

AI Lights The Way

The Future of Product Selection and Procurement

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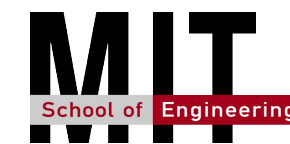
About me



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Experienced construction tech leader – former Director of Software at Katerra and Stanford University faculty member in Civil Engineering.



ARUP



Today's agenda

- 1** | What is AI and why all the recent hype?
- 2** | Why is AI needed in the lighting industry and how is it being used today?
- 3** | What is the near-term potential impact of AI on the industry (next 3-5 years)?
- 4** | Wrap up and Q+A

Learning objectives

- Learn the history of AI and how **current AI technology** is being used to today support lighting specification and procurement
- Understand **common adoption challenges and best practices** to capture the full business value within your organization
- Provide awareness of the likely **business impact of AI in the next 3-5 years** and understand how to best position your business for success

What is AI and why all the recent hype?

Brief history of AI

1950s

The beginnings of AI

- Alan Turing develops the "Turing test"
- John McCarthy conceived of the term "AI"

1960s
1970s

Laying the groundwork

- First chatbot create at MIT (ELIZA)
- Shakey the Robot at Stanford
- "AI winter" - gap between expectations and reality

1980s
1990s

AI excitement quiets

- First driverless car (no other cars or passengers)
- IBMs Deep Blue beats chess world champion

2000s
2010s

AI growth

- Kismet "social robot"
- NASA Rovers traverse Mars
- IBM Watson beats Jeopardy champions
- Siri and Alexa

Overview of fields with AI



What's driving recent AI advancements?

- **Increased Computing Power:** Modern hardware like GPUs can now handle the complex calculations needed for advanced AI models, which was not possible previously.
- **Data Availability:** The vast amount of data generated by the digital world provides ample training material for AI algorithms, significantly improving their accuracy.
- **Generative AI:** GPT-3 and Dall-E have demonstrated the ability to create entirely new content, including text, images, and videos, leading to widespread interest and experimentation.
- **Open-Source Development:** The sharing of AI research and tools through open-source platforms has accelerated innovation and made AI more accessible to developers.
- **Commercial Applications:** Businesses are now actively implementing AI solutions across various sectors, from customer service chatbots to medical diagnostics, driving further investment.

Why is AI needed in the lighting industry and how is it being used today?

The need for change in our industry

The lighting industry is facing several challenges that AI can address:

- **Complex Product Specifications:** The number of lighting product SKUs has increased by an order of magnitude in the last decade. With so many SKUs, variants, and regulatory compliance requirements, finding the right product can be overwhelming and time-consuming.
- **Compressed Project Timelines:** Tight deadlines demand quicker decision-making, which can often be delayed by manual specification and procurement processes.
- **Sustainability and Compliance Needs:** Regulations around energy efficiency, environmental impact, and safety standards are ever-evolving. AI can help ensure compliance while optimizing for cost and performance.

Growth in lighting OEMs and products

	2003	2023
Manufacturers		
# OEMs with >0.1% market share	381	3,410 (9x)
Products		
# unique product families (datasheets)	108,000	2,390,000 (22x)
# unique SKUs	135M	4.32B (32x)

Average daily change in product data¹

	Lighting	All Building Products
Products		
New or discontinued products	1,000	25,000
Features		
Changes to product feature set	4,000	100,000
Attribute		
Changes to product cost or lead time	33,000	860,000

