Artificial Intelligence in Data Centers

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Recap from last year

- Sensor-DCIM Integration for cooling management
- Cloud Services with Machine Learning

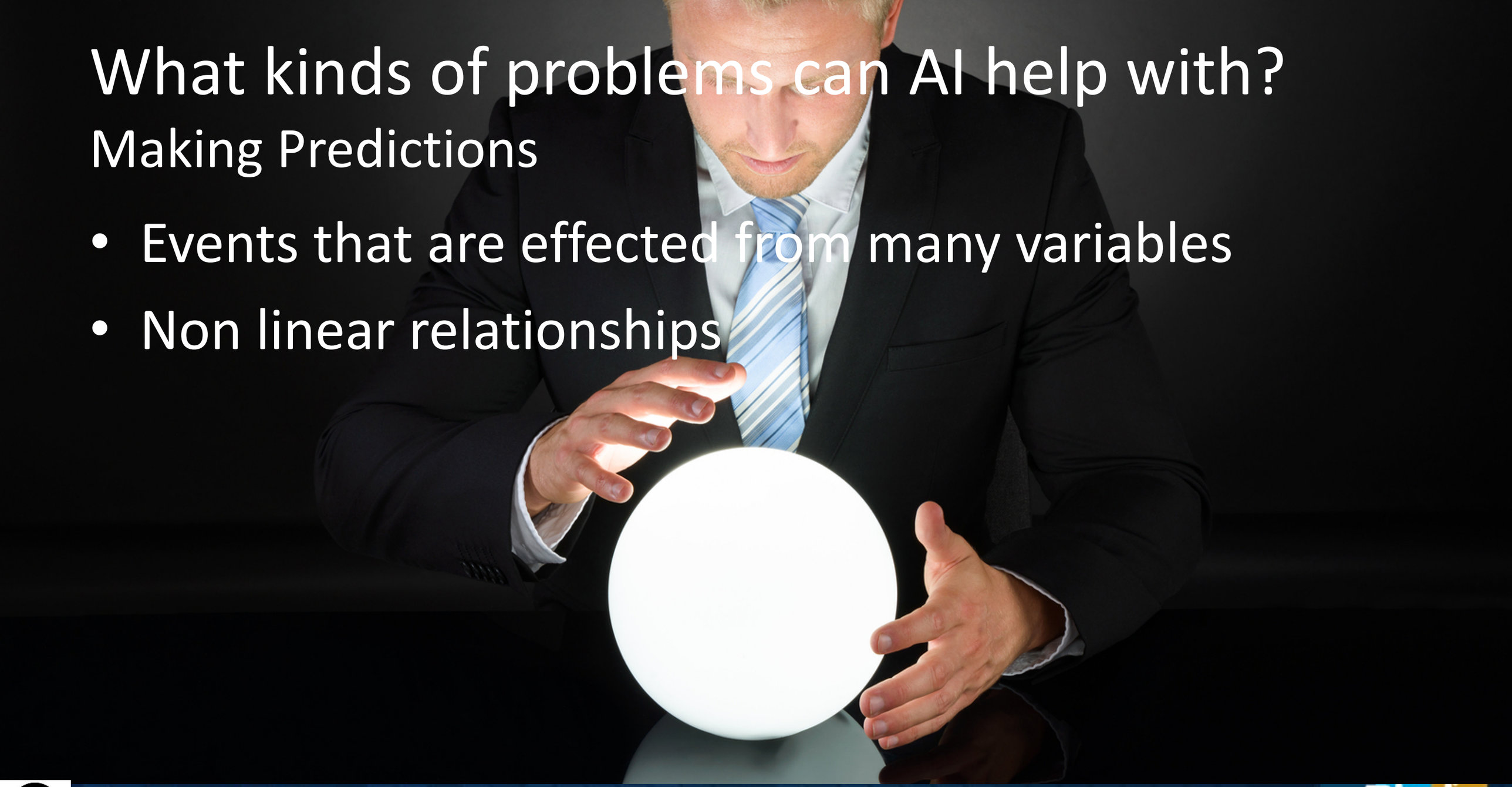
Artificial Intelligence

- AI Milestones
  - Chess
  - Jeopardy
  - Go
- Future
  - Fast learning Complex interactions

What kinds of problems can AI help with?

