

Leveraging AI for Smarter Public Health Decision-Making

A powerful framework for balancing innovation with cultural responsiveness in public health.

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Presented by Prabhneet Girn, MPH, LSSGB

Founder & CEO, Arize Care Consulting



Strategy & Execution

Resource Development

Program Evaluation



Hi, I'm Prabhneet!



Public Health & Social Impact Consultant

Executive Contributor at [Brainz Magazine](#) (distributed to 65+ countries and +2M people)

Guest Lecturer at American University (Graduate Level)

Research Advisory Board Member - [Healthy Communities Coalition](#)

Lifelong Learner/Traveler — Visited 19 countries last year and got my eye exam done by a robot in Japan!

PAST CLIENTS

16+

COMMUNITY
HEALTH
CENTERS

10+

NONPROFITS AND
COMMUNITY-BASED
ORGANIZATIONS

8

SOCIAL
IMPACT
BUSINESSES

7

CLINICAL AND
ACADEMIC
INSTITUTIONS

5

GOVERNMENT
AGENCIES & PUBLIC
HEALTH DEPARTMENTS

3

SPECIALIZED HEALTH
AND ACCREDITATION
BODIES

Expertise



Bachelor of
Science (BS)

Loyola University
Chicago



Master of Public Health
(MPH)

Boston University School
of Public Health



Lean Six Sigma
Green Belt Certified

Boston University School
of Public Health

My AI Journey:

- **2022:** ChatGPT publicly released
- **2023:** Became an avid user of AI, advocated for AI use to improve tasks at work
- **2024-today:**
 - 1000+ hours invested in learning AI
 - Lead AI trainings and assessments for consultants and organizations



The AI Revolution in Public Health

In 2025, AI in public health has evolved from theoretical to practical with algorithms now routinely analyzing electronic health records to identify patterns and predict disease likelihood with remarkable accuracy (PMC, 2024).

Today's Learning Objectives:

Explore
AI-driven analytics for public health decision-making

Understand
AI's role in optimizing organizational performance

Identify
Strategies for culturally responsive AI implementation

Quick Poll: Rate your organization's AI readiness (1-5)

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- 1 - Initial: Limited AI awareness; no formal strategy or adoption
- 2 - Developing: Basic AI awareness; no early experimentation but no cohesive strategy
- 3 - Defined: Clear AI strategy; some implementations with measured results
- 4 - Managed: Integrated AI strategy with multiple successful implementations
- 5 - Optimized: AI fully embedded in operations; continuous innovation and improvement