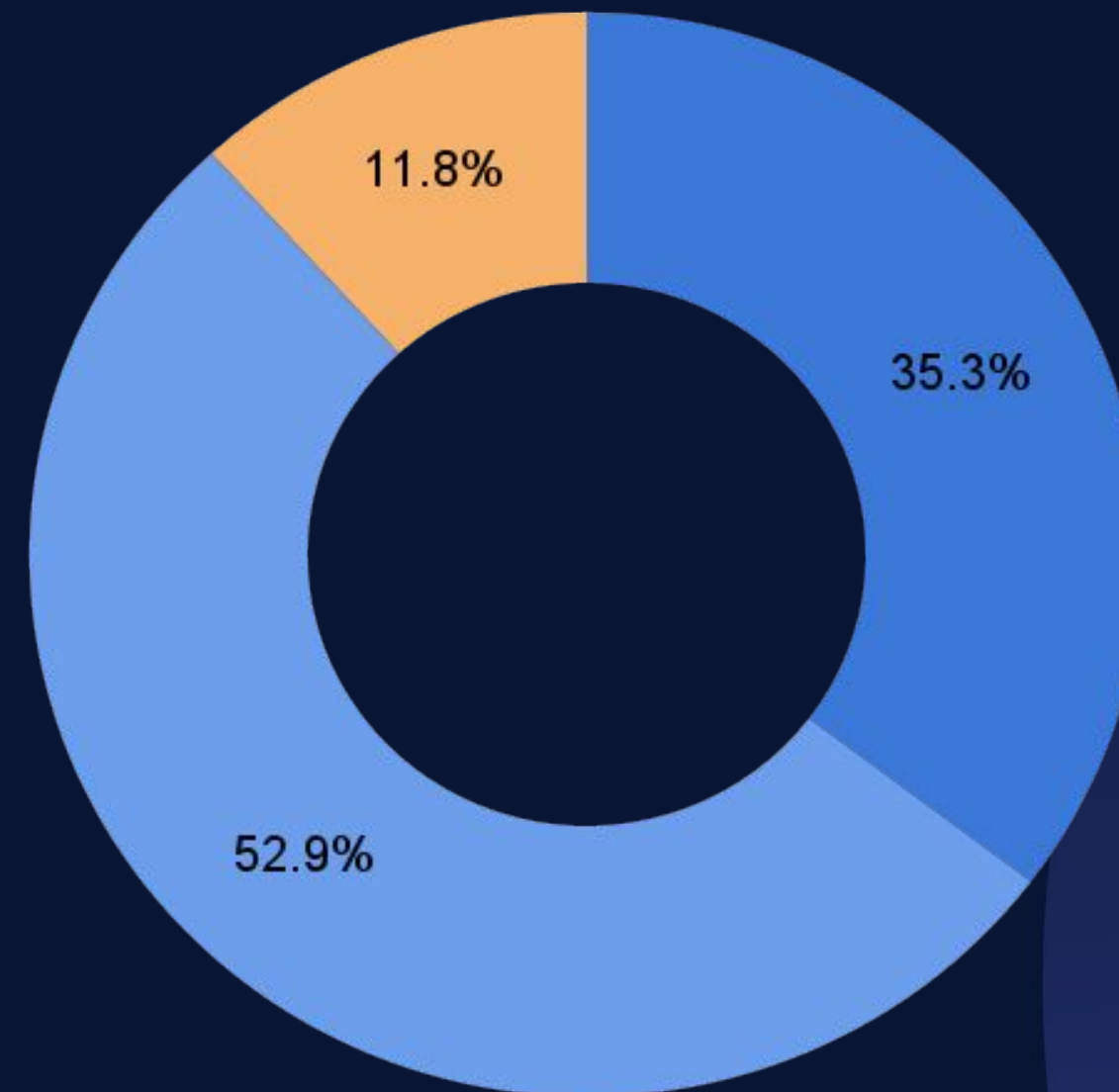
The promise of AI

- **Improved Decision-Making:** AI's ability to sift through vast datasets enables quicker, more accurate decisions can improve customer experience and reduce project timelines.
- **Cost Efficiency:** By automating manual tasks, AI reduces errors, improves pricing accuracy, and eliminates time spent on repetitive administrative work.
- **Enhanced Collaboration:** AI platforms can improve communication across teams, and allow more time to build relationships with customers and vendors.
- **Scalability and Agility:** As AI tools become more refined, the ability to handle increasingly complex projects without a proportional increase in time or labor will grow exponentially.

Current adoption of AI in the industry¹

To what extent is AI currently being used in operations?

