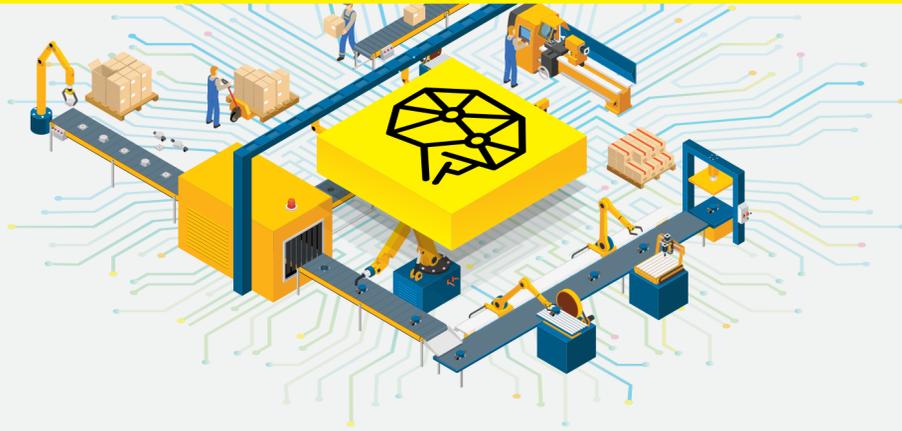# EDGE LEARNING: YOUR NEXT COMPETITIVE EDGE

COGNEX

The global impact of AI

Artificial intelligence (AI) is the simulation of human intelligence by machines. Manufacturers are leveraging the combined power of AI and machine vision to better automate operations, optimize efficiency, and improve quality control.

Percentage of companies
that claim AI is a top priority in their business plans:

83%[1]
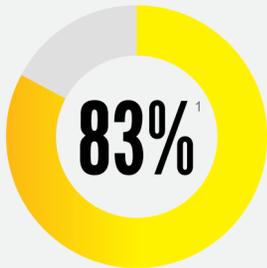
AI market size (USD billion)[2]

38.1% CAGR

$1,591.03

$119.78B

2022 — 2030
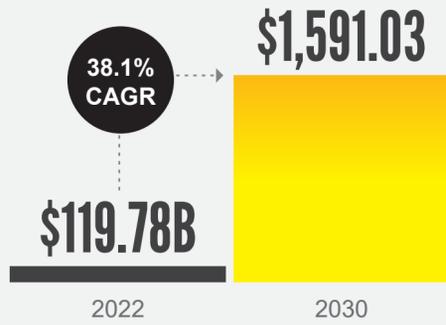
The path to adopting AI[3]

⚠️ **OBSTACLES**
- Lack of skilled individuals
- Complexity of AI systems
- Fear of job replacement
- Cybersecurity and data privacy

⭐ **BENEFITS**
- Greater business insights
- Reduced human error
- Automation of mundane tasks
- Enhanced productivity

There are two leading AI technologies in industrial automation:

Edge learning
Designed for **ease of use**

Deep learning
Designed for **complex applications**

Recommended uses

Rule-based vision
- Measurement and gauging
- Location and fixturing
- Robotic guidance

Edge learning
- Classification
- Assembly verification
- Character reading (03/04 XYZ8)

Deep learning
- Complex defect detection
- Tasks with significant variation
- Highly customized jobs

How to deploy

Edge learning

Edge learning neural networks come pre-trained and ready to deploy on the line.

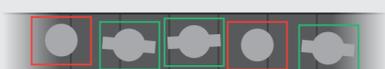**Pre-loaded training and optimization**

Factory floor

Collect 5-10 example images

OK / NG
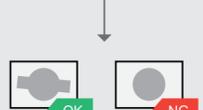
Train images on device

Deploy to the line

Total time: Minutes

Technical expertise: No prior experience needed

Deep learning

Deep learning neural networks are trained by an experienced professional on a PC.

Factory floor

Collect example images (hundreds to thousands)

Refine

Deploy to the line

Engineering/vision lab

OK / NG
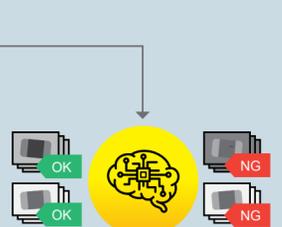
Train model on PC

Optimize

Validate model

Total time: Hours to days

Technical expertise: Significant training in AI and programming

References
1. 57+ Amazing Artificial Intelligence Statistics (2022). (2022, August 4). Exploding Topics. Retrieved October 4, 2022, from https://explodingtopics.com/blog/ai-statistics
2. Artificial Intelligence Market Size to Surpass Around US$ 1,597.1 Bn By 2030. (2022, April 19). GlobeNewswire. Retrieved October 4, 2022, from https://www.globenewswire.com/news-release/2022/04/19/2424179/0/en/Artificial-Intelligence-Market-Size-to-Surpass-Around-US-1-597-1-Bn-By-2030.html
3. 30+ Artificial Intelligence Statistics & Facts for 2022. (2022, February 24). CompTIA. Retrieved October 4, 2022, from https://connect.comptia.org/blog/artificial-intelligence-statistics-facts