# Luzco
# System-Wide Requirements Specification

## 1.    Introduction

*The System-Wide Requirements document outlines the overarching specifications and characteristics that define the De Luzco Lighting Solutions platform. This comprehensive document serves as a guide for stakeholders involved in the development, implementation, and assessment of the system. By capturing essential elements such as functional requirements, system qualities, interfaces, and compliance considerations, the System-Wide Requirements document provides a holistic view of the expected behavior and capabilities of the De Luzco Lighting Solutions.*

*This document is an integral part of the broader system development process, ensuring a common understanding among project participants and stakeholders. It aims to bridge the gap between high-level project objectives and detailed implementation considerations. As the project progresses, this document will evolve to reflect refinements, updates, and additions to the system-wide requirements.*

## 2.    System-Wide Functional Requirements

*The De Luzco Lighting Solutions platform encompasses a range of critical system-wide functional requirements tailored to enhance overall performance, security, and user experience.*

*A fundamental aspect is the implementation of a robust Auditing System. This system will meticulously track and log user activities within the platform, ensuring accountability, traceability, and compliance with regulatory standards. Authentication mechanisms are designed to be secure, guaranteeing controlled access and preventing unauthorized use, establishing a foundation for system security.*

*Data visualization and reporting functionalities are integrated, providing stakeholders with comprehensive insights into energy consumption, project progress, and system performance. This not only facilitates informed decision-making but also contributes to transparency and accountability.*

*User role management is another pivotal feature, with a sophisticated system in place to differentiate access levels based on roles within the organization. This ensures that users have the appropriate permissions for their specific responsibilities, safeguarding data and system integrity.*

*Collaboration tools are seamlessly integrated into the platform to facilitate real-time communication and document sharing among team members and stakeholders. This enhances workflow efficiency and supports effective project coordination.*

*The platform includes remote diagnostics and troubleshooting capabilities, enabling technical teams to address issues efficiently without requiring on-site interventions. This feature minimizes downtime and contributes to the prompt resolution of technical challenges.*

*Scalability and flexibility are ingrained in the system architecture, allowing it to accommodate various project sizes and adapt to future enhancements. This ensures that De Luzco Lighting Solutions remains agile and responsive to evolving business needs and technological advancements.*

*Integration with industry-standard design software for lighting simulations is a key component, streamlining the transfer of design concepts seamlessly into the De Luzco Lighting Solutions platform. This enhances collaboration and expedites the transition from conceptualization to implementation.*

*Comprehensive data backup procedures and a robust recovery mechanism are implemented to prevent data loss and ensure quick recovery in case of unexpected failures. This emphasizes the importance of data integrity and system reliability.*

*User training resources are thoughtfully developed for both internal teams and external users, ensuring that users can leverage the platform effectively. This investment in training contributes to a proficient user base and maximizes the benefits of the system.*

*Adherence to documentation standards is a priority, ensuring clarity, completeness, and accessibility of technical manuals, API documentation, and system architecture diagrams. This commitment to documentation standards enhances transparency and aids in ongoing system maintenance and development.*

*In summary, the system-wide functional requirements of De Luzco Lighting Solutions are meticulously designed to create a secure, efficient, and user-friendly platform that aligns with the vision of transforming commercial spaces through innovative lighting solutions.*

## 3.      System Qualities

### 3.1      Usability

*The usability of De Luzco Lighting Solutions is a key focus to ensure a seamless and intuitive user experience. Requirements include:*

*Ease of Use: The interface should be user-friendly, allowing stakeholders to navigate and utilize features effortlessly.*

*Ease of Learning: The system should have a short learning curve, enabling users to quickly adapt to its functionalities.*

*Usability Standards: Adherence to industry usability standards to guarantee consistency and familiarity.*

*Localization: Support for multiple languages and regional preferences to enhance accessibility for a global user base.*

### 3.2      Reliability

*Reliability is paramount to maintain consistent performance under varying conditions. Requirements encompass:*

*Availability: The system should aim for high availability, minimizing downtime for critical operations.*

*Frequency and Severity of Failures: Define acceptable levels of failure frequency and severity to ensure optimal system performance.*

*Recoverability: Establish mechanisms for quick and efficient system recovery in case of failures or disruptions.*

### 3.3      Performance

*Performance characteristics are crucial for a responsive and efficient lighting system. Requirements include:*

*Response Time: Define acceptable response times for user interactions to ensure a smooth and prompt experience.*

*Throughput: Specify the expected throughput for data processing and communication within the system.*

*Capacity: Ensure the system can handle varying loads and scales effectively.*

*Startup and Shutdown Times: Define acceptable time frames for system initiation and termination processes.*

### 3.4      Supportability

*Enhancing the supportability and maintainability of De Luzco Lighting Solutions is integral to long-term success. Requirements encompass:*

*Adaptability and Upgrading: The system should allow for seamless integration of upgrades and adaptations to accommodate evolving technologies.*

*Compatibility: Ensure compatibility with existing infrastructure, design software, and emerging technologies.*

*Configurability: Provide options for system configuration to meet diverse project requirements.*

*Scalability: The system should scale efficiently to handle diverse project sizes and future growth.*

*System Installation: Clearly define installation procedures for simplicity and consistency.*

*Level of Support and Maintenance: Establish support and maintenance expectations, including response times and resolution windows.*

## 4.    System Interfaces

### 4.1    User Interfaces

*The user interfaces of De Luzco Lighting Solutions are designed to provide an intuitive and visually engaging experience. Requirements include:*