Making Predictions

- Events that are effected from many variables
- Non linear relationships

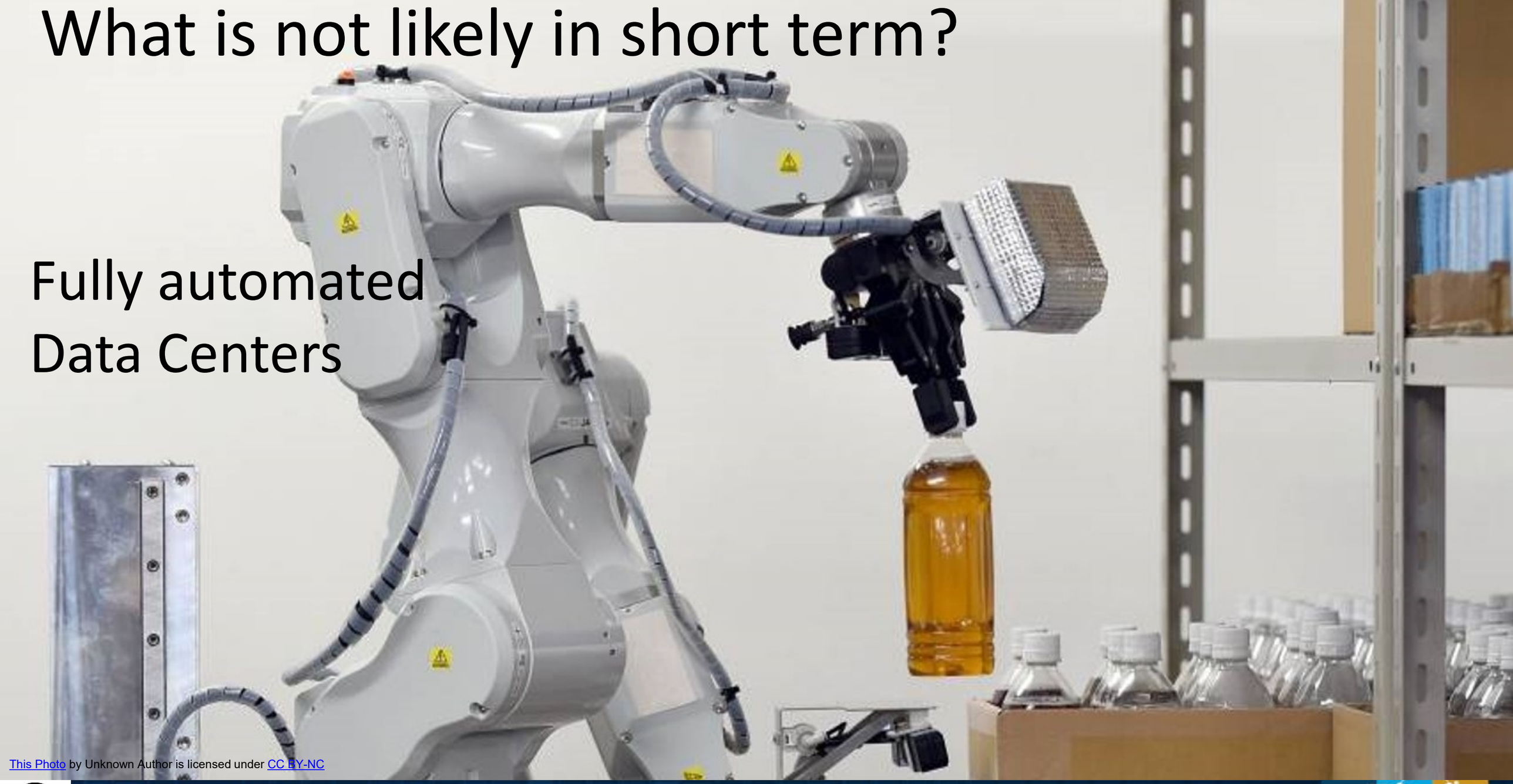


What kinds of problems can AI help with?

Learning from Data

- Feed data to learn relationships
- Anomaly detection

What is not likely in short term?



Fully automated
Data Centers

What is not likely in short term?

