DALI At A Glance

Maximising Financial Gains

DALI®

Alliance

Table of Contents

01. Intended Audience and Relevance

This document — "DALI at a Glance: Maximising Financial Gains" — is primarily written for:

- **Building Owners, Developers and Investors**

It explores how DALI-enabled lighting systems contribute directly to financial performance through improved energy efficiency, lower operating costs, and enhanced asset value. As the regulatory and investment landscape increasingly favours smart, sustainable infrastructure, DALI offers a strategic advantage—ensuring compliance, supporting Environmental, Social, and Governance (ESG) goals, and future-proofing property portfolios.

While tailored for decision-makers evaluating long-term value, this document is also highly relevant for a broader group of professionals involved in designing, delivering, and managing modern buildings, including:

- ✓ **Lighting designers, engineers, and architects (both emerging and experienced)**
- ✓ **Specifiers and design consultants**
- ✓ **Project managers, system integrators, and value-added resellers**
- ✓ **Facility and property managers**
- ✓ **Municipal authorities and utilities**

For these stakeholders, the document offers clear, practical insight into how DALI supports high-performance lighting control across a wide range of projects—from retrofit upgrades to large-scale developments. It illustrates the tangible benefits of adopting a standards-based, interoperable platform that simplifies integration, enhances flexibility, and enables smarter building operation.

Whether your role is in investment, planning, design, or day-to-day operations, this guide outlines how DALI transforms lighting from a passive utility into an active contributor to performance, sustainability, and value—aligned with both immediate operational needs and long-term ESG (Environmental, Social, and Governance) objectives.

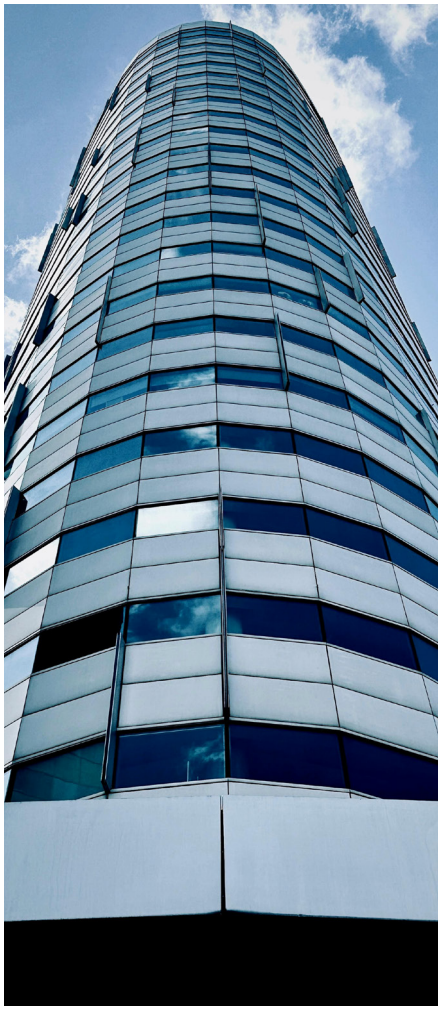
02. Overview

DALI lighting systems play a growing role in how buildings deliver on energy efficiency, regulatory compliance, and long-term asset value. With increasing pressure to meet sustainability targets, support circularity, and align with tightening building regulations, more owners and investors are turning to data-rich, interoperable platforms that integrate seamlessly with other systems and adapt over time.

DALI delivers on that promise. As an open, standards-based solution, it supports smart control, predictive maintenance, and streamlined integration—helping reduce carbon footprints, extend system life, and ensure compliance with evolving energy codes and building legislation. It also helps buildings meet and fulfil regulations such as the upcoming Energy Performance of Buildings Directive (EPBD) in Europe, which increasingly mandate advanced lighting controls for new and renovated non-residential spaces.

At the same time, DALI enhances occupant wellbeing and productivity, simplifies upgrades, and keeps infrastructure flexible. For investors, it's not just a lighting system—it's a way to protect value, stay ahead of regulation, and future-proof their portfolio.

03. Solving the Efficiency Challenge in Modern Buildings



How Smarter Lighting Control Unlocks Real Financial Value

In today's property and construction landscape, lighting isn't just about illumination—it's a strategic tool for performance. Yet many buildings still rely on outdated analogue lighting systems that waste energy, drive up maintenance costs, and make it harder to adapt to changing space needs or sustainability targets.