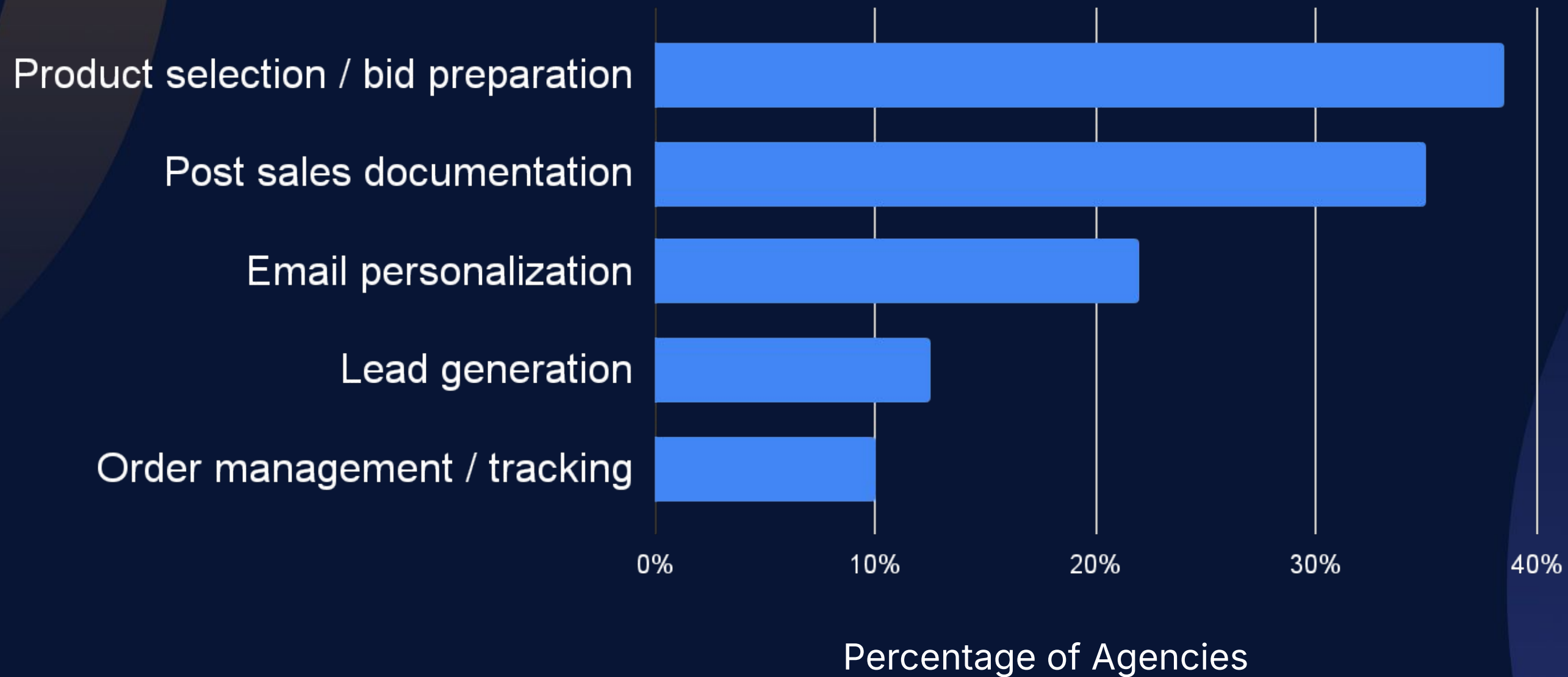
- To a limited extent (less than 10% of employees)
- Not at all
- Moderately (10%-50% of employees)



1. Based on a survey of first and second line leaders at over 200 lighting sales agencies and distributors operating in the United States, with approximately equal sampling from Enterprise, MM and SMB companies.

Current AI applications¹

Which of the following activities does your sales team leverage AI technologies for?



1. Based on a survey of first and second line leaders at over 200 lighting sales agencies and distributors operating in the United States, with approximately equal sampling from Enterprise, MM and SMB companies.

Submittal Case Study: Top 5 Rep Agency

Overview:

A top 5 Manufacturer's Rep Agency with 25 branches across the United States. Partnered with AI native vendor to create a faster, better quality, and standardized submittals.

Problem:

- Creating lighting submittals has historically been a laborious and time-consuming process, involving manually finding and marking up cut sheets.
- Frequently updated data sheets would make it almost impossible to keep track of changes across thousands of products, resulting in large workload and the potential for errors that could take a toll on client relationships.

