

# UNLOCK YOUR HEALTH SYSTEM'S POTENTIAL:

A Comparison of Clinical AI  
Integration Options



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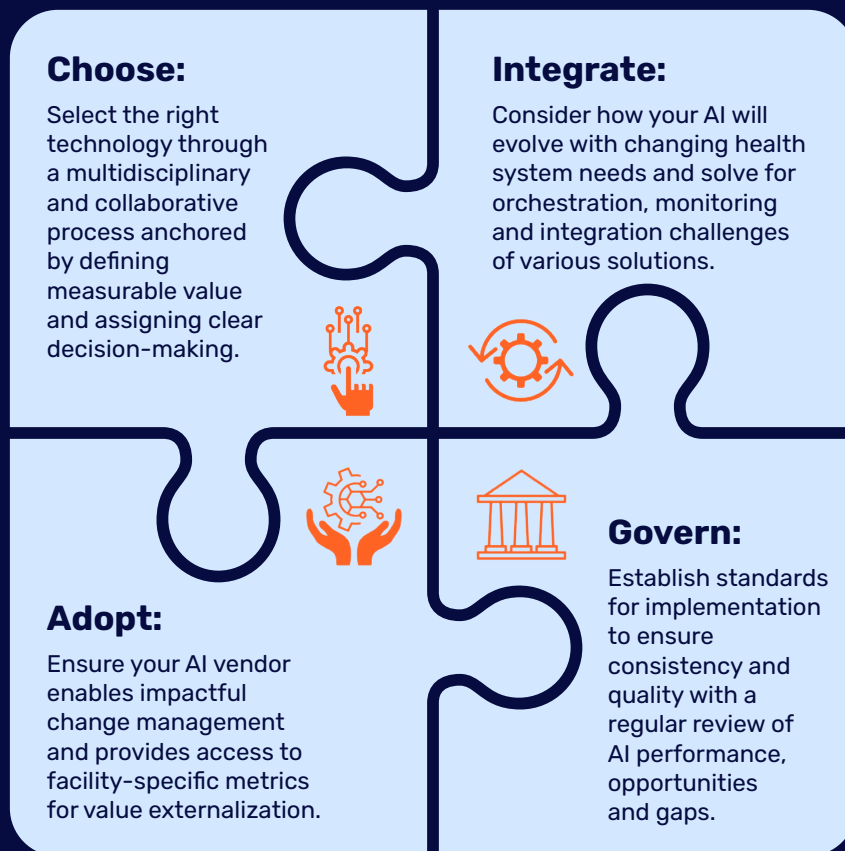
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# START WITH STRATEGY, NOT AN ALGORITHM

The chicken or the egg. The cart before the horse. Running before you can walk. There are many idioms that speak to the same idea: a desire for fast results. Implementing clinical AI is no different. Many teams become obsessed with finding an algorithm that promises immediate impact, but this is akin to purchasing a tool without knowing what you'll build with it.

The common answer as to why some AI has fallen short of its promises for healthcare is because it is viewed solely as a technological undertaking. In reality, the potential of AI doesn't start with algorithms, it starts with strategy.

## GO BEYOND THE ALGORITHM FOR A SCALABLE AI STRATEGY



A technology plus people plus process-focused strategy will address the fragmented and piecemeal adoption of AI that has dominated the first wave of implementation. While each of these components works in harmony, arguably the decision with the largest impact on your short-term needs and long-term infrastructure usability is the AI integration method you choose.

# AI INTEGRATION:

## The Pros and Cons of a Point Solution, Marketplace and Platform

Like healthcare itself, paths to clinical AI integration haven't been one-size-fits-all. Three approaches have gained traction, each with its own unique advantages and challenges.

**Point solutions** offer rapid deployment and focus on specific tasks but can create data silos and limit scalability.

**Marketplaces** offer a hub for discovering and choosing different AI solutions but require expertise to navigate and may involve varying quality and system compatibility.