That's a missed opportunity. By upgrading to smarter, data-driven lighting control, building owners and operators can unlock real value—cutting operational costs, improving energy efficiency, and boosting long-term asset performance.

Turning Lighting into a Business Asset

To stay competitive, buildings need lighting systems that do more.

They should:

- Automatically respond to occupancy and natural light
- Provide real-time data on energy and performance
- Support predictive maintenance
- Scale and adapt without costly rewiring
- Integrate easily with wider building systems

This is where DALI® comes in.

DALI® (Digital Addressable Lighting Interface) is a globally standardised communication protocol for digital lighting control, standardised under IEC 62386 and DALI based products are certified by the DALI Alliance, a global industry consortium.

DALI ensures that certified products from different manufacturers can work together reliably, while providing access to data that supports automation, energy reporting, and system optimisation.

Built for Today's and Tomorrow's Needs

DALI-2 is a certification program based on the DALI protocol. It strengthens interoperability, reliability, and functionality by defining how components must perform to ensure consistent operation across vendors and applications.

As the DALI protocol evolves to meet the growing demands of modern lighting control, two additional advancements have emerged: D4i and DALI+.

D4i enables the connection of smart luminaires with other ecosystems and DALI+ extends the DALI protocol to wireless and IP-based networks, allowing for flexible installation and integration with broader smart building systems.

DALI-2, D4i and DALI+ are data-rich, enabling reporting on energy use, performance, and diagnostics — supporting predictive maintenance and smart asset management. Together with global standardisation and certification, these capabilities make DALI a strong technical foundation for efficient, future-proof and future-ready lighting infrastructure.

The Financial Payback

Smarter lighting control isn't just a technical upgrade—it's a strategic investment. Here's how DALI supports better financial outcomes:

- **Lower Energy Bills**
  Features like daylight harvesting and occupancy sensing reduce energy waste
- **Reduced Operating**
  Costs Real-time performance data supports proactive maintenance and longer fixture life—such as alerts on lamp burn hours, driver temperature, or early signs of failure
- **Lower Capital Expenditure Over Time**
  Wireless upgrades and easy reconfiguration avoid the cost and disruption of rewiring. As DALI+ solutions continue to evolve, wireless upgrades are expected to drive infrastructure costs down even further.
- **Higher Asset Value**
  Smart, sustainable buildings are more attractive to tenants, buyers, and Environmental, Social, and Governance-focused investors (ESG-focused investors)
- **Long-Term Flexibility**
  DALI's open, future-ready platform keeps your system adaptable as technology and needs evolve

Whether you're managing a retrofit or planning a new build, DALI offers a smart, reliable path to more efficient operations and stronger returns—now and into the future.

4. What Sets DALI Apart

Strategic and Financial Advantage

In a market driven by efficiency, flexibility, and sustainability, DALI offers a compelling advantage over analogue lighting control systems. Integrating DALI systems can lead to substantial operational cost savings, enhanced property value, and a boost in market appeal. Energy savings and operational efficiencies support a strong return on investment (ROI), making DALI a financially sound choice for modern properties.

The Comparative Advantage of DALI

When evaluating lighting systems, it's essential to understand the differences between having no controls, simple controls, and fully featured DALI systems.

Without Controls
Buildings relying on basic, unoptimised lighting setups suffer from higher energy consumption and offer limited customisation options. This often leads to increased operational costs, less attractive spaces for tenants, and higher carbon emissions—making it harder to meet sustainability targets or comply with tightening regulations.

Simple Controls
While basic on/off and dimming features offer some energy savings, they fail to deliver the comprehensive benefits of advanced systems. Customisation remains minimal, and energy efficiency needs to be maximised.

Most of these solutions are proprietary, with suppliers often reluctant to allow interoperability or customisation, which limits flexibility and can lead to vendor lock-in.

Fully Featured DALI
DALI provides a superior level of control and automation compared to analogue (e.g. 0-10V/1-10V) lighting systems. Its advanced features include daylight harvesting, occupancy sensing, and precise dimming—enhancing energy efficiency, lowering operational costs, and enabling extensive customisation options such as flexible grouping/zoning. In addition, DALI contributes significantly to CO_2 emission reduction, making it a strong choice for environmentally responsible building strategies.

These capabilities make spaces more adaptable and attractive to tenants. Flexible use of space is easily achieved through simple re-commissioning of the lighting—without any physical rewiring or construction changes. This agility is especially valuable in dynamic environments like offices, education, or mixed-use facilities.

