



The Future of the
Healthcare Workforce in
the Intelligence Age





Meet The Speakers



Justin Barlow
Strategic Automation Lead



Ryan Spear
Revenue Cycle Applications
Manager



Adam Taylor
Senior Manager Revenue Risk &
Audit



Agenda

- Acknowledging the Reality of Today
- Artificial Intelligence - Addressing the Hype
- Artificial Intelligence - How it's being applied
 - Rady Children's - In-house development
 - Palomar Health - AI as a Service
 - Advanced Automations



Polling Question 1

To your knowledge, what is your organization's experience with Artificial Intelligence and RPA within Revenue Cycle?

A. We have already implemented an AI/RPA solution

A. We are just about to launch our first AI/RPA solution

A. We are in the exploration phase with AI/RPA solutions

A. What is AI?



Acknowledging the Reality of Today



The time that we're in is unprecedented.

As Covid-19 Crashes the Economy, Workers and Business Owners Wonder if Anything Can Save them from Financial Ruin **TIME**

Quarantine fatigue: Governors reject new lockdowns as Virus cases spike

POLITICO

Artificial Intelligence Simplifies COVID-19 Testing, Workflows

**HEALTH
ITANALYTICS**

Five ways technology is helping get the COVID-19 vaccine from the manufacturer to the doctor's office

 **TechRepublic.**

Chaos: a state of utter confusion.

cha'os | kā-,äs

Source: MerriamWebster.com



Negative impacts on the Healthcare industry are substantial.

Financial Impact	Care Delivery Impact	Human Impact
<ul style="list-style-type: none">• Total losses for the nation's hospitals and health systems expected to be at least \$323 billion in 2020.• Estimates show a minimum of \$121 billion in financial losses, due in part to lower patient volumes, from July 2020 through December 2020.• This is an average monthly loss of \$20 billion per month.• Half of the annual 4.8% decline in US GDP is attributable to pausing elective procedures.	<ul style="list-style-type: none">● Procedure volume for “elective” procedures significantly impacted.• Research demonstrates worse outcomes when important elective procedures are delayed.• Restarting elective procedures and the ensuing deluge of operational and administrative activities creates its own set of potential problems.	<ul style="list-style-type: none">• Highest level of healthcare worker furloughs/ reductions ever experienced.• Industries with lower skill requirements and lower wages are hit the hardest.• Mental health and substance abuse issues are expected to increase.• The very resources we were counting on to innovate the industry, bend the cost curve, and shift from volume to value are more distressed than ever.

<https://www.aha.org/issue-brief/2020-06-30-new-aha-report-finds-losses-deepen-hospitals-and-health-systems-due-covid-19>

<https://www.modernhealthcare.com/operations/delayed-procedures-drain-hospital-revenue-60b-month>

<https://hbr.org/2020/08/covid-19-created-an-elective-surgery-backlog-how-can-hospitals-get-back-on-track>

<https://www.kff.org/coronavirus-covid-19/issue-brief/the-implications-of-covid-19-for-mental-health-and-substance-use/>



Polling Question #2

Has the disruption due to COVID-19 altered your time line for AI/RPA exploration and/or implementation?

- A. Yes, we are too busy to think about this right now

- A. No, we see this as a critical tool in our recovery



But, there are opportunities beginning to materialize.

Global Health Awareness, Risk Monitoring, and Reporting	<ul style="list-style-type: none">• Immediate, vested interest in understanding the basics of epidemiology• Significant design, build, and deploy efforts for global health dashboards/ intelligence• Burgeoning awareness of co-morbidities and underlying health conditions
Adoption of New Healthcare Delivery Models	<ul style="list-style-type: none">• Greater personal scrutiny of healthcare service utilization• Expanded reimbursement for Telehealth services• Acceleration of Digital Health services & apps for health and well-being
Administrative Spend Reduction	<ul style="list-style-type: none">• Real-estate consolidation or direct pivots to virtual gatherings/ management• Technology adoption to enable or sustain virtual workforce requirements• Workforce transformation understood as an imperative - Future of Work

Key question - Who is best positioned to lead the many US healthcare stakeholders through the chaos?



