform.

Overall, the use of comprehensive product and software documentation contributed significantly to the quality of the CivicsHub project, reinforcing best practices in software engineering, supporting informed decision-making, and establishing a solid foundation for future development and scaling.

2.3 Assessment of Impact and Contribution to the Business

This section evaluates the **return on investment (ROI)** and the business and social contributions generated by the implementation of the CivicsHub (Next Generation of Lawyers) platform. The analysis focuses on how the solution addresses inefficiencies in legal recruitment, improves access to opportunities for young legal talents, and establishes a scalable and sustainable digital model for connecting companies and candidates.

2.3.1 Defining Corporate Success Metrics:

Corporate success metrics were defined to measure the effectiveness of the platform in achieving the business objectives presented in Section 1.3. These metrics focus on **market adoption**, **user experience**, and **recruitment quality**, reflecting both business performance and social impact.

a) Project Key Performance Indicators (KPIs)

The project KPIs are structured into three categories:

Table 4 - Key Performance Indicators (KPIs) of the project

Category	KPI	Description

Market Adoption	Number of Registered Companies	Measures acceptance of the platform by law firms and organizations.
Market Adoption	Number of Active Students	Evaluates reach and adoption among young legal talents.
User Experience	Engagement Rate	Measures frequency of platform usage and user interactions.
User Experience	Net Promoter Score (NPS)	Assesses user satisfaction and likelihood of recommendation.
Recruitment Quality	Qualitative Match Rate (Implicit)	Evaluates perceived quality of matches, prioritizing quality over volume.

b) Measurement Methodology

The measurement methodology enables comparison between the “**Before** scenario (traditional recruitment processes) and the “**After**” scenario (use of the CivicsHub platform).

- **Baseline – Traditional Recruitment:**

Characterized by predominantly manual résumé screening processes, a strong reliance on informal referrals and professional networks, and recurring challenges in attracting and engaging early-career legal talent. These practices tend to increase operational effort, extend hiring timelines, and elevate recruitment costs when considering screening time, human resources involvement, and process inefficiencies.

- **Post-Implementation Data Collection:**

Data was collected through:

- Platform dashboards providing real-time analytics for companies.

- Usability tests and structured feedback collected from beta users and events;
- Monitoring of platform usage and engagement metrics during pilot operation.

2.3.2 Results and Impact Analysis:

Although full MVP development is scheduled for completion in November, initial deployment and pilot testing already demonstrate meaningful impact when compared to the baseline scenario.

a) Quantitative Analysis

- **Market Adoption:**

The platform recorded **36 registered users with complete profiles** and **3 registered law firms**, validating early-stage adoption on both sides of the marketplace.

- **Talent Engagement:**

More than **200 executions of the legal area quiz** were recorded, resulting in the creation of an initial database of **205 potential legal talents**, demonstrating strong engagement and attraction capability.

- **Operational Efficiency Potential:**

By reducing manual screening activities and simplifying application flows, CivicsHub presents the potential to significantly reduce hiring time and operational costs when compared to traditional recruitment processes, particularly as automated matching mechanisms evolve and scale.

- **Platform Stability and Validation:**

Over **20 complete tests** of the registration and profile flows were conducted,

ensuring technical stability and readiness for broader adoption.

b) Qualitative Analysis

Beyond quantitative indicators, CivicsHub generated important qualitative gains:

- **Recruitment Agility:**

The simplified application process and centralized candidate information reduced complexity for both candidates and companies, increasing process transparency and speed.

- **User Satisfaction and Experience:**

Usability tests confirmed intuitive navigation, clear information hierarchy, and positive perception of the platform's interface and flow.

- **Improved Decision-Making:**

Structured profiles and dashboards enable companies to evaluate candidates more objectively, reducing reliance on informal hiring practices.

2.3.3 Cost-Benefit Analysis:

a) Estimated Costs

The estimated annual operational cost to maintain the platform for up to **10,000 users** is approximately **R\$2,040**, including infrastructure and hosting services, based on current infrastructure configuration and MVP usage assumptions. Development costs were primarily associated with labor, as the platform was developed as an academic project without licensing expenses for proprietary software.

b) Return on Investment (ROI) Perspective

While a full financial ROI calculation is not yet applicable due to the MVP stage, the cost-benefit relationship indicates strong potential:

- Low operational costs relative to traditional recruitment expenses;
- Potential reduction in hiring costs per employee;

- Scalable infrastructure enabling growth without proportional cost increases.

From a business perspective, **the platform demonstrates strong potential for value generation with minimal operational investment**, supporting long-term sustainability.

2.3.4 Social Impact and Contribution to the Next Generation of Lawyers

CivicsHub generates significant **social impact** by reducing structural barriers faced by young law students and early-career professionals. The platform enables direct access to opportunities without reliance on informal networks, promoting merit-based and inclusive recruitment.

By connecting the **Next Generation of Lawyers** directly with law firms through standardized profiles and transparent application processes, CivicsHub democratizes access to the legal job market and contributes to increased diversity and inclusion within legal teams.

2.3.5 Critical Success Factors and Lessons Learned

Several factors contributed to the successful implementation and impact of the project:

- **Clear Product Focus:** Prioritization of core recruitment functionalities enabled efficient MVP validation.
- **User-Centered Development:** Continuous feedback from students and companies ensured alignment with real needs.
- **Lean and Scalable Architecture:** Cloud-based deployment minimized costs and operational complexity.