DALI adds further value by enabling luminaires to function as intelligent data nodes. This allows building operators to monitor performance in real time, implement predictive maintenance to anticipate potential equipment failures, and collect detailed energy usage data.

DALI+ enhances flexibility through wireless and IP-based communication, reducing infrastructure costs and enabling seamless integration along with wired DALI systems and into broader smart building systems.

Cost Savings through Energy Efficiency

DALI can significantly reduce energy costs by ensuring lighting is used only when and where it's needed. Features like daylight harvesting, occupancy sensing, and automated dimming help cut energy consumption and adjust lighting intensity according to actual requirements, while also extending the life of fixtures — lowering both operating and replacement costs.

With DALI, each luminaire can provide real-time data on energy use and performance. This enables precise control, supports predictive maintenance, and ensures systems operate efficiently over time.

Together, these capabilities deliver a fast payback period and sustained cost reductions, strengthening the ROI of DALI-enabled lighting systems.

Circularity

DALI-certified products ensure interoperability and long-term availability of spare parts, avoiding the costly replacement of entire lighting systems when buildings are extended or repurposed. By extending the operating life of lighting controls and guaranteeing both forward and backward compatibility, DALI reduces lifecycle costs and protects asset value. This circular approach not only supports sustainability goals but also delivers clear financial savings over the long term.

Enhanced Property Value and Market Appeal

Buildings equipped with DALI can achieve higher valuations by meeting tenant and investor expectations for energy efficiency, sustainability, and digital infrastructure. These attributes support stronger lease terms, higher occupancy, and improved resale value — particularly for ESG-aligned portfolios.

DALI+ strengthens this appeal by enabling wireless upgrades and future system expansion without major renovation costs. DALI smart luminaires can add further value by delivering connected, real-time performance data — a key enabler for smart building certifications and operational transparency.

Scalability and Flexibility

DALI systems offer built-in scalability — supporting everything from small-scale installations to large, complex developments. Their adaptable wiring configurations reduce layout constraints and can simplify both planning and installation, helping to manage infrastructure costs more effectively.

The ability to connect and control thousands of devices makes DALI well suited to multi-phase projects or expanding portfolios or multi-tenant buildings. This is done by splitting the system into smaller sections, each managed by a controller, and linking them through a central system. It's a practical way to expand over time without needing major rewiring or disruption.

DALI enables this by providing real-time data from each luminaire, making it easier to manage performance as the system grows. DALI+ adds wireless capability, helping reduce cabling requirements, speed up deployment, and minimise disruption — especially in retrofits or occupied spaces.

5. Reconfiguring Spaces Without Rewiring

A key advantage of DALI systems is the ability to reconfigure lighting layouts through software adjustments — that is, through reprogramming rather than changing the software itself — eliminating the need for extensive rewiring. This flexibility allows for efficient modifications during refurbishments or changes in space utilisation, leading to savings in time, labour, and associated costs.

For example, in office spaces and meeting rooms, lighting can be easily reprogrammed to accommodate new layouts or team structures, supporting flexible work environments driven by organisational changes. This practical benefit enhances adaptability and reduces disruption during transitions.

DALI+ enhances this adaptability by introducing wireless communication, removing the necessity for additional cabling. This feature is particularly beneficial in dynamic environments, facilitating swift adaptations with minimal disruption and expense.

Ease of Installation

DALI simplifies installation through its two-wire, polarity-insensitive bi-directional bus system, reducing installation complexity, errors, and costs. Faster, more reliable deployments lead to quicker project delivery and reduced labour expenses.

DALI+ further enhances this by introducing wireless functionality, which reduces infrastructure requirements even further. This offers a streamlined path for renovations, retrofits and expansions, ensuring seamless integration with IP-based networks and minimising disruption during installation.

With the right planning and support, DALI is straightforward to install and commission. Its globally standardised structure, broad manufacturer backing, and growing familiarity across the industry make it easier than many expect. For teams used to proprietary systems, the openness and long-term flexibility often come as a welcome change.

Integration

DALI integrates effortlessly with building management systems (BMS) and cloud-based control platforms, enabling comprehensive, centralised management across multiple building functions such as HVAC, security, and lighting.

DALI+ enhances this integration by supporting IP-based communication, while D4i allows for granular, luminaire-level insights and control, ensuring optimal energy performance and streamlined maintenance.

Cyber Security

The DALI Alliance works closely with its membership and other industry organisations to provide support and guidance to DALI Alliance members.