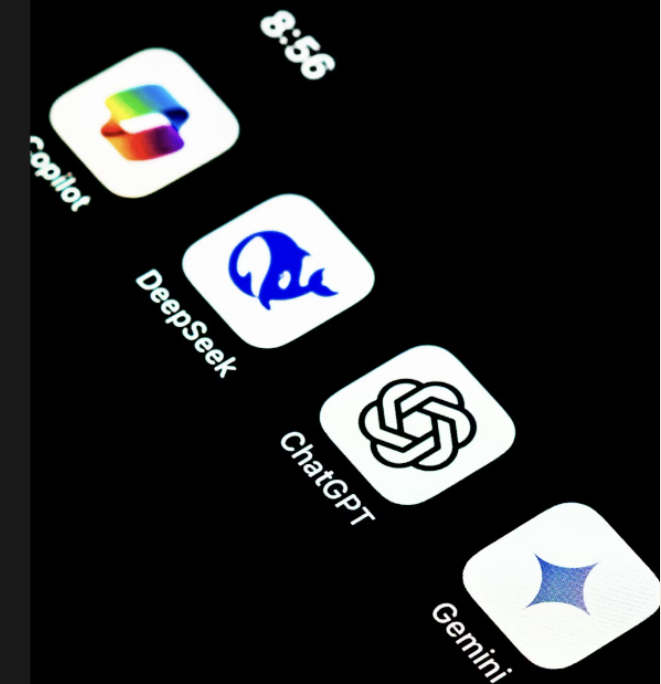
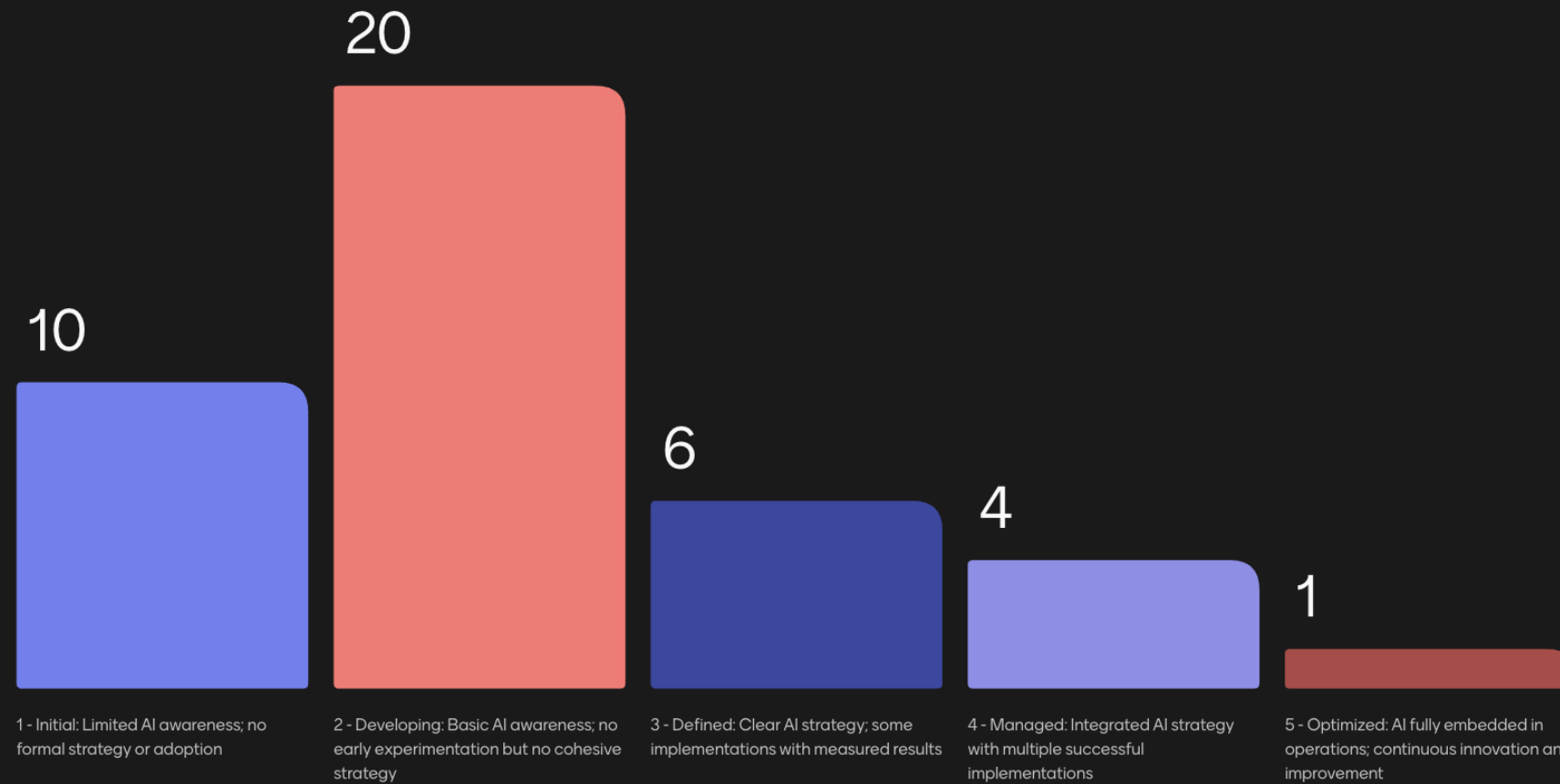


Poll Results

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Mentimeter

Rate your organization's AI readiness (1-5)



The AI-Cultural Responsiveness (AI-CR) Balance Framework

A strategic approach for implementing AI in public health that balances technological innovation with cultural sensitivity to maximize adoption and impact.

Cultural diversity in health communication demands careful examination of AI implementation strategies.