Solution:

- AI-powered web application automated submittal generation process
- Workflow involved users uploading a BOM or won quote. Current datasheets hosted on manufacturer websites would be identified and markups would be completed automatically based on manufacturer and model number information

Results:

- 50%-80% faster submittal package turnaround times
- Enhanced customer experience through improved accuracy and professional presentation
- Smooth change management with top-down alignment and tailored training.

Return on Investment : 7x

Quoting Case Study: Top 5 Distributor

Overview:

A top 5 electrical distributor with 350+ U.S. and Canadian locations seeking to leverage technology to become more efficient and improve customer experience.

Problem:

- Inefficient process: 32 labor hours invested in product selection, quoting and submittals per won project
- Missed RFQs: 11% of qualified RFQs do not receive a response
- Inconsistent branding in quote and submittal packages

Solution:

- Automated BOM extraction and document management to streamline quotation
- Utilized Crossing software for faster data access
- Enabled instant submittal creation directly from quotes

Results:

- 50%+ improvement in speed and quality of quotes/submittals
- Submittal turnaround reduced from 5-7 days to 1 day
- Strengthened customer relationships through consistent, professional submittals.

Return on Investment : 12x

What Customers are Saying About AI-Native Tools

// We expect to reduce response times to customer quote and submittal requests by up to 50%. This will enable our existing workforce to quote and **win more projects**, helping to **drive profitable growth** for our company in 2024 and beyond."

– Chief Digital Officer at Top 10 Distributor

// It has really streamlined everything for us. We can **trust what we're pulling is accurate**. We're not submitting something that we can't supply later."

– Department Manager at MM Distributor

// This [AI powered tool] isn't just another software solution. It's **critical to our business**."

– COO at Top 5 Rep Agency

// "I hate to say it, but I don't like change, so when I was asked to try using [AI Native Software] for submittals, I was extremely hesitant. I didn't even get through my first submittal without **falling in love due to the ease of the program**."

– Project Manager at SMB Distributor

// With this AI powered tool at our disposal, we're more efficient than competitors doing it the old way. That means I can go out there and **capture market share**. That's my **competitive edge**."

– Branch Manager at Top 10 Distributor

Key Challenges of AI Adoption

- **Data Quality:** AI relies on large datasets, and poor-quality or fragmented data can compromise results.
- **Integration Complexity:** Integrating AI tools into existing systems may require significant time and resources.
- **Cultural Resistance:** Employees may resist AI adoption due to fear of job displacement or unfamiliarity with the technology.
- **Data Privacy:** might raise privacy worries like exposing confidential info (e.g., customer lists, product pricing) can harm trust and impact competitive advantage.

