LEDucation
Trade Show and Conference

Designers Lighting Forum

How does Smart Lighting look like in 2030?

Beatrice Witzgall

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LEDucation.org

How does Smart Lighting Smart Building look like in 2030?

- What will be the driving factors the coming 5 years?
- What will it take to be a successful smart lighting supplier in 2030?

Beatrice Witzgall

- **Lighting & Smart Building Expert** veteran with ~25 years of experience
- Award-winning lighting designer, established speaker, widely published, thought leader

- **Entrepreneur:** Build 2x successful companies & work as **consultant/advisor**
  - Award-winning design studio with focus on lighting & IoT smart technology
  - LumiFi: smart lighting / IoT technology company

- **Corporate Experience > Siemens/Enlighted:**
  - 'Head of Software' Siemens US for **Building X** (Portfolio & Sales Enablement)
  - Prior, 'Head of Product Marketing & Strategy' at **Enlighted**

- **Lighting:** Worked for ~20 years as a lighting designer, specifier, and consultant for owners and developers; considered a domain expert; multiple Lumen Awards; incl. 6+ years at L'Observatoire International

- **Academia:** German-trained Architect, attended world-renowned design school RISD, collaborated with the MIT Media Lab for 3 years; taught at Parsons School of Design

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- **References**: https://www.in3design.com/ | Beatrice@In3Design.com

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Learning Objectives

At the end of this course, participants will be able to:

1. **Learn** how lighting is evolving into a core component of the smart building ecosystem, connecting with HVAC, energy management, and occupancy systems.

2. **Discover** how AI and advanced controls are reshaping lighting into adaptive platforms that improve efficiency, health, and user experience

3. **Explore** sustainability and circular design strategies that enable lighting to drive carbon reduction and grid-interactive buildings by 2030.

4. **Identify** key success factors for smart lighting suppliers, including interoperability, ecosystem partnerships, and business models beyond fixtures.

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	AGENDA - Topic Overview	Time
1	Introduction	3 min
2	The state of the Lighting Industry	2 min
3	Lighting in the Smart Building Ecosystem	5 min
4	The Status of Lighting Controls	5 min
5	Sustainability, Energy Management and Circular Design	5 min
6	Lighting & Occupancy	2 min
7	The World of AI in Lighting	3 min
	Interactive Exercise > Round Robin on AI	2 min
8	2030 Vision & Conclusion	3 min
9	Feedback & Discussion	20 min

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The state of the **Lighting Industry**

➢ *Status: Where are we today*

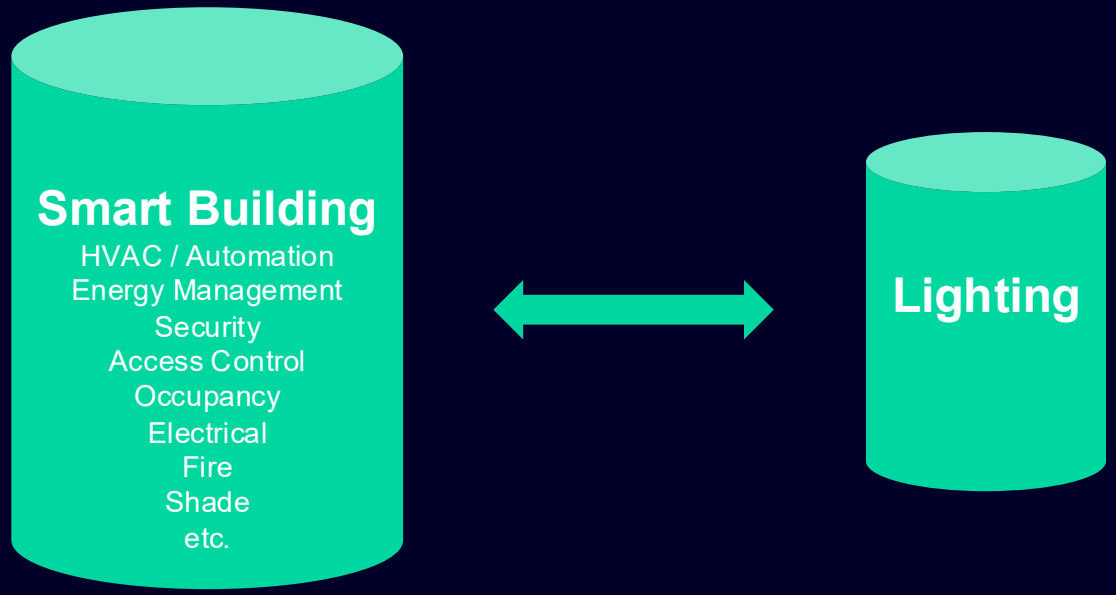
Fixture Design	Challenges	Innovation
• Design / Look / Feel • Function & Type • Style Trends • Material	• Price & margins • Tariffs, duty, taxes & interest rates • Manufacturing locations & shipping • Busy competitive landscape • Hard to protect designs & IP	• Conversion to LEDs • Increase of Light Output • Color & Tunable Whites • **Controls:** Wireless & IoT / DALI …
➢ **Good Design is here to stay!**	➢ **Race to the bottom line $**	➢ **Very limited, almost stalling**