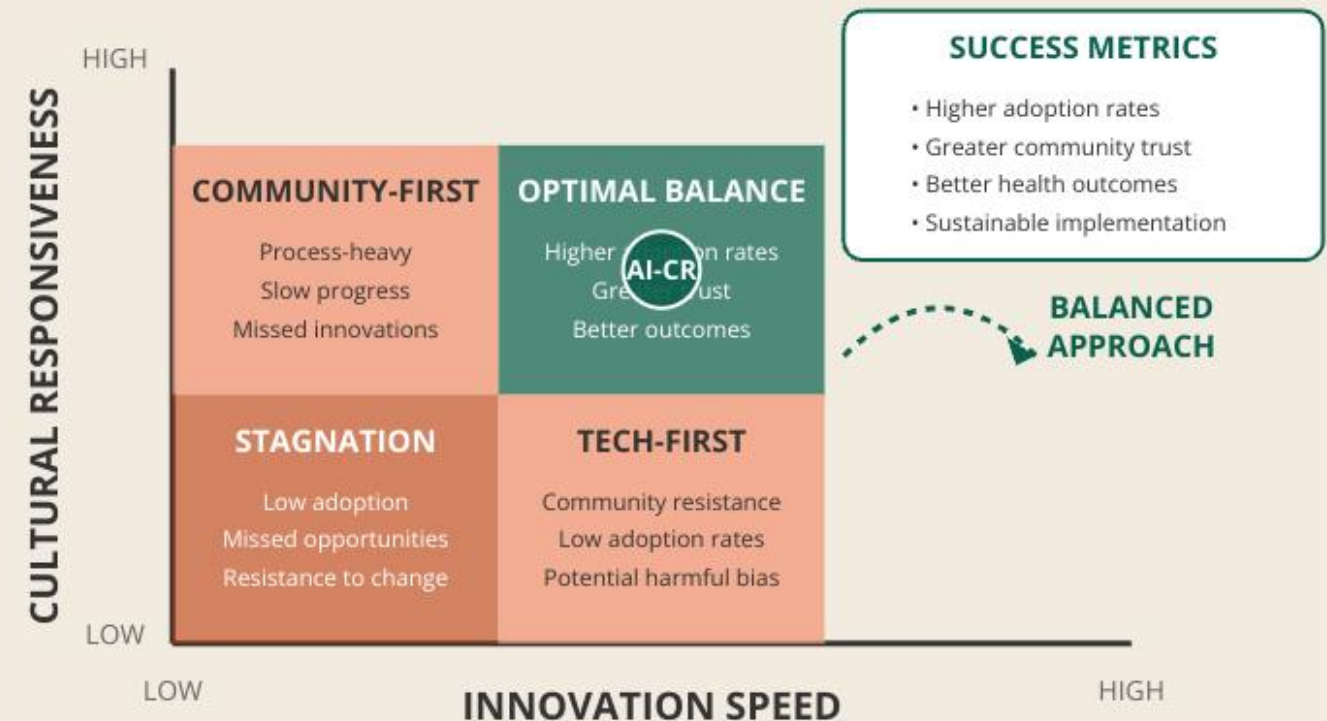
The Balance Challenge:

- Tech-first → Low community adoption
- Process-heavy → Missed innovation opportunities
- **Balanced approach** → Higher adoption, greater trust, better outcomes

Cultural responsiveness refers to the ability to understand, respect, and integrate the cultural values, beliefs, practices, and needs of the communities being served—especially in the design and implementation of policies, programs, and technologies like AI.