Key lessons learned include:

- The importance of early user validation to reduce rework;

- The need to balance feature scope with delivery capacity;
- The relevance of separating technical metrics from business impact indicators.

These insights provide a solid foundation for future iterations and scaling of the platform.

3 Conclusion

This work presented the design, development, and evaluation of CivicsHub (Next Generation of Lawyers), a digital platform created to address structural inefficiencies in the legal recruitment market and to expand access to professional opportunities for young law students and early-career legal professionals.

Throughout the project, a comprehensive approach was adopted, integrating product discovery, user-centered design, software engineering, and business analysis. The development process began with an in-depth understanding of the target users and market context, supported by the definition of personas, user journeys, and competitive analysis. These activities enabled the identification of key pain points related to fragmented job opportunities, reliance on informal networks, and inefficient recruitment processes within the legal sector.

From a technical perspective, the project resulted in the implementation of a cloud-based, scalable, and modular MVP, developed using modern web technologies. The architecture, based on a decoupled frontend and backend communicating via RESTful APIs, ensured flexibility, maintainability, and readiness for future growth. Technologies such as Next.js, Node.js, PostgreSQL, Prisma ORM, and managed cloud services were selected to balance performance, reliability, and operational simplicity, aligning with the constraints and objectives of an MVP-stage product.

The development followed Agile methodologies, allowing iterative delivery, continuous validation, and close alignment between technical decisions and real user needs. Product prototyping, database modeling, incremental implementation, and cloud deployment were conducted in an integrated manner, ensuring that the platform evolved consistently from concept to real-world usage. Usability testing and beta validation played a central role in refining the solution and identifying areas for improvement.

The results achieved demonstrate the viability and relevance of the proposed solution. The platform enabled the creation of a functional talent marketplace, registering 36 users with complete profiles, 3 participating law firms, more than 200 executions of the legal area quiz, and over 20 validated tests of core functionalities. These outcomes confirm the platform's ability to attract users, support engagement, and operate reliably within its intended scope.

Beyond technical and business results, CivicsHub generated meaningful social impact by reducing access barriers for young legal talents. By enabling direct and transparent connections between students and law firms, the platform promotes merit-based recruitment and contributes to a more inclusive legal market. This social dimension reinforces the project's alignment with the broader mission of supporting the Next Generation of Lawyers.

Regarding business contribution, the platform demonstrates a strong cost-benefit relationship, combining low operational costs with high scalability potential. While full financial return metrics will only be measurable in later stages, the MVP already indicates the capacity to reduce recruitment time, minimize manual screening efforts, and lower hiring costs when compared to traditional recruitment processes.

Despite the positive results, some limitations must be acknowledged. The MVP scope was intentionally restricted to core functionalities, and advanced features such as AI-driven matching, expanded analytics dashboards, and document storage were not fully implemented at this stage. Additionally, the current user base reflects early adoption and pilot validation rather than large-scale deployment.

As future work, the project envisions the evolution of CivicsHub toward a more intelligent and data-driven recruitment platform. Planned developments include the implementation of AI-based candidate matching, enhanced Business Intelligence dashboards, expanded go-to-market strategies, and deeper engagement with legal institutions and organizations. These initiatives aim to strengthen both the platform's business sustainability and its social impact.

In conclusion, CivicsHub demonstrates how a technology-driven, user-centered, and socially conscious digital solution can address real-world challenges in legal recruitment. The project successfully bridges software engineering, product development, and social purpose, establishing a solid foundation for future growth and continued contribution to the legal ecosystem.

References

- ROBERT HALF. **Legal recruitment and selection services.** Available at: <https://www.roberthalf.com/br/en/legal>. Accessed on: 15 Dec. 2025.
- LINKEDIN. **Law graduate jobs in Brazil.** Available at: <https://br.linkedin.com/jobs/law-graduate-vagas>. Accessed on: 15 Dec. 2025.
- RECRUITERFLOW. **Online recruitment platforms: how to choose the right one.** Available at: <https://recruiterflow.com/blog/recruitment-platform/>. Accessed on: 16 Dec. 2025.
- MORDOR INTELLIGENCE. **HR technology market – growth, trends and forecasts.** Available at: <https://www.mordorintelligence.com/industry-reports/hr-tech-market>. Accessed on: 16 Dec. 2025.
- AMAZON WEB SERVICES. **Amazon RDS for PostgreSQL – User Guide.** Available at: https://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/CHAP_PostgreSQL.html. Accessed on: 17 Dec. 2025.
- RENDER. **Render documentation.** Available at: <https://render.com/docs>. Accessed on: 17 Dec. 2025.
- VERCEL. **Vercel documentation.** Available at: <https://vercel.com/docs>. Accessed on: 17 Dec. 2025.
- UNLEASH. **HR technology trends 2025.** Available at: <https://www.unleash.ai/hr-technology/>. Accessed on: 17 Dec. 2025.
- CIVICSHUB. **CivicsHub: Product, Architecture, and System Documentation.** Available at: <https://plataforma-next-five.vercel.app/docs/intro>. Accessed on: 17 Dec. 2025.
- BRAZILIAN BAR ASSOCIATION (OAB). Lawyer registration statistics in Brazil.** Available at: <https://www.oab.org.br>. Accessed on: 17 Dec. 2025.