We are! But the opportunities won't capture themselves.

In the midst of all of this disruption, how can we **reinforce healthcare resources** to better capture opportunities?

Are there examples of other organizations that have had breakthroughs in **building the right workforce** to take advantage of “The Intelligence Age?”

Current Healthcare Job Postings

Rev Cycle Manager Role (US, Southeast)

- **Process** large quantities of data to monitor Key Performance Indicators (KPI)
- **Research** barriers to successful revenue cycle management
- **Research** and **process** large quantities of data, **analyze** trends and **identify** areas where behavior is not complaint
- **Define** root cause analysis and drive resolution

Rev Cycle Analyst (US, Midwest)

- **Identify** denial root causes
- **Extract** data
- **Develop** reports and data sets
- Accurately **research** and **update** information for payer claims
- **Verify** patient benefits, eligibility and coverage as needed
- **Improve accuracy** of charge capture

Current FAANG Job Postings

Business Analyst (India, Chennai)

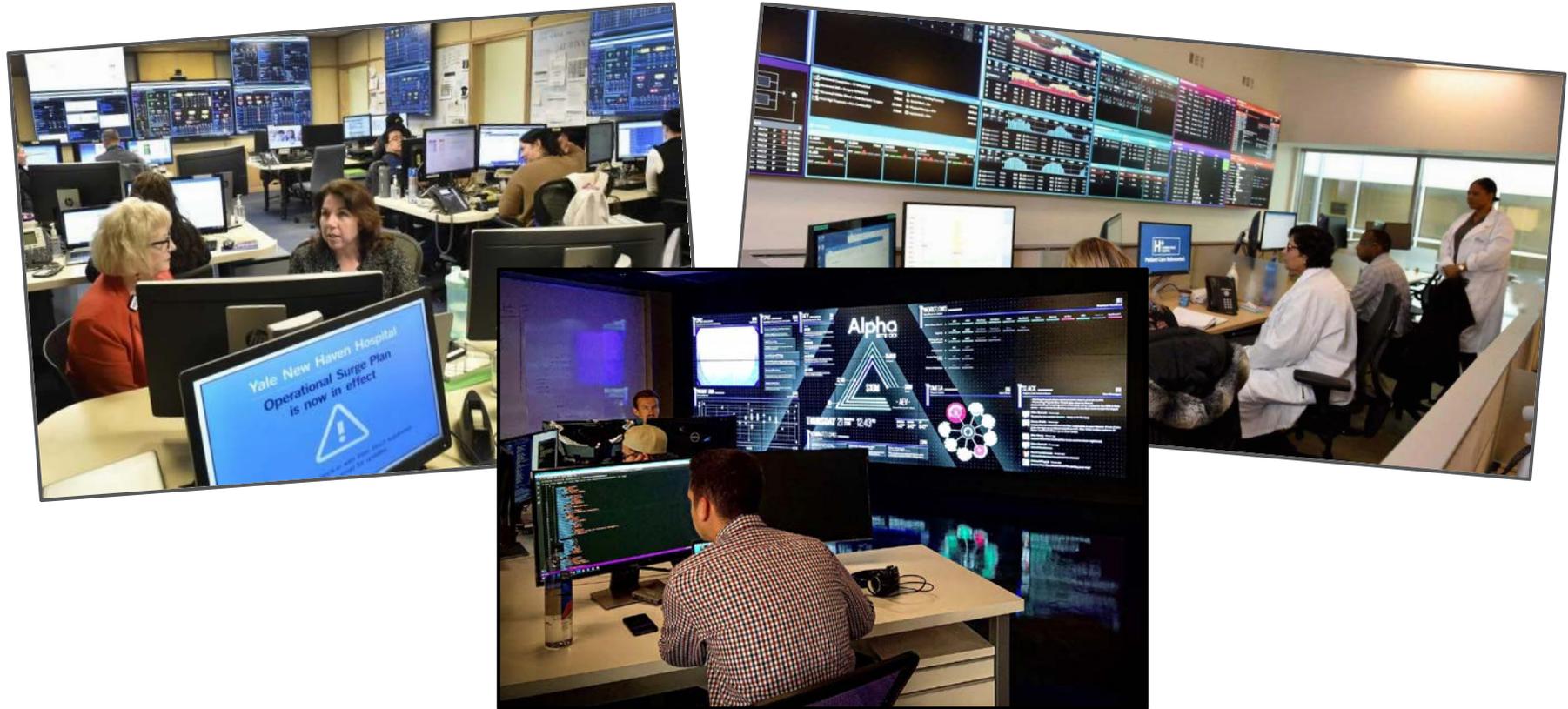
- **Solve business challenges** at a **global scale**
- **Implement new and repeatable processes** to improve global work authorization experiences
- Dig into the business challenges to **identify insights that will enable scalable improvement**
- **Own the development and maintenance** of new and existing systems based on key metrics