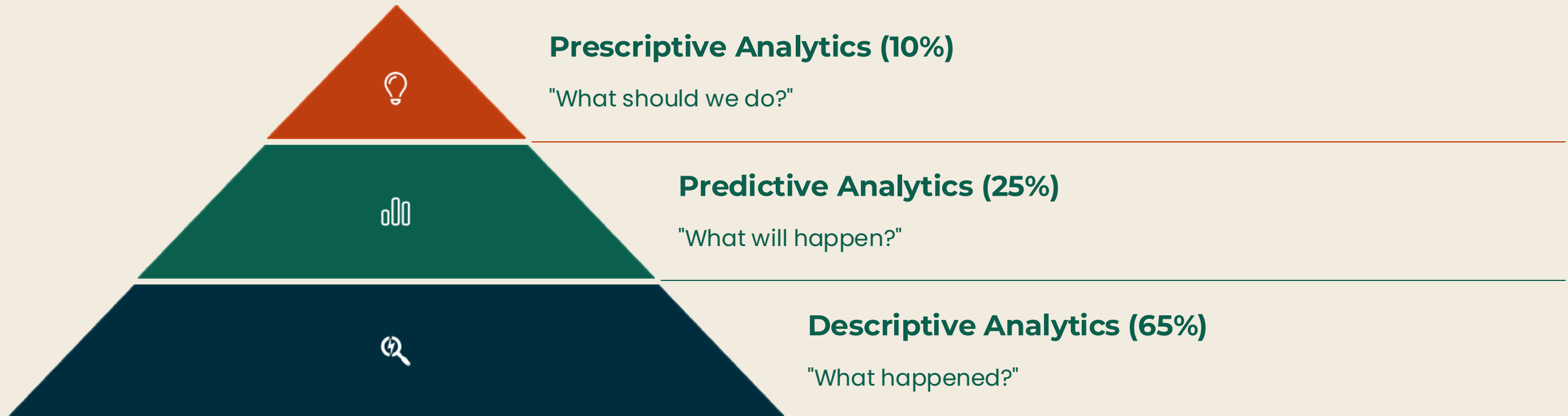
AI-CR Balance Framework

Balancing Innovation Speed with Cultural Responsiveness



Adapted for Arizona Public Health Association Annual Conference

Current State: The Public Health AI Spectrum



AI-driven predictive models combine statistical models and machine learning to forecast outcomes. They analyze past data alongside demographics and environmental factors.

✓ **TIP #1:** Start with a specific, high-impact use case where you already have good data.

Measured Outcomes of AI in Public Health

7-10 Days

Earlier Disease Detection

AI-powered surveillance systems identify potential disease outbreaks **7-10 days before traditional methods**, creating a critical time advantage for public health interventions and containment strategies (PMC, 2024).

22%

Enhanced Resource Allocation

Implementation of AI-driven prediction models for hospital resource management has demonstrated a **22% nationwide reduction in patient wait times**, significantly improving healthcare delivery efficiency (NC Medical Journal, 2024).

25%

Improved Public Engagement

Public health campaigns utilizing AI-tailored messaging achieve **25% higher engagement rates** than conventional approaches, particularly when optimized for specific cultural contexts and linguistic preferences across diverse communities (Scientific Research Publishing, 2024).

Addressing Social Determinants of Health

Resource Access Mapping

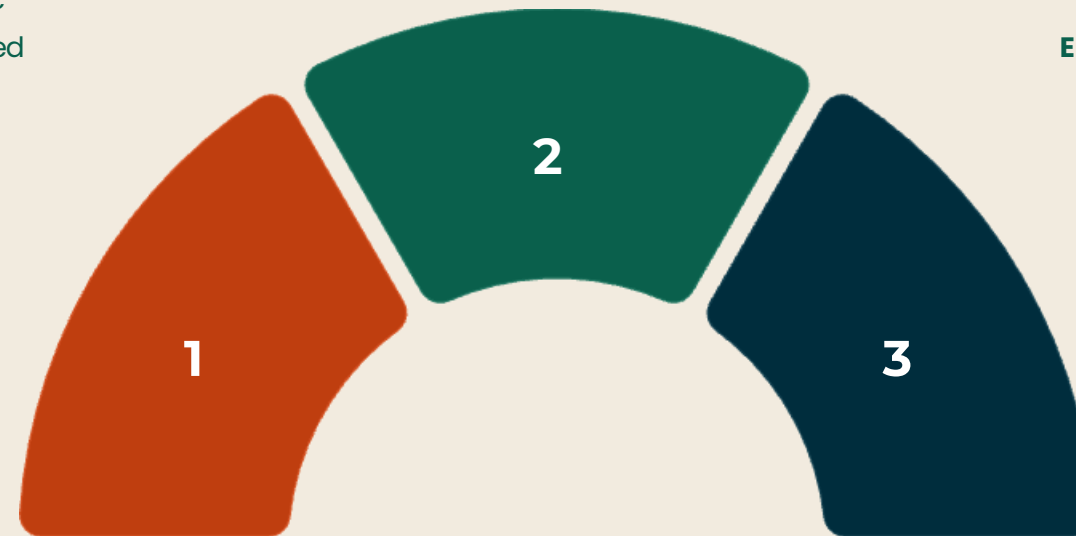
AI geospatial machine learning identifies geographic disparities in healthcare access. It highlights underserved communities requiring targeted interventions.