Remote Management and Control

Remote access and management capabilities in DALI systems enable real-time monitoring, faster issue resolution, and optimised building performance without onsite intervention. This not only improves operational efficiency but also contributes to reducing the building's CO_2 footprint by minimising the need for travel and enabling more energy-efficient operation.

DALI+ further strengthens remote management by enabling IP-based access to the lighting system, while D4i smart luminaires provide continuous performance data for proactive operational management.

Regulatory Compliance and Incentives

DALI systems support compliance with leading energy and green building standards, including WELL, LEED, and BREEAM. This compliance can unlock incentives, rebates, and enhanced asset valuations aligned with sustainability goals and decarbonisation targets. In the EU, the EPBD will require minimum energy efficiency levels for new and renovated buildings from 2026. DALI systems with features such as occupancy detection and zoned control will meet the EPBD's requirements for lighting controls, helping building owners ensure compliance from design through operation.

Supporting Indoor Air Quality Monitoring

As air quality becomes a core part of building performance standards, DALI luminaires make it possible to integrate sensors directly into the lighting system—capturing data on carbon dioxide, temperature, humidity, and volatile organic compounds. This capability supports compliance with emerging regulations, such as the revised EPBD, while also supporting smarter HVAC control and occupant wellbeing. By combining lighting and air quality monitoring in a single, standards-based platform, DALI systems are well positioned to deliver both energy and environmental performance.

Future-Proofing Your Investment

With a commitment to backward compatibility and continuous innovation, DALI ensures investments remain viable as technology evolves. Extensions such as D4i (for smart, connected luminaires) and DALI+ (for wireless and IP-based networks) ensure DALI systems stay at the forefront of lighting control technology, protecting long-term asset value and functionality.

Supply Chain Stability and Open Choice

With over 450 member companies producing over 6500 certified, interoperable products, the DALI ecosystem offers long-term supply chain resilience and freedom of choice. This eliminates the risk of vendor lock-in and ensures ongoing access to compatible components. For buildings expected to operate for decades, the ability to adapt or expand systems without being tied to a single supplier is a critical advantage—supporting procurement flexibility and future-ready infrastructure.

Reduced Maintenance Costs

Advanced diagnostics and monitoring in DALI systems enable predictive maintenance strategies, reducing downtime and operational expenses. In case issues arise, they are identified and addressed proactively, extending system life and maintaining optimal performance.

DALI enhances maintenance efficiency by providing detailed, device-level performance data, ensuring rapid identification and resolution of potential failures.

Tenant Attraction and Retention

DALI enables features such as human-centric lighting and circadian lighting adjustments, improving occupant comfort, wellness, and productivity. Enhanced lighting environments lead to higher tenant satisfaction and retention, supporting long-term lease stability and income growth.

Monetising Data Collection

DALI systems can gather valuable data on space utilisation, occupancy patterns, and energy usage. This data can inform dynamic leasing models, optimise space allocations, and drive additional revenue through smart facility management.

DALI further enhances data granularity at the device level, unlocking new opportunities for operational efficiencies and monetisation through data-driven insights.

Data Analytics for Better Decision-Making

Comprehensive data collection in DALI systems supports informed decision-making in energy management, maintenance, and emergency preparedness. These capabilities strengthen operational resilience, support net-zero objectives, and enhance overall building performance.

6. Financial Case Studies: DALI Lighting ROI

Manchester Airport, UK

Project
DALI-enabled lighting system integrated with the terminal's BMS

Completed
2023*

Result

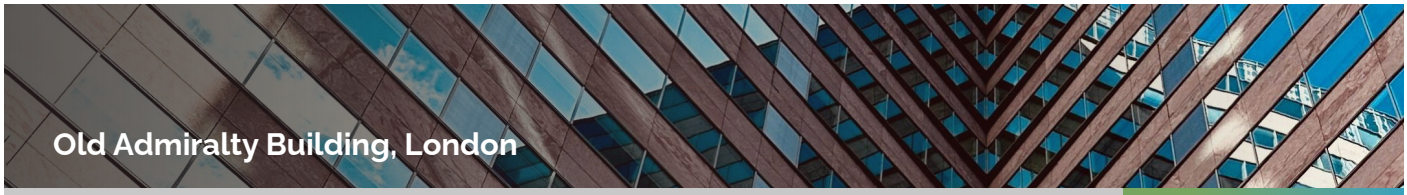
- [1]189% reduction in energy costs at Terminal 3
- Achieved through automation and LED upgrades

