

# AI in Healthcare Facilities Management

ASHE Region 6



# AI in Healthcare Facilities Management

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# AI in Healthcare Facilities Management

## Agenda

- Introduction to Artificial Intelligence
- Basics of AI
- Current Challenges in HFM
- AI in Action in HFM
- Barriers to Adoption
- Means to Overcome Barriers
- AI in HFM Daily Admin

# AI in Healthcare Facilities Management

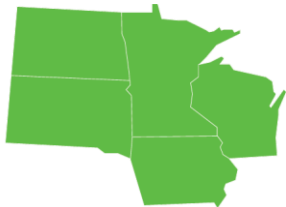
## Introduction to Artificial Intelligence

So... Is it **Cool and Helpful**

or **????**



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## Introduction to Artificial Intelligence

### AI History

- Notable milestones
  - 1956 - **Dartmouth Conference** - early AI efforts focused on symbolic problem-solving and logical reasoning
  - 1970s – Shift towards knowledge-based systems that used rules to represent knowledge and inference engines to solve problems.
  - 1980s and 1990s - shift with machine learning and neural networks
  - 2000s and 2010s - Massive strides with the explosion of big data and computational power.
  - Today - Reinforcement learning and generative AI.

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## Introduction to Artificial Intelligence

### AI's Growing Popularity

- AI in everyday life
  - Virtual Assistants
  - Personalization and convenience
- Industry adoption:
  - Healthcare
  - Retail
  - Manufacturing

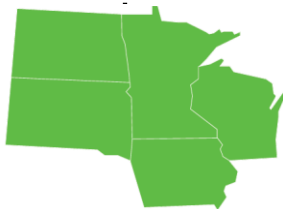
### Generative AI (GenAI)

- 2023 – less than 5% of businesses use generative AI
- 2026 - 75% of businesses will use generative AI
- 2027, more than 50% of the GenAI will be specific to either an industry or business function

[Gartner Generative AI Predictions for 2024-2028](#)



Siri



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## Basics of AI

- Definition: AI is a simulation of human intelligence processes by machines, especially computer systems

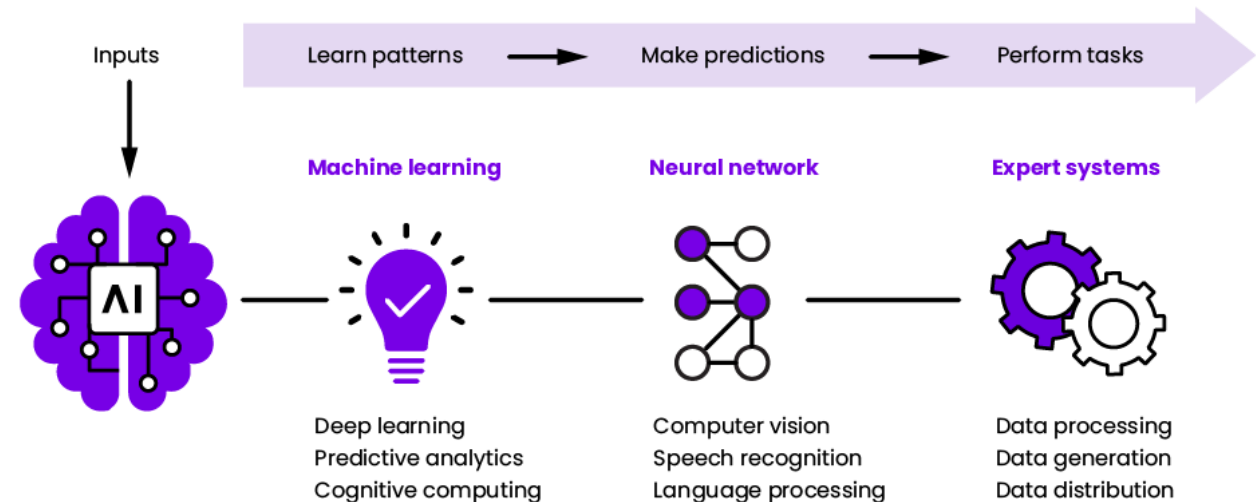
- Key components:

### 1. Machine Learning

- A. Supervised Learning
- B. Unsupervised Learning
- C. Reinforcement Learning

### 2. Natural Language Processing

### HOW AI WORKS



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## Basics of AI

- Key components: (continued)

3. Data Analytics

- A. AI is unbiased

- B. AI analytics adeptly handles both structured and unstructured data

- C. Examples:

- I. Predictive Maintenance

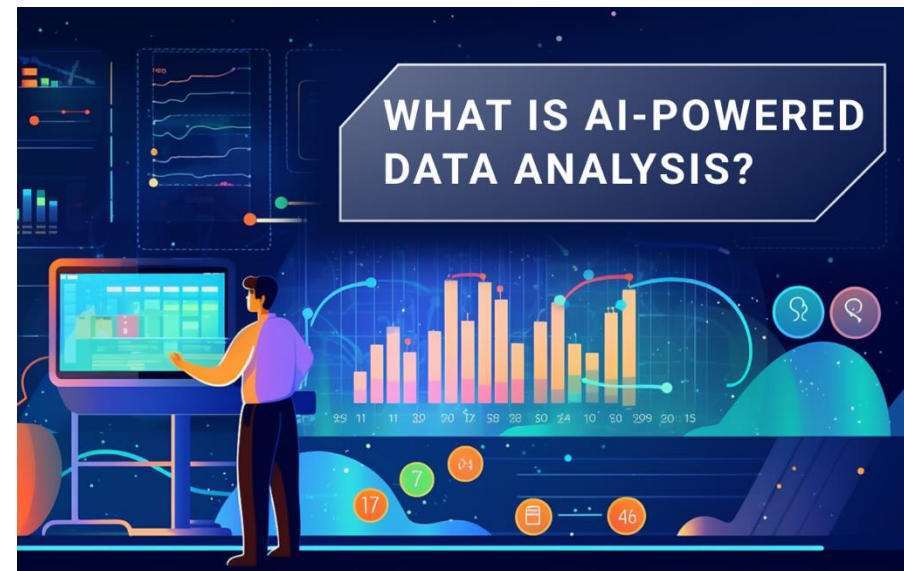
- II. Customer Behavior Analysis

- III. Sentiment Analysis

- IV. Anomaly Detection

- V. Natural Language Processing

- VI. Image and Video Analysis





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## Basics of AI

- Key components: (continued)

### 4. Automation


- A. Customer Service
- B. Supply Chain Mgmt.
- C. Healthcare
- D. Financial Services
- E. Manufacturing
- F. Marketing
- G. Human Resources
- H. CyberSecurity

**ADVANCED WORKFLOW**




Automate any business process— from simple to sophisticated— with drag and drop, no code workflow.

**DOCUMENT GENERATION**




Automatically create consistent, compliant, up-to-date documents with the push of a button.

**MOBILE APPS & FORMS**




Leverage mobile devices and forms to capture critical data—online or offline.

**ROBOTIC PROCESS AUTOMATION**



Automate highly repetitive processes that a person would typically perform.

**PROCESS INTELLIGENCE**



Govern, analyze, and drive the efficiency of process automation with real-time analytics and insights.

**MACHINE INTELLIGENCE**



Get assistance in completing tasks with best-of-breed machine learning and natural language processes.

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## A Few of the Current Challenges in HFM

### 1. Operational Inefficiencies

- A. Tracking and analyzing maintenance and financial operating data
- B. Managing energy use
- C. Coordinating staff

### 2. Maintenance Delays

- A. Equipment failures

### 3. Resource Allocation Issues

- A. Tracking maintenance
- B. Managing energy use
- C. Coordinating staff

And Sooooo much more!

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## AI Addresses Challenges in HFM

1. Sorting through data to provide an actionable path.
2. Reduced time to respond.
3. Predictive analysis



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## AI in Action

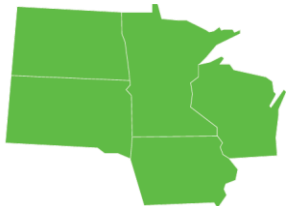
### 1. Optimizing energy Management

- A. Energy monitoring and measurement and verification (M&V)
- B. Demand management — in front of or behind the meter.
- C. HVAC optimization

AI can reduce energy consumption by up to 30%



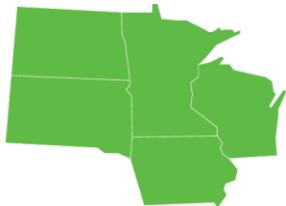
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## AI in Action

2. Maximizing Equipment Uptime from Analysis via AI-enabled predictive maintenance
  - A. Fault Detection and Diagnostics (FD&D)
  - B. AI-enabled predictive maintenance can lower total maintenance costs by 10-20%, in addition to preventing revenue losses from equipment failure downtime.



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## AI in Action

3. Administrative Benefits:
  - A. Automates work order creation based on data from EM and PM analytics
  - B. Prioritizes tasks and optimizes the maintenance schedule
  - C. Automates assignments based on skillsets or areas of responsibility.
  - D. Reviews productivity against known PM hours.

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## AI in Action

### 4. Streamlining Inventory and Supply Chain Management

#### A. AI-Enhanced Inventory

- I. Avoids both overstocking and understocking
- II. Substantial savings, typically around 5-10% of total supply chain costs.
- III. Helps avoid last-minute purchasing at premium rates.
- IV. Eliminates hours spent by Managers trying to manage this.