Social Vulnerability Patterns

Machine learning algorithms and multivariate predictive models detect vulnerability clusters. They enable proactive support for at-risk populations.

Environmental Health Connections

AI systems such as Satellite Imagery Analysis and EHR + Environmental Data Integration link environmental factors to health outcomes.



Why it matters: Social determinants present challenges for AI applications. Existing disparities may be reinforced by AI systems trained on biased data.

🔍 **Quick Poll:** In your community, which SDOH factor do you think AI could help improve the most?

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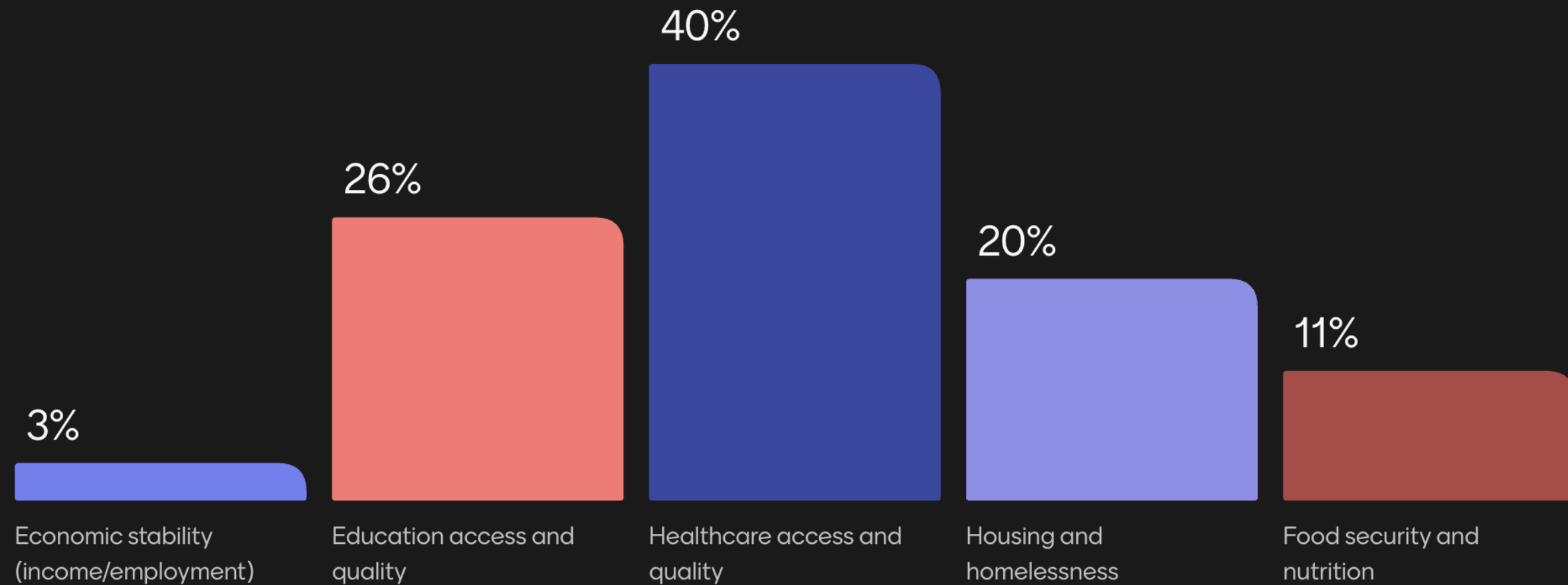


Poll Results

Join at menti.com | use code 7172 2508

Mentimeter

In your community, which SDOH factor do you think AI could help improve the most?