Systems Analyst (US, West)

- **Define, develop, and implement new initiatives** to build the long term roadmap
- **Work cross functionally** to identify opportunities of optimizing business workflows, improve quality of information, and reduce inefficiencies
- **Break down complex projects** into granular requirements with measurable acceptance criterias



Leverage Data vs. Brute Force





Polling Question #3

What is your organization's readiness for an AI & automation program?

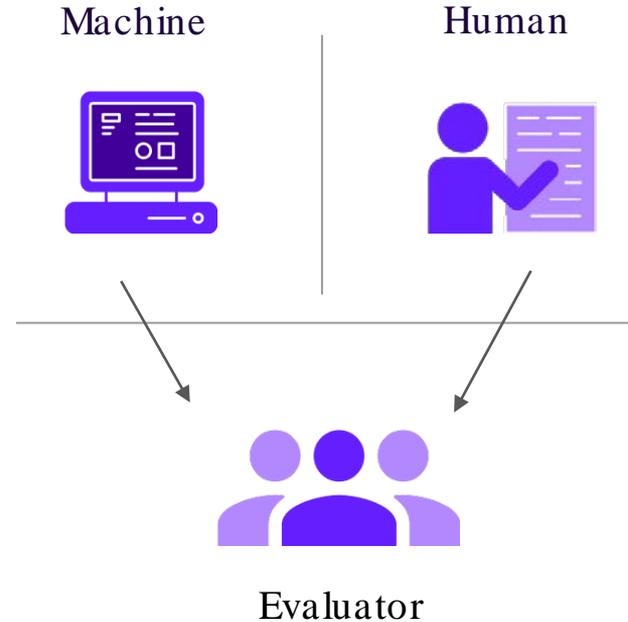
- A. AI is a strategic priority with our organization, and we have, or intend to pull together a team focused on the initiative
- A. I know there's a need for an AI program, but my organization doesn't consider it a priority and needs more education
- A. There is alignment within my department to deploy an AI program, but my organization has not prioritized an enterprise-wide strategy
- A. My department and my organization have not begun to think about how to deploy an AI and automation program

Artificial Intelligence: Addressing the Hype



How do we define artificial intelligence?

Practical: By **The Turing Test**, founded by Alan Turing, which determines whether or not a computer is capable of thinking and acting like a human being. AI passes the test if it is indistinguishable from a human.