➢ **Light Fixtures have become a commodity!**

➢ *How do we win? | Where is our opportunity?*

Lighting in the **smart building eco-system**

- ***Controls** are a **key driver** in the **Smart & Autonomous Building of the Future***



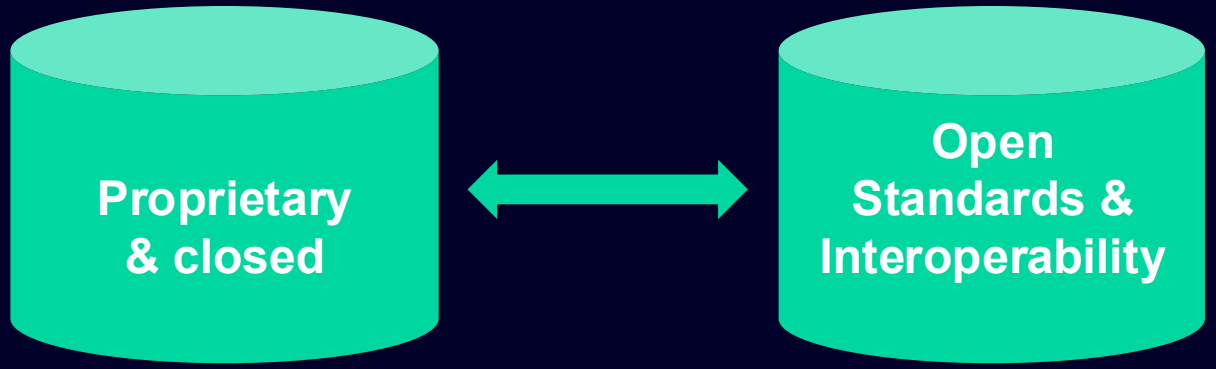
Lighting is typically a **stand-alone SILO**!
It doesn't really integrate with the Smart Building Ecosystem

Controls & data sits isolated
> synergies are hard to leverage

- **How can lighting be better integrated in the smart building story?**
  - How can we bridge that chasm and **make lighting part of the BMS** 'single pane of glass' story?
  - How can lighting drive the sustainability story beyond LED retrofits and create measurable continuous energy savings?
  - **How can the lighting data inform the smart building value propositions and use cases?**

The Status of Lighting Controls

- *Controls as Innovator & differentiator having the potential to unlock new use cases*



Protects Vendor & Market share	Easier to find fixture alternatives
Vendor in control	Customer has more **flexibility**
Price-lock	Market competitive pricing
Locks in customer	Customer doesn't feel trapped
Limits ecosystem play	Allows for **integrations**
Limited & expensive Interoperability	Streamline onboarding
Impossible & expensive to integrate in the BMS value propositions	**Opens up new** value propositions & use cases

- **Leveraging Wireless / IoT Controls:**
  - Flexible, cheaper & easier to refit
- **Adaptive Controls:**
  - Value propositions of controls ranging from personal, mood to circadian rhythm/healthy or human-centric and wellness design
  - Occupancy-based energy savings

Sustainability, Energy Management & Circular Design

Paris Accord:

- How does lighting play into the carbon-negative, sustainable building storyline?
- How can we **measure** and **visualize** its impact and make it tangible?

Energy will become more expensive and scarcer, esp. with the new data center demand

- **Optimizing energy usage** will be one of the continued key drivers!!