Robots taking over Data Centers

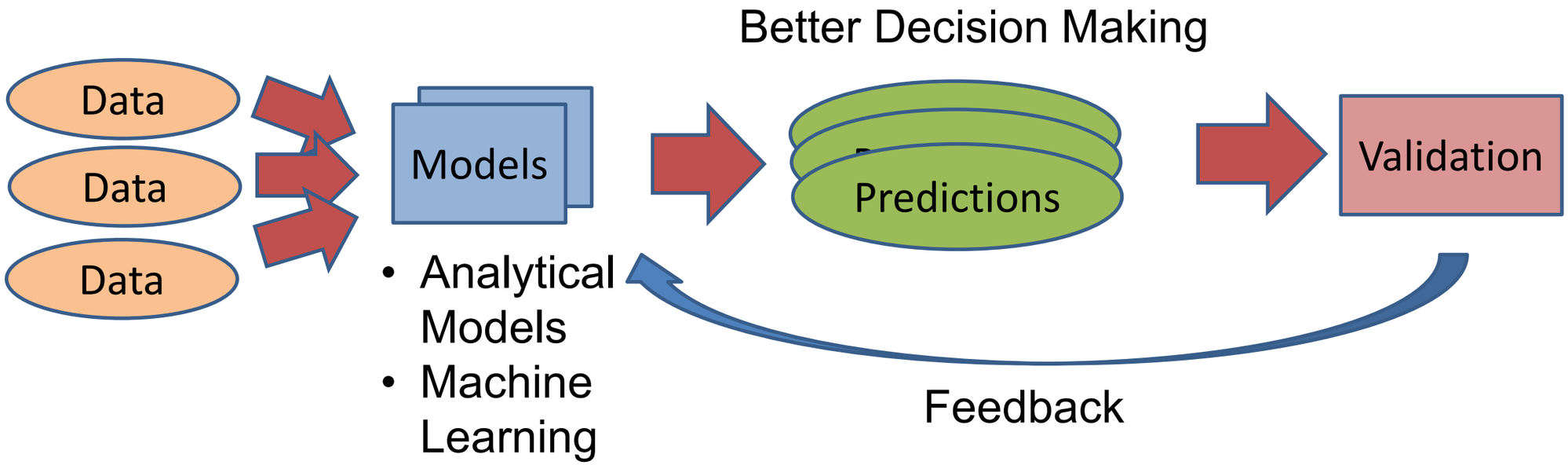
What do you need to use AI?

Collect lots of data

- Sensors
- Integration with other systems

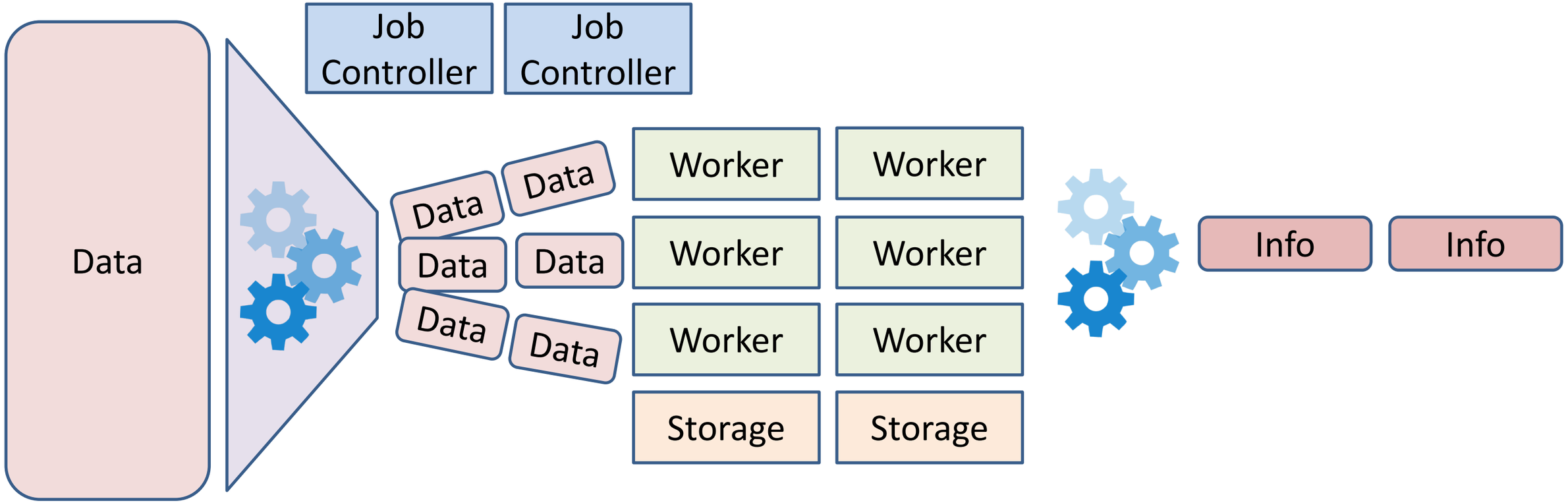
What do you need to use AI?

How AI Works



What do you need to use AI?