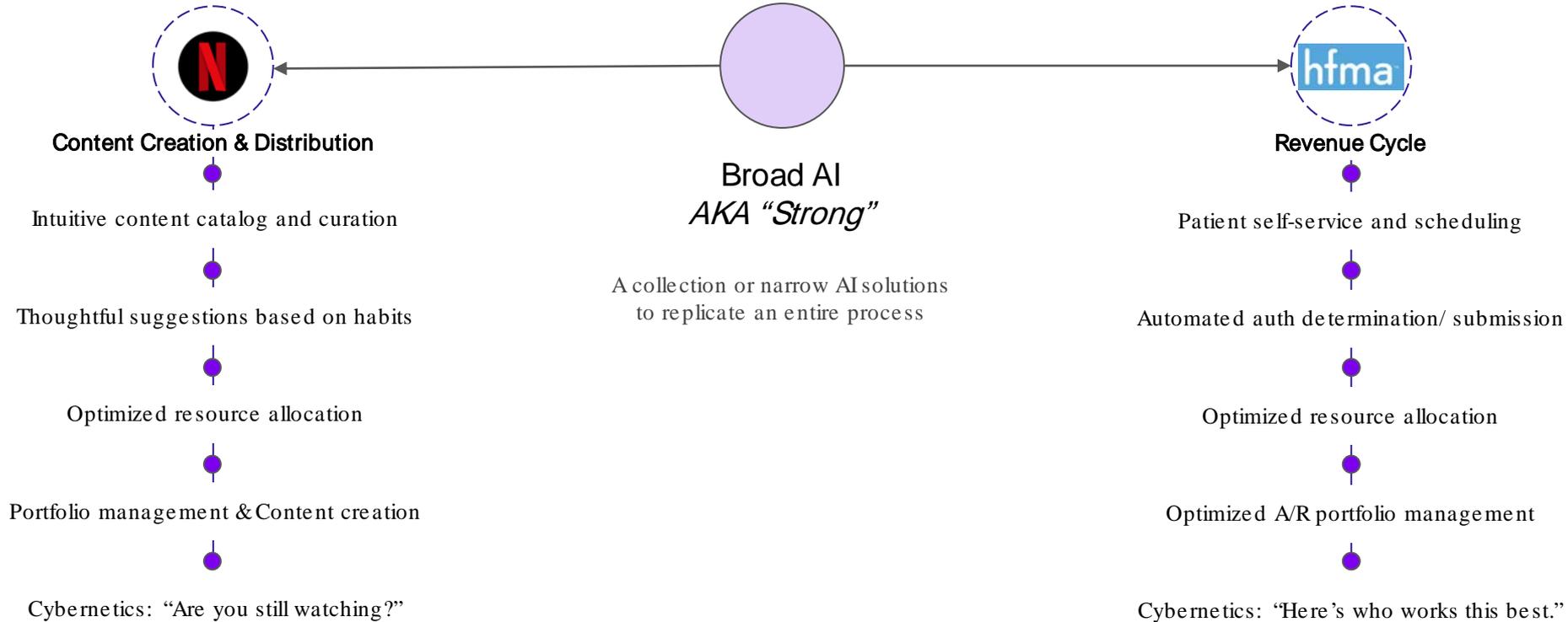
So - Where are we?



The terms within this ecosystem are constantly evolving.
Focus less on specific terms and more on practical meaning.



So - Where are we?





Let's make sense of the complexity, together.

As you all know, the Intelligence Age brings to light many different frameworks & terms:

Example Conceptual Frameworks		
<ul style="list-style-type: none">● Hype Cycle● Strategic Choice Cascade	<ul style="list-style-type: none">● 4th Industrial Revolution● Future of Health	<ul style="list-style-type: none">● Priority Matrix● AI Adoption Curve

Example Terms		
<ul style="list-style-type: none">● Big Data● Small Data● Responsible AI● Decision Intelligence● Data Labeling● AI Governance	<ul style="list-style-type: none">● Digital Ethics● Edge AI● AI Cloud Services● RPA● Smart Robots● FPGA Accelerators	<ul style="list-style-type: none">● Machine Learning● Deep Learning● Chatbots● Deep Neural Networks● Cognitive Computing● Insight Generators



Let's run through one of the more "complex" areas - "ML/ DL."

Artificial Intelligence (AI) - Predictive Analytics Capabilities

"Traditional" Machine Learning

Leverages data to inform rules development and improve decision making processes. Statistical methods are used to enhance or identify existing "features" present in the data that can be used to create predictability.