Best Practices for AI Adoption

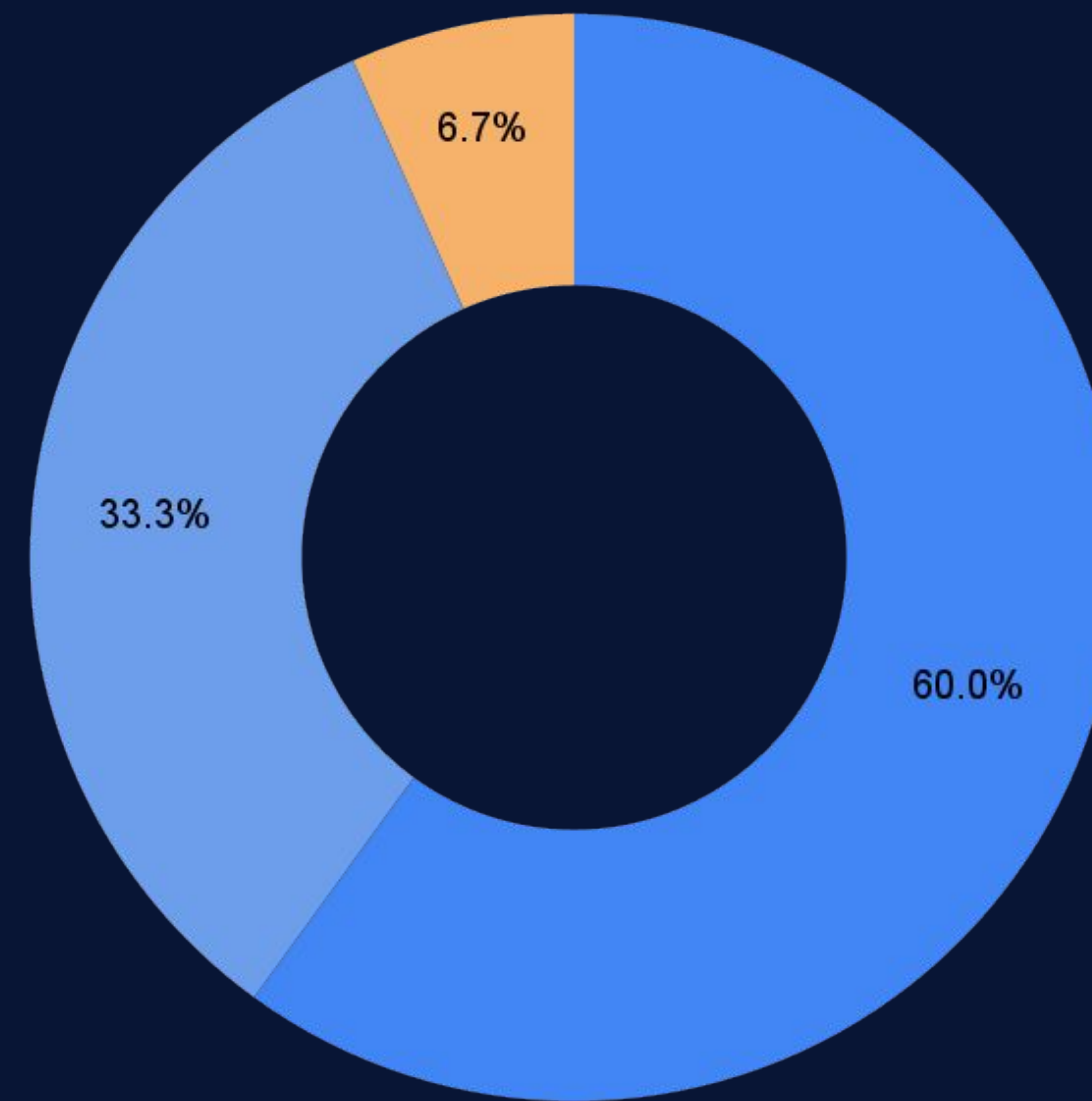
- **Start small:** Begin with pilot projects before rolling out full-scale implementations.
- **Invest in training:** Ensure your team has the right skills to work with AI tools.
- **Foster collaboration:** Between data scientists, lighting professionals, and IT teams.
- **Continuous improvement:** Collect feedback and iterate on AI systems to improve performance and usability.

**What is the near-term potential of
this technology (next 3-5 years)?**

Opinion on the future impact of AI¹

Do you believe AI will significantly transform the industry in the next 5 years?

- Yes, with major impact
- Yes, with moderate impact
- No, minimal impact



Value by project stage

Design

- Design Assist
- **Product Recommendations**
- **Budgeting**
- Industry Connections

Bidding

- Holistic package selection
- Pricing negotiation
- **Value engineering / alternatives**

Project Documentation

- **Submittals**
- **Operations & Maintenance**
- **Drawings & Documentation (e.g., Controls)**