**Platforms** provide a centralized infrastructure for scalable AI implementation but require upfront investment.

FEATURE	POINT SOLUTIONS	MARKETPLACES	PLATFORMS
<b>Scope</b>	Narrow and focused on a specific task or use case	Broad and diverse offering of solutions from multiple vendors	Flexible and adaptable infrastructure for managing all AI solutions
<b>Scalability</b>	Limited	Variable	High
<b>Data Management</b>	Siloed	Fragmented	Centralized
<b>Interoperability</b>	Limited without customization	Difficult	Out-of-the-box
<b>Deployment Time</b>	Fast	Varies depending on selected solutions	Less than three months
<b>Cost</b>	Lower initial cost but potentially higher maintenance costs	Varies depending on selected solutions	Higher initial cost but longer-term cost savings
<b>Vendor Lock-In</b>	High	Low	Medium
<b>Workflow Customization</b>	Limited	Limited unless selecting a single vendor's solutions	Highly customizable
<b>Technical Support Needed</b>	Low upfront, higher for maintenance	Varies	High upfront, lower for maintenance
<b>Data Security</b>	Potential risk due to multiple system integrations	Potential risk due to inconsistent standards across vendors	Secured infrastructure for all AI solutions on the platform
<b>Innovation Potential</b>	Limited	Frequently adds new solutions	Flexible infrastructure allows for new AI to be added easily
<b>Suitable for...</b>	Organizations with specific needs and limited resources	Organizations who want diverse solutions and rapid innovation	Organizations who want an enterprise-approach to AI

Explore the pros and cons of each approach on the next several pages. >>>

# AI POINT SOLUTIONS:

## Healthcare's False Start

The first wave of AI solutions was dominated by independent algorithms that addressed a single clinical problem, often pathology-driven, such as stroke or pulmonary embolism. Point solutions offer rapid implementation and demonstrate the most value within a specific, defined workflow. Cost-effectiveness has sustained their popularity, and the limited scope streamlines integration without requiring significant infrastructure changes. However, point solutions often create data silos and may not scale or adapt as easily as other options.



### Pros

#### **Focused and specialized:**

Address specific tasks with well-defined goals, offering a targeted approach to AI implementation.

#### **Faster deployment:**

Typically requires less time and resources to implement compared to platforms.

#### **Lower cost of entry:**

Initial investment is often affordable for organizations with limited budgets.

#### **Test and learn:**

Allows organizations to pilot AI technology before committing to a broader solution.



### Cons

#### **Limited scope:**

Designed for specific use cases and may not easily adapt to broader needs, limiting long-term scalability.

#### **Data silos:**

Hyper-focus can create data silos, making it difficult to share and analyze information across different departments and systems.

#### **Lack of interoperability:**

Integrating multiple AI point solutions to each other and existing systems can be complex and costly.

#### **Maintenance burden:**

Managing and maintaining multiple point solutions can be time-consuming and resource-intensive.

### Expert perspective:

In a forum at HIMSS23, Sonya Makhni, medical director of the Mayo Clinic Platform noted data standardization challenges, data drift and governance are challenges that limit point solution adoption in the real world. She said even an algorithm with minimal bias would "not be adopted unless it is integrated in the workflow in a smart, sustainable and efficient way."<sup>1</sup>

# AI MARKETPLACE:

## The Perils of One-Stop Shopping

Many major healthcare and technology companies have entered the AI marketplace space touting the format's ability to help health systems discover, evaluate and purchase different AI solutions from a variety of vendors. Most appealing is how a marketplace gives organizations the flexibility to mix-and-match solutions based on specific needs, but it may be difficult to know exactly what combination of solutions is needed to solve your problem. This approach prioritizes speed-to-market and number of solutions available over integration and advanced workflows. It is shallow technologically, with most marketplaces offering little integration support to the onboarded solutions, both in the back-end and front-end.



### Pros

#### Accessibility:

Democratizing access to a diverse range of tools from different vendors makes them readily available to organizations of all sizes.

#### Faster innovation:

Marketplaces allow developers to quickly deploy new AI solutions, accelerating the development of cutting-edge technologies.

#### Flexible deployment:

With cloud-based solutions and on-premise options, a marketplace caters to different organizational needs and preferences.

#### Simplified procurement:

Offers a centralized option for purchasing AI solutions, streamlining the procurement process and reducing administrative overhead.



### Cons

#### Potential data security risks:

Sharing data with multiple vendors can create security risks, requiring consideration of data governance and privacy regulations.