Supervised Learning

Learns based on known examples.

Unsupervised Learning

Learns based on unknown examples.

Reinforcement Learning

Adapts learning based on feedback.

Representation/ Deep Learning

Improves upon traditional ML by removing the need for subject matter expertise to inform features of importance. "Deep" refers to the layers of artificial neurons used to interpret the complexity of the data.

While Deep Learning is a provocative and emerging area within AI, its complexity and the associated heavy resource requirements are most efficiently used in highly scoped use-cases, and are not necessary to achieve the general benefit in most healthcare applications.

Example Applied ML: Natural Language Processing, Natural Language Understanding, Chatbots, Computer Vision, Insight Generation, Prediction, Capacity Planning, Optical Character Recognition, Segmentation

Example Products:



Example Platforms:



Tensorflow



There is an enormous potential for self-directed learning in AI.

LinkedIn Learning:

- Free trial, free for Premium memberships and for students
- Courses include ML, RPA, and AI
- Range from 5 minutes to 17+ hours

YouTube:

- Free courses- many from Edureka which “help professionals learn trending technologies for career growth”
- Range from 5 minutes to full courses of 10+ hours



HFMA:

- Free with membership
- Includes articles, webinars and podcasts
- Some include CPE credit

University Courses:

- MIT- 6 week course of 6-8 hours of work per week, not free but comes with a certification from MIT Sloan
- Stanford- enroll for free, flexible schedule, certificate of completion



Here are some lessons learned as you begin to explore.

Machine Learning efforts capture the greatest ROI when evaluated consistently against PRACTICAL measures during intake:

The three biggest reasons that ML project struggle during development are:

1. **Problem statement is not clearly scoped** - *it's not just about delivering a prediction, it's important to define how you will use it to create value*
2. **Resources are distracted across multiple efforts** - *each problem is different and requires discipline and consistency to address completely*
3. **Expectations are not clear** - *all parties must understand the threshold of success necessary to deliver upon the initiative*

Let's convert those lessons learned into recommendations:

1

Understand your problems.

- What do you need?
- What do you want?
- What is a "win?"

2

Understand your resources.

- How much is it worth?
- What is the total cost?
- Are you building or buying?

3

Understand your options.

- Do you want a service?
- Do you want a product?
- Are you the product?



Polling Question #4

What AI/automation topic are you most interested in next?

- A. Learning how other health systems are using AI/automation
- A. Understanding the total cost of ownership of an enterprise AI/automation program
- A. Learning more about the various AI delivery models



Artificial Intelligence: How it's being applied



Rady Children's

In-house development



- 4 Pillars
 - Claim Status
 - Authorizations
 - Denials
 - Ancillary Opportunities and Optimization Efforts (Claim Edits, DNBs)
 - “Bot-tivities”
 - Example: Diagnosis checks
- Key Success Factors
 - Team setup
 - Project planning/operational structure
 - KPIs