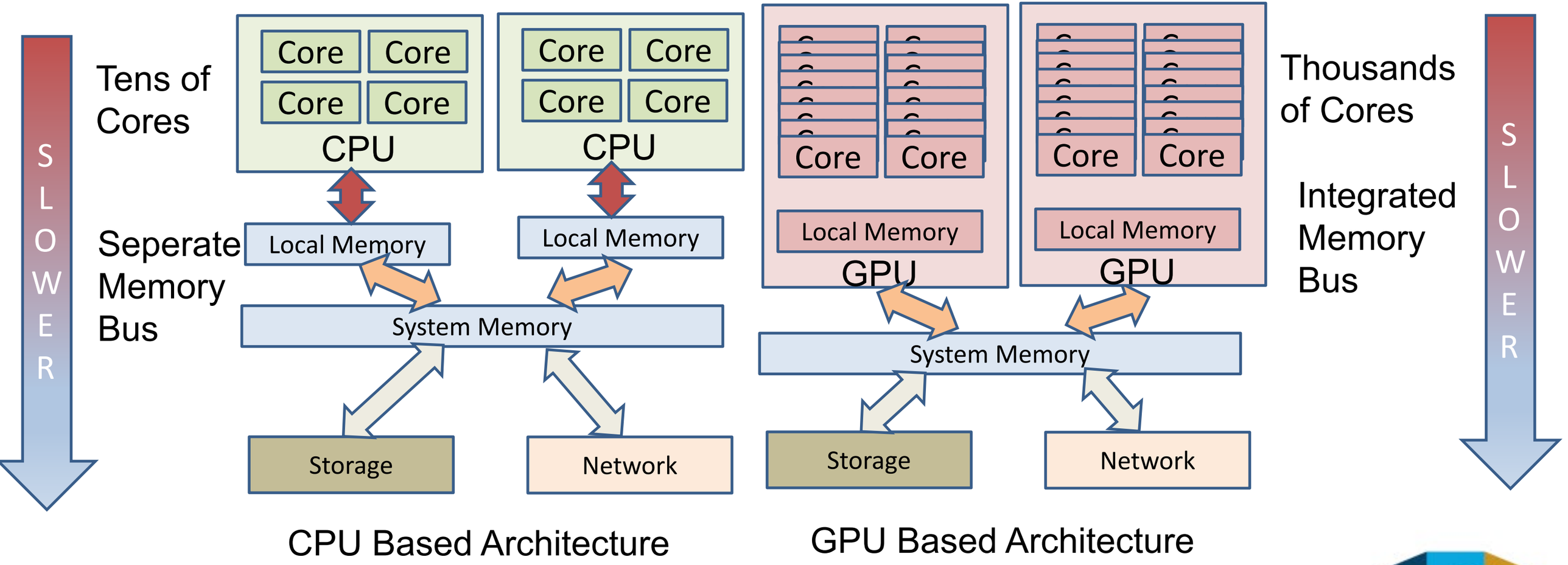
Compute and storage



Parallel Computing

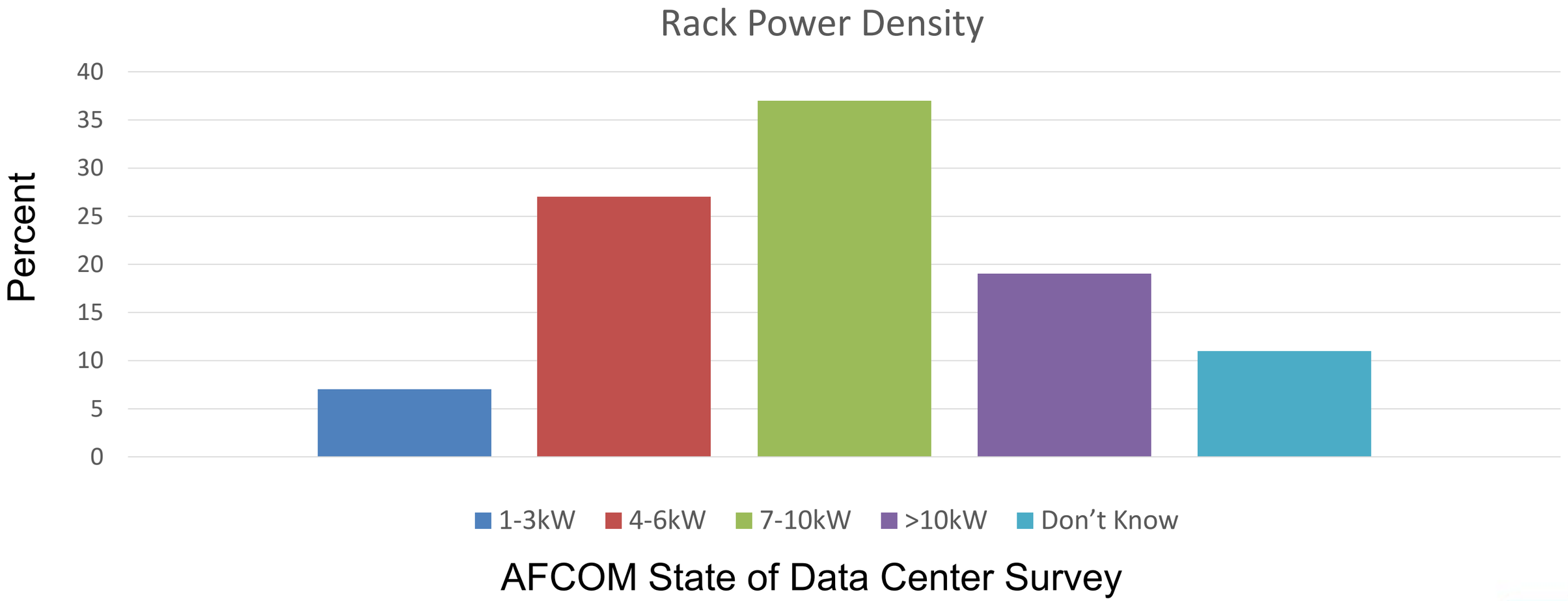
Impact of AI in Data Centers

Compute and storage



Impact of AI in Data Centers

Power Trends



Impact on AI in Data Centers

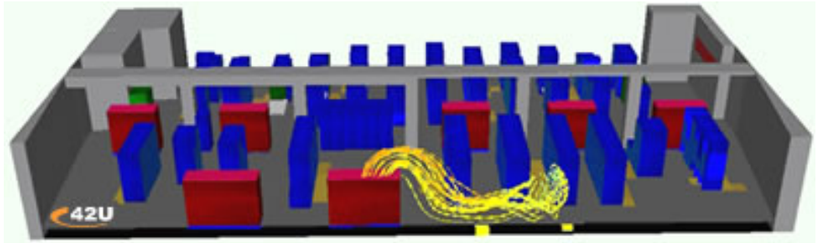
Power Trends

- Specialized Compute Units increase power density by **2x**!
  - Typical Blade Server: 10U,16 Blades,5kW
  - AI Box: 10U,16 GPU's, 10kW

Impact on AI in Data Centers

AI Server Load Guidelines

- Non-Uniform Power distributions
  - Managing hot spots will be harder
  - Better Data Center Management Tools



Impact on AI in Data Centers

AI Server Load Guidelines

- Data Center upgrades in the horizon
  - DC power distribution may need to be upgraded sooner
  - Review DC Cooling strategies

How can DC Professionals Use AI?

Overview

- Next Year
  - Data Center Infrastructure Management (DCIM)
- 1-3 Years
  - Computational Fluid Dynamics (CFD)
  - Building Information Management Software (BIM)

How can DC Professionals Use AI?