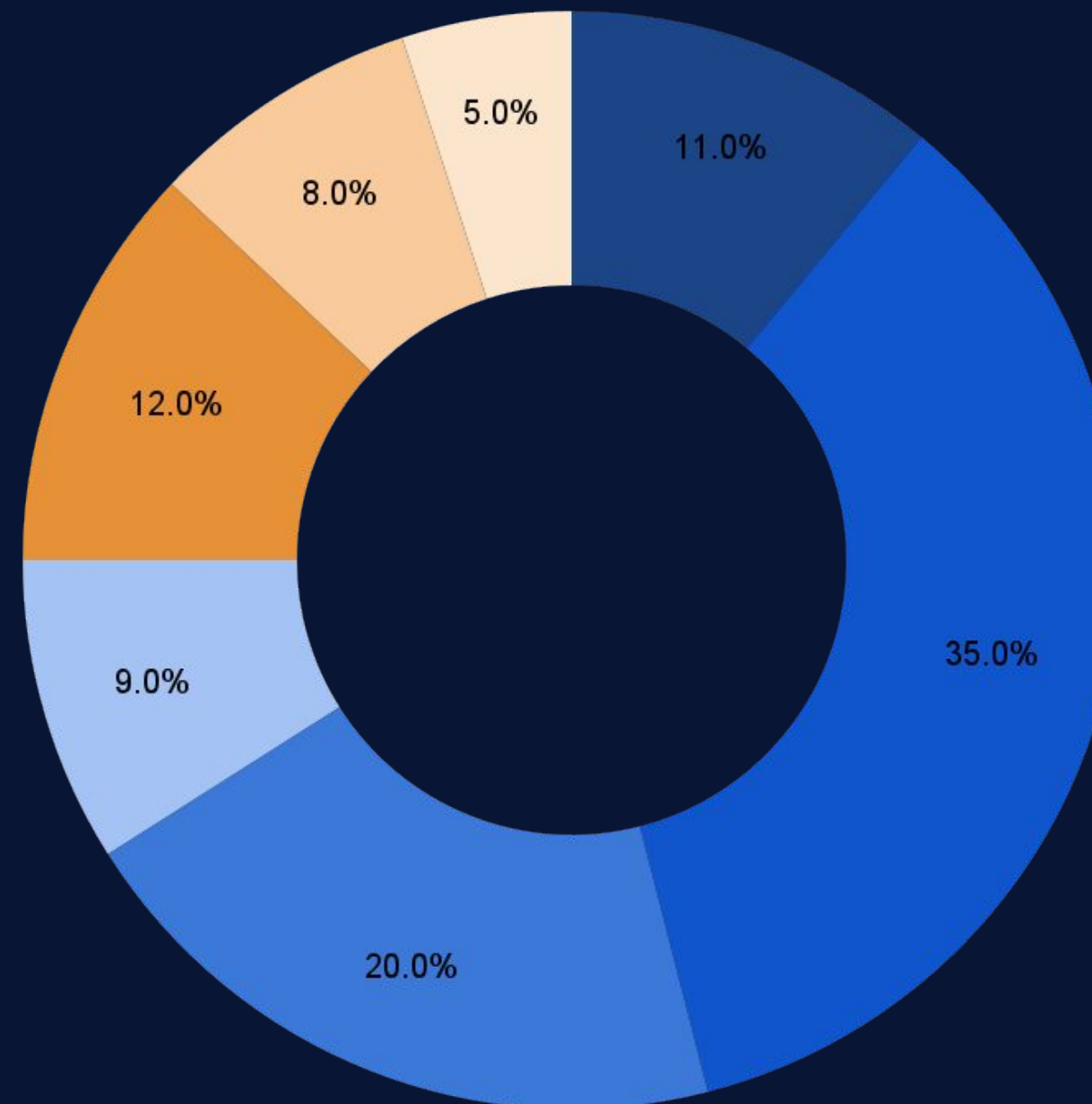
Order & Project Management

- **Logistical Coordination**
- **Shipping & Tracking**
- Job Problems & Warranty / RMA