#### Lack of customization:

Pre-built solutions may not be fully customizable, potentially limiting their ability to meet specific workflow needs.

#### Integration challenges:

Integrating different AI solutions from various vendors may require significant, ongoing technical expertise and resources.

#### Vendor support:

Marketplace vendors may not offer the same level of support as established, sole-source AI solution providers.

### Expert perspective:

In an interview with *Becker's Health IT*, Shafiq Rab, MD, CIO and chief digital officer of Tufts Medicine, noted even solutions supported by large tech companies need to integrate easily: "The fact of the matter is that tools will only succeed if totally integrated with the workflow and the processes of physicians and nurses, and how they partner with the EHR giants, such as Epic, Cerner, Meditech, GE HealthCare and Athenahealth."<sup>2</sup>

# AI PLATFORM:

## Unlocking Health System Potential

An AI platform – also referred to as an AI operating system – provides a centralized infrastructure that allows for the management and maintenance of all AI solutions. While building and maintaining a platform requires upfront investment and technical expertise, it saves cost and resources over time as the single-entry point into systems and only technology needed to orchestrate, monitor and activate AI algorithms. It also allows for a scalable and future-proof strategy with multi-service line care pathways and seamless end-user experience.



### Pros

#### **Standardization and scalability:**

Ensures consistency in AI algorithms and workflows across departments and locations, making it easier to scale AI initiatives as needs evolve.

#### **Integration and interoperability:**

Offers seamless integration with existing systems, improving data accessibility and facilitating collaboration amongst care teams.

#### **Centralized governance and security:**

A central hub for managing integration access, data monitoring and security protocols to safeguard patient privacy and data security.

#### **Deployment and management:**

Simplified deployment and management of AI algorithms reduces the burden on IT teams and creates end-user consistency.



### Cons

#### **Upfront investment:**

Requires an investment in technology, infrastructure and personnel for the initial launch.

#### **Vendor reliability:**

Given its technical complexity, organizations need to ensure the platform vendor offers ongoing support and training.

#### **Large in scope:**

Organizations realize the most value from a platform by undertaking a larger-scale AI strategy versus one or two use cases.

#### **Overhauls status quo:**

With any new technology, there may be disruptions to existing workflow and practice as end users adjust to a new way of working.

### Expert perspective:

Sophy Lu, CIO at Northwell Health, told *Becker's IT News* the decision to go with Aidoc's AI platform (aiOS™) for its 17 New York state hospitals was rooted in the need for efficiency and optimization: "Time efficiency remains of utmost importance in today's health care landscape, whether it's delivering care or making a diagnosis. When planning to implement AI, the key drivers are seamless integration with existing infrastructure, the ability for rapid deployment in a consistent manner and to optimize the use of IT talent."<sup>3</sup>

# TIPS TO FIND THE RIGHT FIT

As evidenced throughout this document, the unified framework provided by an AI platform is the only adoption and integration option that meets enterprise-wide requirements for data management, scalable integration and seamless usability.

As the market of available AI platform options grows, it is important to ensure the platform you select expands AI strategy beyond individual algorithms, enables growth with evolving patient care needs, facilitates change management and establishes a robust governance framework.

We recommend vetting platform options against these criteria:



## **Automatic Orchestration:**

An automated process for reducing the workflow adjustment and administrative burden associated with implementing multiple FDA-cleared AI solutions.



## **Seamless Integration:**

Native integrations into existing systems. This should be out-of-the-box functionality for all current and future AI solutions managed through the platform.



## **Security Standards:**

A consistent security framework to ensure all AI solutions deployed within the platform meet the highest standards of data protection and privacy.



## **Drift Mitigation:**

Built-in methods to observe and measure if an AI algorithm's performance declines over time.



## **Clear Visualization:**

Can synthesize output from multiple AI solutions into a common, standardized format, enabling clinicians to easily review and interpret results.



## **Flexible Configuration:**

Workflow options should be customized for each service line and physician and not one-size-fits-all.



## SELECTING THE RIGHT AI VENDOR

Once you've narrowed down the list of platforms that meet your organization's strategic goals, the next step is to meeting with potential partners. The framework below equips you to identify established AI vendors who can deliver on what they promise.

### Market Traction:

Ensure a proven track record in live clinical environments. AI deployment should be developed on an established use case basis.