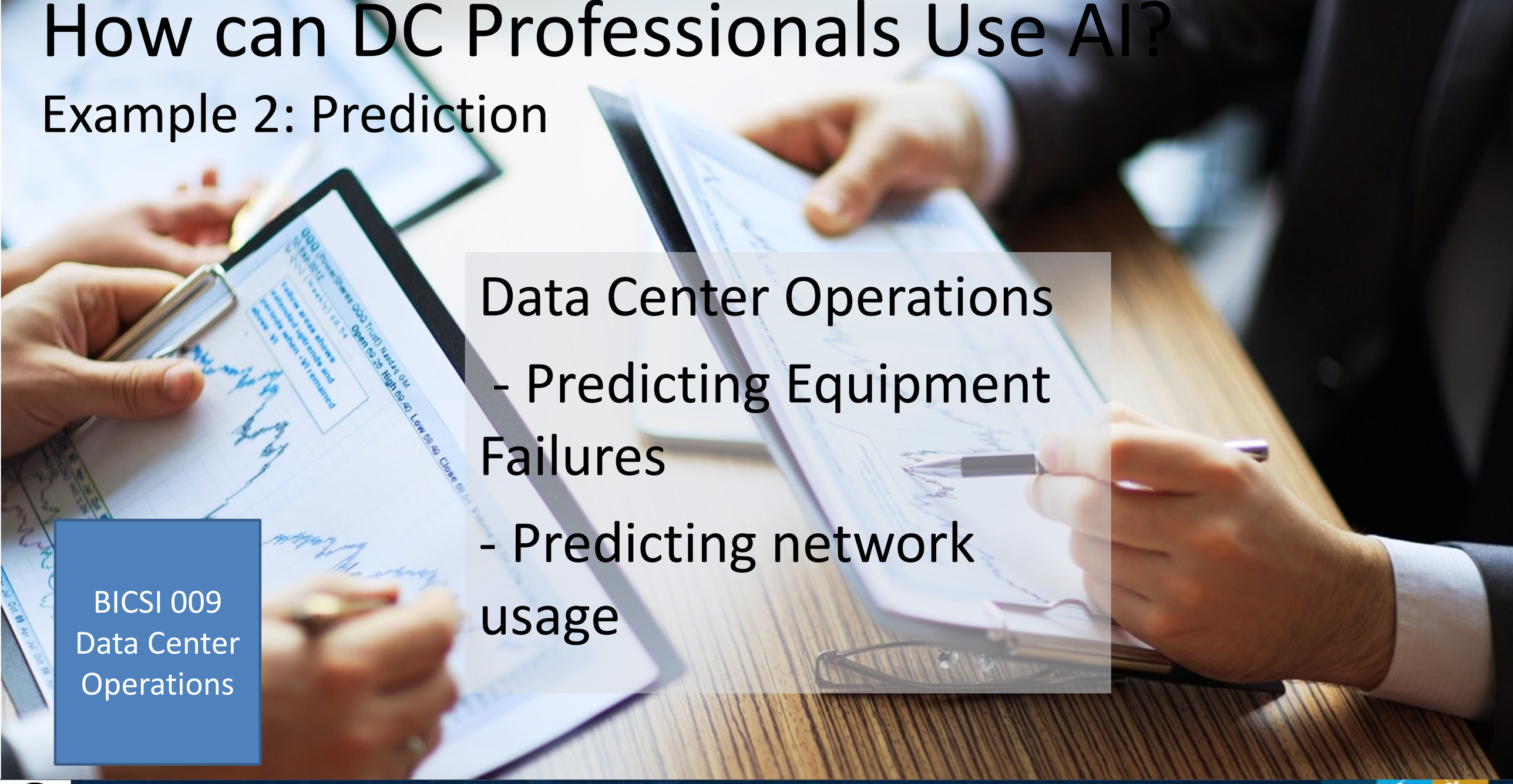
Example 1: Optimization

Rack/Server Placement

- Power System Optimization
- Cable optimization
- Cooling
- Fire Suppression

How can DC Professionals Use AI?