  - **Demand Response** as a proven way to decrease energy usage:
    How can lighting leverage this further?
  - **Dynamic Energy Management**:
    AI optimizes HVAC, lighting, and power in real time based on occupancy and grid conditions
  - **Grid-Interactive:**
    Buildings act as distributed energy resources, trading surplus with city grids or EV fleets.

Consider also the impact of your **GTM channels**:

- How is the US different from Europe to succeed in **bringing innovation** and lighting to the market?
- In the current political **US climate**, Sustainability is a very different topic than in Europe ($$ vs climate drivers)

The relationship between Lighting & **Occupancy**

- Has the lighting industry **moved beyond the PIR sensor** for on/off control in regards to occupancy?
- Does anyone in the lighting leverage any of the emerging occupancy sensors to inform lighting intelligence?

New occupancy **use cases** get unlocked everyday esp. in a post-Covid world:

- **Occupant Well-Being Dashboards:**
  Employees get personal wellness insights from building data (air quality, noise, ergonomics).
- **Space & People Management:**
  Predictive use and monitoring of spaces unlocking new use cases ranging from conference room bookings to cleaning schedule; to fall prediction & alerts in elderly care (Butlr)
- **AI-Driven Control:**
  Predicts occupancy > HVAC Optimization and natural light levels, dimming or brightening in real time.
- **BMS Management:**
  Correale occupancy with energy management stronger. It not only affects HVAC …

- Why is there not stronger collaboration? Why does occupancy integration stop with PIR sensors?
  Afterthought or too much of a given to revisit the innovation and technology progress since PIR?
  - *Is this an untapped opportunity here?*

The World of AI in Lighting

➢ *Does anyone yet in the Lighting Industry leverage AI for lighting?*

Fixtures	Controls	Process
• Hardware is hardware! • Limitations of materials, manufacturer costs, tariffs, taxes, etc. ➢ **Limited room for growth**	• Optimization of onboarding • Automatic fixture configuration • Automatic lighting scene configurations • Algorithms for energy management • Integrations into BMS ➢ **Huge Potential**	• Revisiting of established workflows • Process Automation • Cutdown of admin overhead • Marketing & lead-gen • Design Process • Increased Channels Access ➢ **Huge Potential**

➢ **Identify as a company on where you see the biggest potential to leverage AI?**

The World of **AI in Lighting**

Interactive Exercise > Round Robin: Lets dream and brainstorm:

- What does it mean for you to integrate AI into lighting?
- Where does everyone see its potential? > List of use cases and applications

Answer A

Answer B

Answer C

Answer D

Answer E

Everyone, please take 1 min and type in your answer in Menti

Enter code to join a live Menti

The World of **AI in Lighting**

Interactive Exercise > Round Robin: Lets dream and brainstorm …

Controls > Data

AI used to translate data into actionable insights

AI for automatic configuration

automatic optimization following user patterns
(occupancy, dwell time, etc)

Network analysis

Gesture recognition &
then how the lighting responds

Data Onboarding

Process

Developing new features/functions based on gaps

AI-Benchmarking buildings' energy
performance and suggesting improvements

Simplify and automate manual workflows
e.g., quoting process, BOMs

Improve in software development projects

make decisions based on data
and industry benchmarks

2030 Vision > AI influenced quotes

Smart Building

By 2030, smart buildings will feel **alive** — constantly sensing, adapting, and optimizing them, making them carbon-negative, hyper-personalized, and deeply integrated into smart cities.

Smart Lighting

By 2030, **smart lighting** won't just mean motion sensors and app-controlled bulbs — it'll be a **dynamic, intelligent, and health-optimized system** that integrates with buildings, cities, and people.

Conclusion

Upcoming Driving Factors:

- Controls, AI, Integrations, Energy-Savings.

Smart Lighting Supplier:

- Think beyond the fixture > **Think outside the ‘fixture box’!**
- Look on how it can be **integrated into the larger context** and be more meaningful than just a light source!
- Tell and integrate it into a story around *energy and sustainability*, *personal adaptable controls*, and *autonomous buildings.*
- **Leverage smart controls with ecosystem integrations**

Thank you

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Feel free to contact me for any further questions, advisory, or consultancy.

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This concludes The American Institute of Architects Continuing Education Systems Course

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