### Integration:

How they will support deploying AI at scale and ensuring adoption by end-users.

### Clinical Validation:

Demonstrated data accuracy from the outset and plans in place to address data drift.

### Always On:

Fully automated with 24/7 monitoring and analysis that works in real-time without manual intervention.

### Regulatory Clearance:

Mandatory for any clinical use case, and the number testifies to the quality of the solution and technical maturity of the vendor.

### Straightforward Deployment:

AI should not require any 'tricks' to work. A vendor should prove how they minimize downtime and reduce IT lift and risk.

### A Roadmap:

A clearly defined plan for future modalities, proving relevance to your current workflow and how the vendor can evolve alongside your changing needs.

### Change Management:

People and processes are what enable change – not simply the technology. Any AI vendor should be as prepared to stay and support as they were to sell.

### Culture of Innovation:

A comprehensive portfolio of available technology while simultaneously investing in and validating new algorithms and solutions.

## QUESTIONS TO ASK ANY AI VENDOR

The following questions will give a sense of vendor capabilities and can be used in early conversations.

QUESTION	VENDOR	VENDOR	VENDOR	NOTES
How many FDA-cleared algorithms do you have actively being used at health systems "in the wild?"				
Does your technology support all AI algorithms - even those not created by you?	Yes No	Yes No	Yes No	
Do your algorithms run autonomously and automatically on all imaging?	Yes No	Yes No	Yes No	
Do your algorithms run based on anatomy present or are they protocol-driven?				
Do you have safeguards to keep a clinician at the center of clinical decision making?	Yes No	Yes No	Yes No	
Does your technology automatically match algorithms to both suspected and unsuspected findings?	Yes No	Yes No	Yes No	
Can your AI process cases for edge-of-film incidental findings?	Yes No	Yes No	Yes No	
Do you have care collaboration tools for real-time cross-department / facility communication?	Yes No	Yes No	Yes No	
What AI solutions are currently available. What is in production?				
Can you integrate with EHR, PACS, VNA, scheduling, etc., out-of-the-box?	Yes No	Yes No	Yes No	
Is AI being monitored 24/7 for performance and data drift?	Yes No	Yes No	Yes No	
What is your process to manage data (drift, security, etc.)?				
How long will it take to get up and running?				

# FUTURE-PROOF YOUR AI INVESTMENT WITH THE AIDOC AIOS™ PLATFORM

With automatic enterprise orchestration, seamless integrations, best-in-class security standards and highly configurable workflows, the Aidoc aiOS™ helps health systems overcome the challenges of AI adoption with a single, unified platform – setting the standard for how AI can be scaled in healthcare.

## True Enterprise Orchestration

Automated, low-latency management of all AI solutions from a single platform allows for any multi-use, scalable AI strategy



Aidoc Algorithms



Aidoc AI Application Partners



Add Your AI\*

## Seamless Native Integrations

Out-of-the-box integrations into your systems of record creates back-end efficiency and limits the number of outside connections



EHR



PACS



VNA



Scheduling



## Best-In-Class Security Standards

Built-in compliance with the strictest global security and privacy regulations, means all AI solutions powered by the platform adhere to the same standards



HIPAA



GDPR



SOC 2 Type 2

## Built-In Governance

Hyper-accurate monitoring that can identify data drift even in the presence of imperfect natural language processing (NLP)



AI Monitoring



Reporting Performance Dashboards



Radiologist Workstation



Patient Management



Care Coordination

## Highly Configurable Workflows

Flexible platform drives consistent presentation of findings in customizable workflows aligned to protocols

\*These algorithms are for the use of the institution only.

# ABOUT AIDOC

Aidoc is a pioneering force in clinical AI. We focus on aiding and empowering healthcare teams to optimize patient outcomes, which results in improved economic value and clinical outcomes. Our clinically proven AI solutions eliminate silos, increase efficiencies, and improve outcomes by delivering critical information when and where care teams need it leading to immediate collective action.

Built on Aidoc's exclusive aiOS™, we analyze and aggregate medical data to enable care teams to operationalize the unexpected and work seamlessly with a continued focus on the patient. Aidoc AI is always on, running in the background to change the foreground.

Let's Connect



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2019



2020



2022

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