10 Best AI Tools for Supply Chain Management - September 2024  
<https://www.unite.ai/best-ai-supply-chain-management/#:~:text=Blue%20Yonder,%20formerly%20known%20as%20JDA>

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## AI in Action

### 5. AI Space Planning & Utilization

- A. Identifies inefficiencies in patient flow, underutilized areas, and scheduling conflicts.
- B. Hospital improved operating room utilization by 20% and increased outpatient clinic throughput by 15%.
- C. Space Cleaning



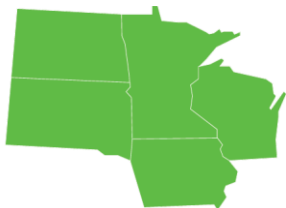


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## AI in Action

### 6. AI-Driven Design & Construction

- I. Take Offs
- II. Simulate:
  - A. Different facility layouts,
  - B. Patient flow
  - C. Equipment placement
- III. Determine conflicts in layout
- IV. Future Abilities
  - A. Review against code requirements
  - B. Review calculations
  - C. Identify Cx and Safety related issues on jobsite



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## AI in Action

### 7. Daily Administrative Benefits

- A. Automating Work Orders
- B. Smart Scheduling
- C. Staffing Optimization
- D. AI assists with regulatory compliance by tracking inspections and ensuring that required documentation is always up-to-date.
- E. Training – AI & Virtual Reality

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## Barriers to AI Adoption in HFM

1. Financial Challenges
2. Technological Infrastructure
3. Data Integration

# AI in Healthcare Facilities Management

## Barriers to AI Adoption in HFM

4. Security - Risks of AI Data Collection in Healthcare Facilities
  - a. AI systems collect vast amounts of sensitive facility and operational data.
  - b. Risk of exposure of confidential patient care spaces, emergency response plans, and infrastructure vulnerabilities.
  - c. Potential breaches or misuse of AI-collected data
  - d. Regulatory and compliance risks
  - e. Need for strict access controls and encryption.

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## Barriers to AI Adoption in HFM

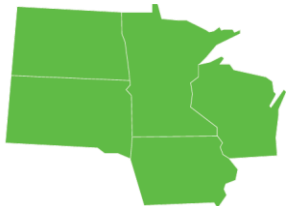
4. Security - How AI Data Could be Misused
  - a. AI-driven analytics can profile facility management and construction practices.
  - b. Potential for competitive intelligence gathering by third parties.
  - c. Cyber threats targeting facility blueprints, security systems, and operational data.
  - d. Ethical concerns around AI models predicting facility weaknesses or budget constraints.
  - e. Need for strict AI governance and contractual safeguards with vendors.

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## Overcoming Barriers to AI Adoption in HFM

1. Pilot Projects
2. Partnering with AI Experts
3. Cross Functional Teams
4. Invest in Scalable Solutions

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## Overcoming Barriers to AI Adoption in HFM

5. Staff Training

6. Mitigate AI Security Risks

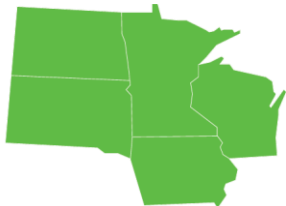
a. Implement Strong Data Governance

b. Select AI Vendors with Healthcare Compliance

c. Enhance Cybersecurity

d. Start Small & Scale Securely

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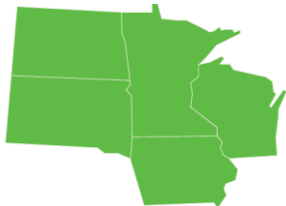


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## AI and Facility Managers: A Collaborative Future

### Administrative Tools

1. Open AI tools for written content creation, editing, review, and research
  - A. ChatGPT <https://openai.com/chatgpt/>
  - B. CoPilot  
[https://www.bing.com/chat?q=copilot&sendquery=1&form=HEC  
ODX](https://www.bing.com/chat?q=copilot&sendquery=1&form=HECODX)
  - C. Gemini <https://gemini.google.com/>





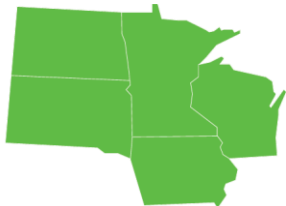
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## Conclusion

### **AI is Already Transforming Healthcare Facilities Management:**

- AI is actively reducing costs and improving operational efficiency.
- Predictive maintenance prevents equipment failures, reducing downtime.
- AI-driven energy optimization lowers utility costs and enhances sustainability.
- Space utilization & asset tracking streamline facility operations.
- AI helps improve patient care and staff workflow efficiency.

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## Conclusion

### Why AI is No Longer Optional

- 10-30% cost savings through AI-driven energy and asset management.
- AI assists in regulatory compliance (CMS, Joint Commission, NFPA).
- AI-powered analytics enhance capital planning and future-proof facilities.
- Optimized scheduling and environmental controls improve patient & staff experience.
- AI-driven facility insights help hospitals stay ahead of operational challenges.

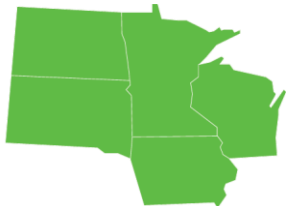
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## Conclusion

### How to Begin Your AI Integration Journey

- Start Small – Choose a pilot project
- Leverage Your Existing Data
- Partner with AI Experts
- Train & Engage Your Team
- Integrate AI into Daily Workflows
- Incorporate AI into your own daily practices

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# Thank you!



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