 = tasks likely impacted by AI in next 3-5 years

Quoting in the age of AI

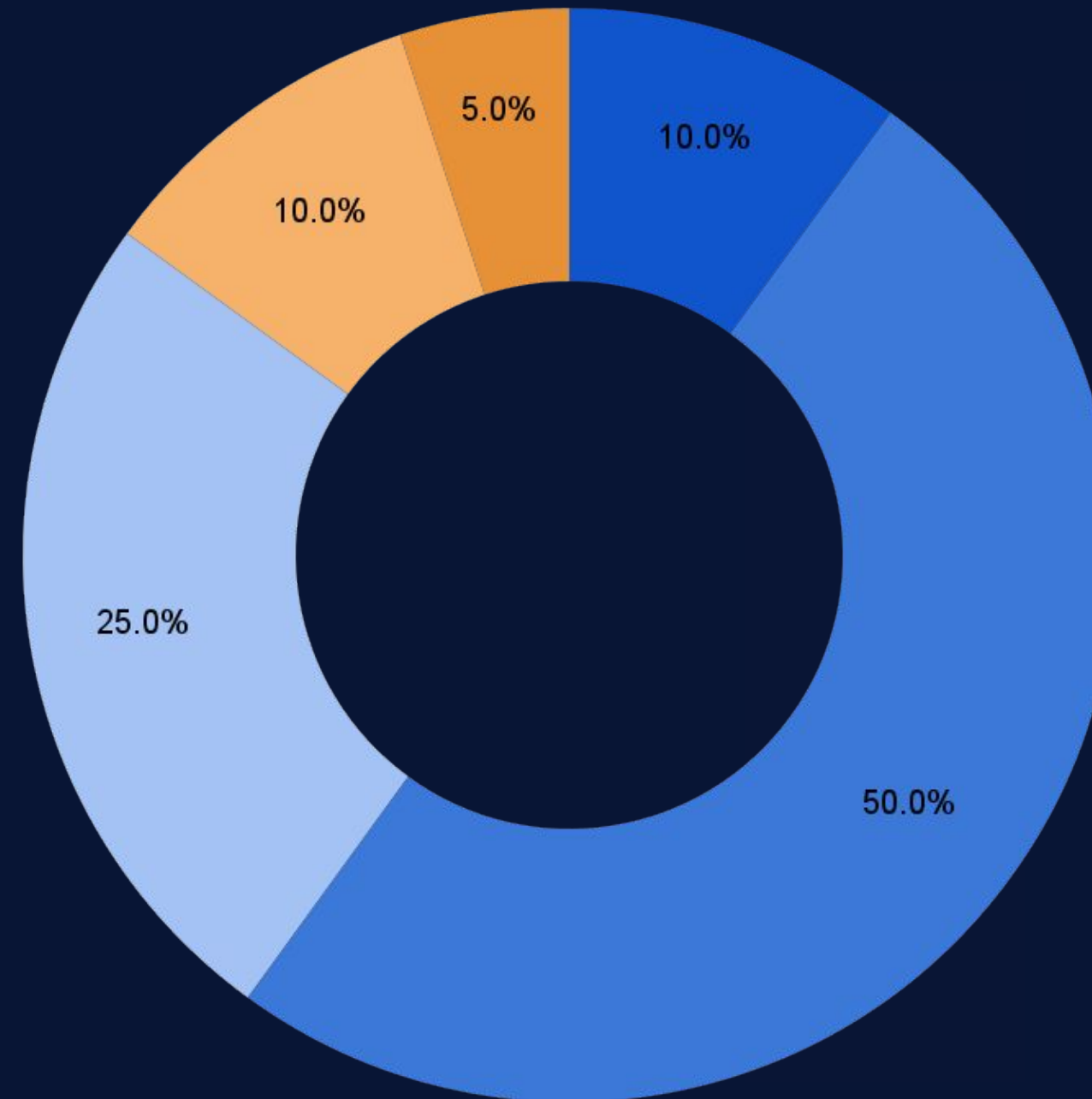
- Defining Basis of Design BOM
- Identifying alternate products
- Researching wholesale pricing for options
- Format deliverable
- Selecting final BOM
- Adding services, commission and markup
- QA and send deliverable



76% of time can be automated with near-term AI technology

Project Documentation in the age of AI

- Transcribing BOM to submittal / O&M software
- Identifying current product documentation (datasheets, install guides, warranties)
- Document markup
- Format deliverable
- QA and send deliverable



94% of time can be automated with near-term AI technology

Wrap-up and Q+A

Conclusions

The Future Is Bright

- AI is set to become a core part of the lighting industry's evolution, driving efficiencies, reducing costs, and opening up new business opportunities.
- Companies that adopt AI early will be able to offer faster, more accurate services, while those that wait may fall behind.

Call to Action

- Explore AI solutions for your own projects. *Tip: pinpoint someone within your company to be responsible for researching and evaluating new technology.*
- Stay informed about industry trends and invest in training and infrastructure for the future.

Thank you!

Look forward to your questions / feedback.

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