Palomar Health

AI as a Service

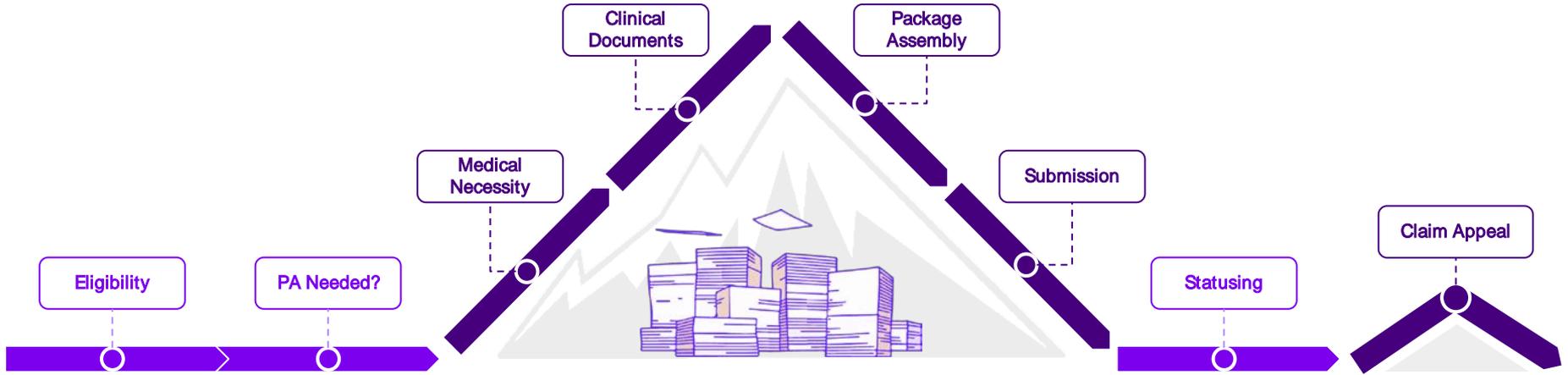


- Current State - Claim Status
 - 10,000 claims statused daily
 - Description of project
 - Design
 - Planning
 - Testing
 - Go-live
 - Monitoring
- Future State - Claim Action
 - Medical Record Attachment
 - ex) 50,000 Medi-Cal claims per year requiring primary remit attachment
 - Denials Analysis/Attachments



Advanced Automation

Multiple automations to carry a process from start to finish



Manual Process Revenue & Patient Impacts

- Medical necessity rules **change by 8% monthly**
- **30-45 minutes to assemble** and submit clinicals
- **10-15 days order to approval** per authorization
- **92% of care delays** are due to prior authorizations
- **30% of write-offs** caused by prior auth submissions

Advanced Capability Examples

- Uses database of over **40,000** plans with medical necessity rules
- NLP analyzes past **13-18 months** of clinical history to surface supporting documentation and learns from users' actions
- Extracts documentation using **FHIR API** and in **Epic's App Orchard**



Setting up for Success: Avoiding Common Pitfalls

Selecting a Scalable Platform Advance Your Capabilities

Long-Term Considerations:

- Do you prefer one platform or several?
- Do you have the talent & technology to enable you to gather and analyze intelligence from your automations?
- Will your platform equip you with intelligence & learning beyond your organization?

Governance Structure & Workflow Scoping Your Automation Roadmap

Long-Term Considerations:

- Who is dedicated to mapping workflows and optimizing end-to-end process design?
- What diagnostics are you using to assess AI workforce needs?
- How will you prioritize workflows and model financial impact?
- How do you ensure the right governance team is in place to ensure the quality of data coming in as it relates to your workflows? (“clean data lake”)

Implementing & Data Integrations Your AI Workforce (Building, Testing)

Long-Term Considerations:

- How long will it take to build a new workflow?
- How many workflows/yr can you implement?
- Are you equipped to serve the needs of multiple functions?
- Do you have the technical talent and resources to build with AI tools?

Maintaining Continuity of AI Operations

Long-Term Considerations:

- How will you ensure 24/7 monitoring and support?
- What is the SLA for reliability and performance?
- How will you manage system changes?
- Are you able to predict and prevent outages?

Optimizing for Efficiency and Value

Long-Term Considerations:

- Do you have dedicated data scientists & analysts to optimize workflows and surface new opportunities?
- How will you share insights with business owners?
- How will you improve the efficiency and performance of your AI workforce over time?

Enterprise-Wide Capabilities to Identify and Activate New Work

Long-Term Considerations:

- How will you identify up/downstream processes impacted by your automations?
- Do you have enterprise-wide technology talent?
- Are you able to measure the impact of your processes across your enterprise?



Polling Question #5

In which area would you start your organization's AI and automation journey?

A. Prior Authorization

A. Eligibility

A. Claims

A. Supply Chain

A. Pharmacy

A. Other

Open Q&A