Example 2: Prediction



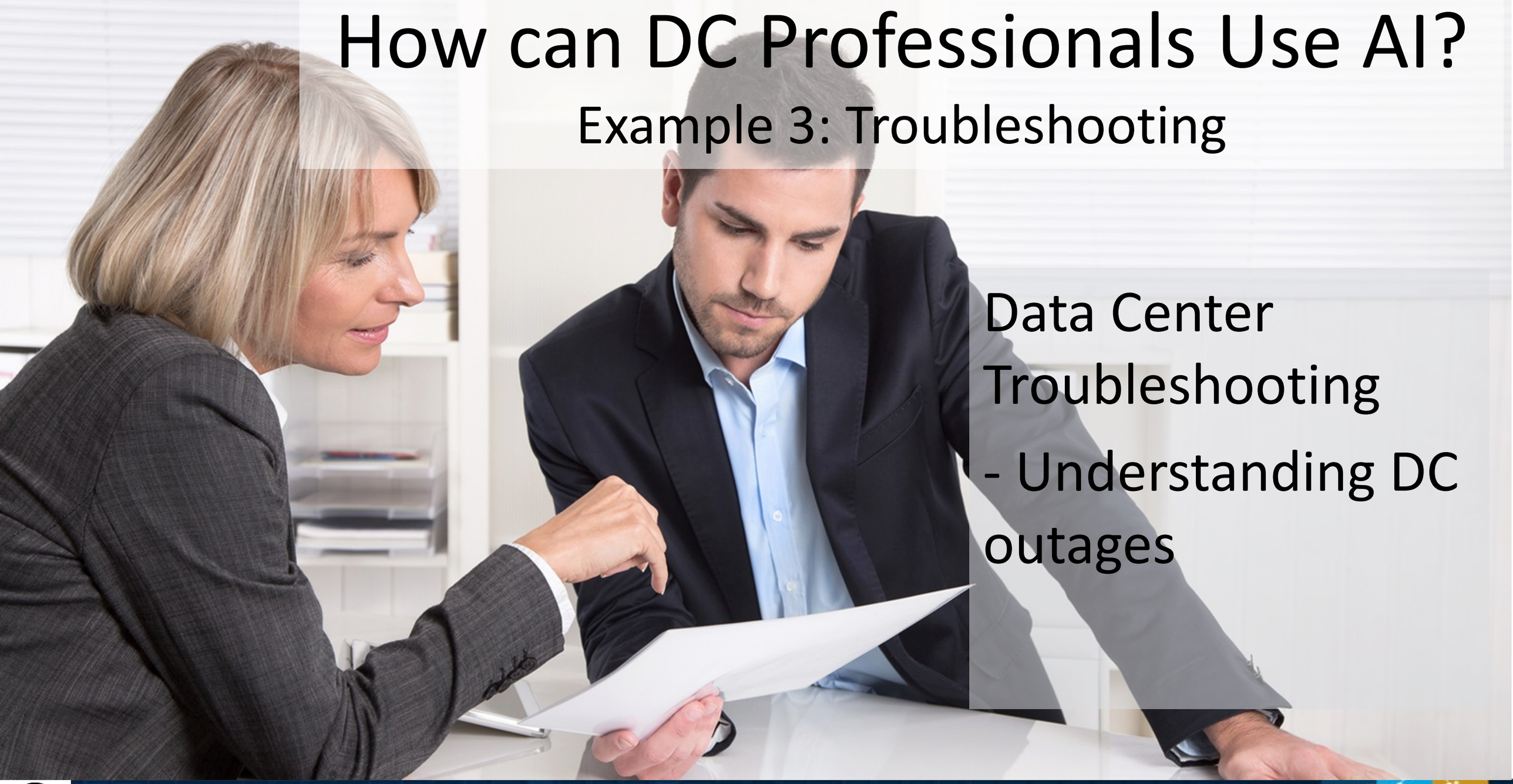
Data Center Operations

- Predicting Equipment Failures
- Predicting network usage

BICSI 009
Data Center Operations

How can DC Professionals Use AI?

Example 3: Troubleshooting



Data Center Troubleshooting

- Understanding DC outages

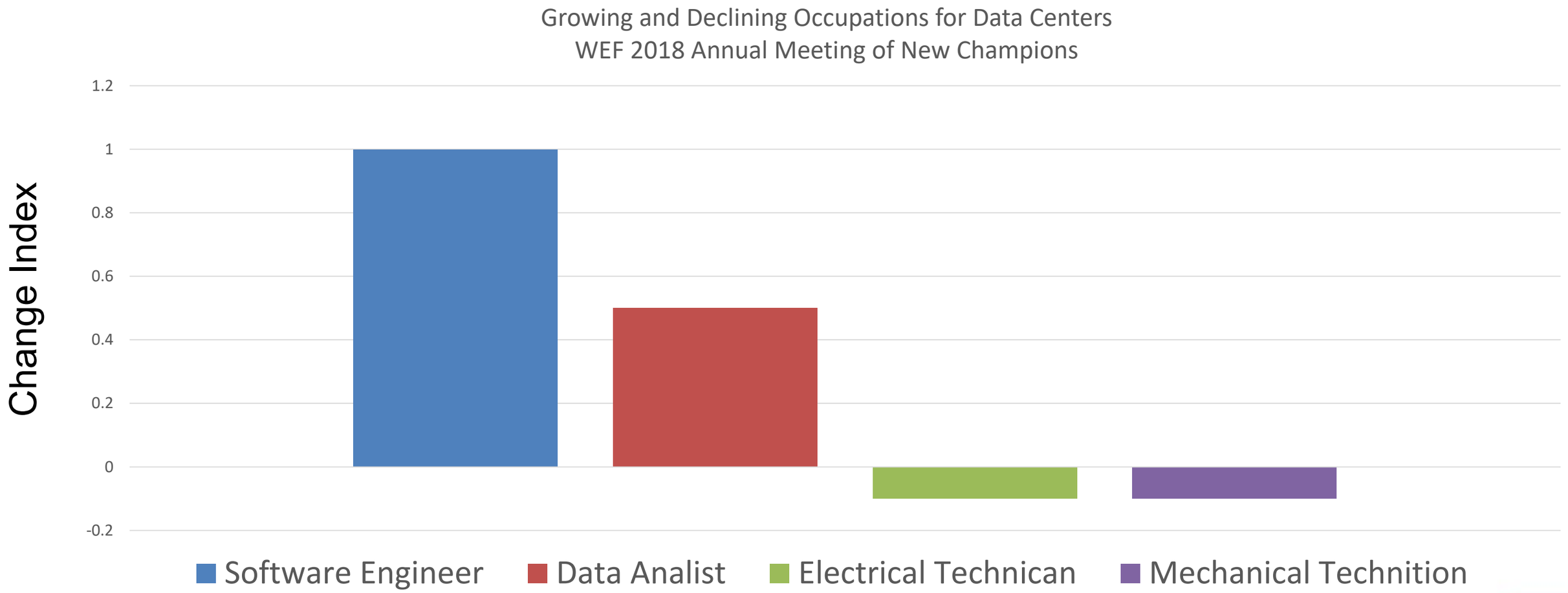
How can DC Professionals Use AI?