Financial Impact

- Significant operational expenditure savings
- Rapid ROI from system integration
- Long-term energy performance gains

Source:
DALI Alliance – Manchester Airport project

*DALI system completed in 2023 as part of ongoing T3 redevelopment



Old Admiralty Building, London

Project
DALI lighting control system integrated across a Grade II-listed heritage building

Completed
2018

Result

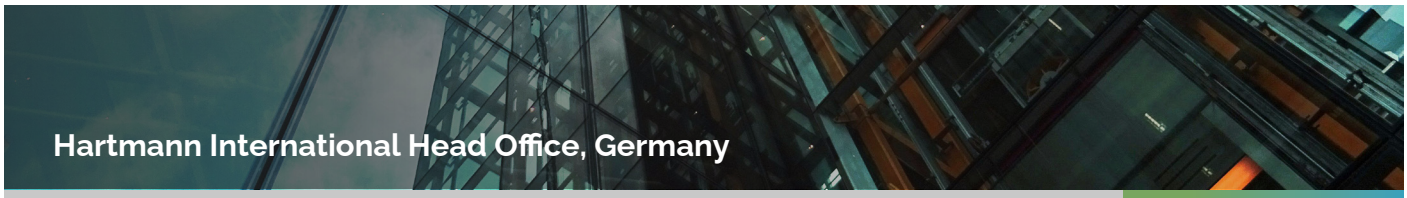
- Around 7,000 DALI-addressable luminaires managed through a centralised RAPID lighting control system
- Seamless integration of occupancy sensing, scene setting and emergency lighting monitoring
- Preservation of architectural features through discreet cabling and control installation

Financial Impact

- Reduced operational and maintenance costs via automated monitoring and fault detection
- Improved energy efficiency and long-term sustainability performance
- Enhanced occupant comfort and control flexibility, supporting modern workspace use

Source:
DALI Alliance – Old Admiralty Building project

[1] Total energy savings



Hartmann International Head Office, Germany

Project
40,000 m² head office using DALI-controlled LED lighting

Completed
2016

Result

- [2]60% energy reduction
- Predictive maintenance enabled by system intelligence

Financial Impact

- Reduced lifecycle and maintenance costs
- Prolonged fixture life and deferred replacements
- System scalability supports future growth

Source:
Helvar – Hartmann Case Study

Unipro Production and Warehouse, Finland

Project
DALI intelligent lighting system with flexible modification capability

Completed
2021

Result

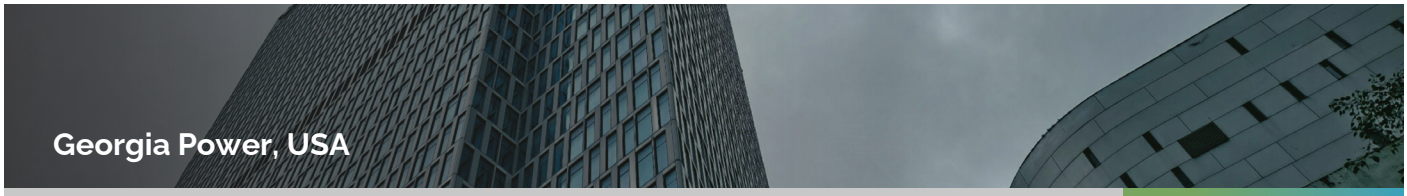
- [2]55% reduction in energy use
- Quick reconfiguration during layout changes without rewiring

Financial Impact

- Lower retrofit and renovation costs
- Operational agility in dynamic production settings
- Reduced downtime, improved facility ROI

Source:
Helvar – Unipro Case Study

[2] Total energy savings



Georgia Power, USA

Project
DALI-based asset management and control system for Georgia Power smart-streetlights

Began
2016*

Result

- Automated data transfer for ~300,000 DALI-equipped LED luminaires
- Fast deployment and two-way communication—from each DALI driver to network controllers

Financial Impact

- Doubled installation capacity per day, saving millions in labour costs
- Reduced maintenance calls through real-time fault reporting

Source:
DALI Alliance – Georgia Power

*Ongoing expansion to ~1 million fixtures

7. How to Explore DALI Further

See how DALI can support your next project:

- Visit www.dali-alliance.org to explore the ecosystem
- Browse certified products in the DALI Alliance Product Database
- Review case studies across sectors
- Download Specifying with DALI – A Lighting Designer's Guide for practical guidance on implementation

DALI Alliance

DALI

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DALI +

D4i

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The DALI Alliance is also known as the
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