#### 4.1.1    Look & Feel

*The interface should embody a modern, professional aesthetic with a clean design. Utilize a color palette aligned with the De Luzco brand. Ensure a high degree of interactivity for a dynamic user experience.*

#### 4.1.2    Layout and Navigation Requirements

*Design major screen areas logically, considering ease of navigation and workflow efficiency. Group related functionalities together for intuitive access.*

#### 4.1.3    Consistency

*Maintain consistency in navigation controls, screen area sizes, placements for entering/presenting data, and terminology. Ensure consistency within the system and align with industry standards for user interface design.*

#### 4.1.4    User Personalization & Customization Requirements

*Allow users to personalize displayed content based on their preferences. Provide customization options for content and layouts to enhance user experience.*

### 4.2    Interfaces to External Systems or Devices

*Integration with Design Software: Ensure seamless integration with industry-standard design software for lighting simulations, supporting data interchange and collaborative design processes.*

*Compatibility with Legacy Systems: Provide interfaces for compatibility with existing lighting systems, ensuring a smooth transition for clients with legacy installations.*

*Regulatory Databases: Integrate with regulatory databases for real-time updates on safety and environmental compliance.*

#### 4.2.1    Software Interfaces

*Collaboration Tools Integration: Interface with cloud-based collaboration tools for team communication and document sharing.*

*Design Software Integration: Establish interfaces with industry-standard design software for lighting simulations to streamline the transfer of design concepts.*

#### 4.2.2    Hardware Interfaces

*Compatibility with Lighting Hardware: Ensure compatibility with a variety of lighting hardware, including LEDs, sensors, and control systems.*

*IoT Devices Integration: Facilitate interfaces with IoT devices for smart lighting solutions, supporting connectivity and data exchange.*

#### 4.2.3    Communications Interfaces

*Local Area Networks (LANs): Provide communication interfaces for seamless integration with local area networks, supporting efficient data transfer and system updates.*

*Remote Serial Devices: Enable interfaces for communication with remote serial devices, allowing for remote diagnostics and troubleshooting.*

## 5.  Business Rules

### 5.1  Lighting Project Approval Rules

The business rules form the framework that defines the principles governing the behavior and operations within De Luzco Lighting Solutions. These rule pairs specify the conduct and procedures, delineating the company-wide norms and usage. The main structures include:

1.  Company-wide conditions:
Outlining usage rights, security measures, and principles of data protection across the entire company.

2.  Functionality boundaries:
Describing the communication between office lighting systems, lighting management systems, and data analysis modules in terms of business rule pairs.

3.  Input and output rule management:
Addressing the handling of customer input data and output data in business rule pairs as required.

4.  Utilization of business rule pairs:
Users must accept and comply with business rule pairs when using De Lizco Lighting Solutions.

5.  Security measures:
Establishing security measures, sensitivity levels, and protection quotas applied throughout the system.

6.  Updating rules and conditions:
Specifying the need to update company rules and conditions as required in business rule pairs.

### 5.1.1  LPAR001
*If a lighting project meets regulatory compliance standards and has received approval from relevant authorities, it is eligible for implementation.*

## 6.  System Constraints

*Programming Language Constraint:*

*Description: The system must be implemented using a combination of Java for the backend functionalities and Python for modules requiring data analysis. This constraint ensures a cohesive and efficient development environment.*

*Development Tools Constraint:*

*Description: The development team is mandated to use specified tools, including Git for version control and Jenkins for continuous integration. This constraint ensures uniformity in the development process and facilitates collaboration.*

*Third-Party Components Constraint:*

*Description: Only open-source libraries and components are permitted for integration into the system. This constraint aims to maintain transparency, adhere to licensing regulations, and facilitate community-driven development.*

*Platform Support Constraint:*

*Description: The system must be compatible with specific operating systems, including Windows (versions 10 and above), macOS (latest version), and various Linux distributions (Ubuntu LTS). This constraint ensures broad accessibility for end-users.*

*Resource Limits Constraint:*

*Description: The system must adhere to defined resource limits, such as maximum memory usage and processing time. This constraint is crucial for optimizing performance and ensuring efficient resource utilization.*

*Hardware Housing Requirements Constraint:*

*Description: The system must be designed to be housed in standard server hardware with no specific constraints on shape, size, or weight. This constraint allows flexibility in deployment environments.*

## 7. System Compliance

### 7.1 Licensing Requirements
*The software will be distributed under a commercial licensing model.*

*A valid license is required for each installation.*

*Licensing enforcement mechanisms, including license keys, will be implemented to ensure compliance.*

### 7.2 Legal, Copyright, and Other Notices
*The software will include a copyright notice to assert ownership and protection under intellectual property laws.*

*Legal disclaimers will outline limitations of liability and warranty expectations.*

*Trademark and logo compliance guidelines will be established for the use of De Luzco branding.*

### 7.3 Applicable Standards
*ISO 9001:2015 (Quality Management): Adherence to quality management standards in system development processes.*

*IEC 60529 (Ingress Protection): Compliance with IP standards for electronic enclosures, ensuring durability and protection in various environments.*

*OSHA Standards (Occupational Safety and Health Administration): Ensuring workplace safety in system development.*

## 8. System Documentation
*User Documentation:*

*Provide comprehensive online user documentation, including user manuals and help systems.*

*Include detailed instructions on system installation, configuration, and usage.*

*Help About Notices:*

*Implement contextual help about notices within the software interface to guide users on specific functionalities.*

*Responsibility:*

*The development team is responsible for creating, updating, and maintaining system documentation.*

*Release Notes:*

*Document and communicate changes, updates, and new features with each system release.*