Guidance

- Consider below for DCIM solutions
  - Equipment failure prediction
  - Anomaly detection
  - Predictive thermal services
  - Power management

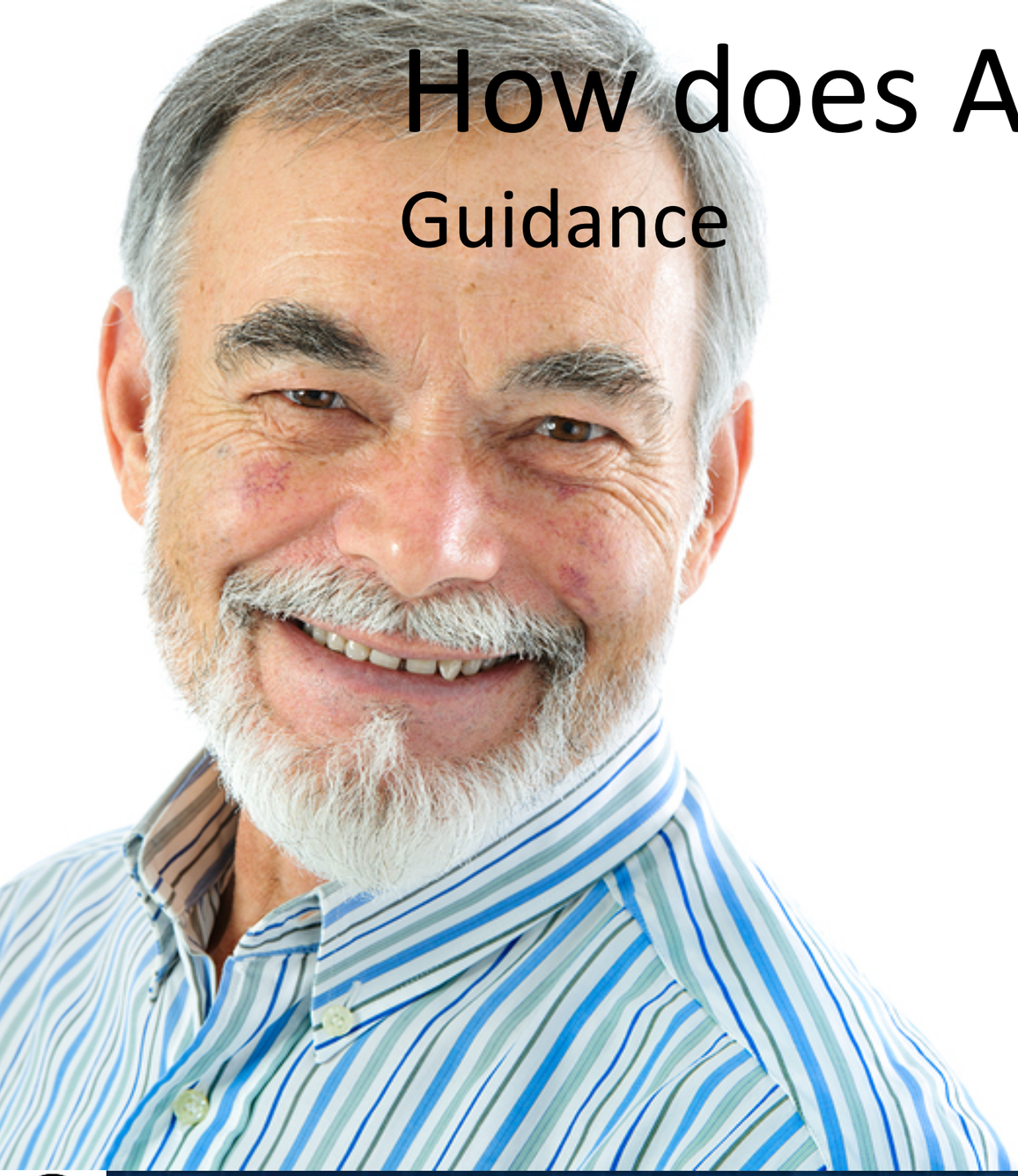
How does AI affect ICT Job Market?

Current Trends



How does AI affect ICT Job Market?

Guidance



- Learning Mindset
  - Its not about changing profession once
  - Lifelong learning
- Learn AI Skills

Questions?