Organizational Optimization with AI

Intelligent systems now assist healthcare organizations in resource allocation.

How: By analyzing patterns in utilization, AI can predict resource needs with greater accuracy, allowing public health departments to distribute limited resources more effectively

The Benefits: National averages show 22% reduction in wait times, 35% improved resource utilization, and 40% faster threat response (NC Medical Journal, 2024; VKTR, 2024).

✔ **TIP #2:** Document your current resource allocation process in detail before automating it – AI amplifies both good and bad existing processes.



English
Spanish
URDU
Polish
Ukrainian
Chinese
Arabic

Know your rights and choices

Illinois Medicaid covers women's health services, from birth control to prenatal care, abortion, counseling, family planning and more.



Transforming Public Health Communication

AI has revolutionized public health communication through advanced analytics and natural language processing.

3 Key Capabilities of AI-Enhanced Communication Strategies:



Real-time Translation

Access to over 100 languages increases message reach. No community is left behind due to language barriers.



Cultural Adaptation

Messages respect cultural contexts and values. This goes beyond simple word replacement to true cultural relevance.



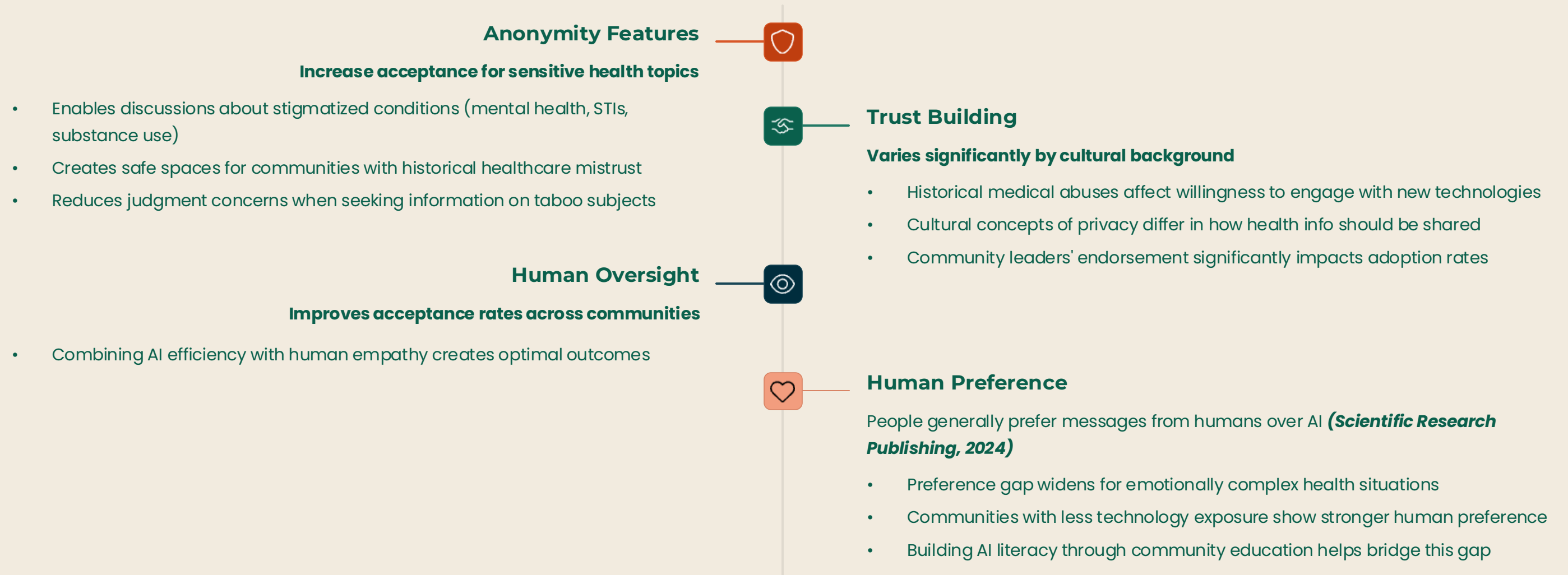
Automated Customization

Content tailored to specific demographic segments.



Cultural Responsiveness Challenges

Implementing AI in public health requires careful consideration of cultural factors that impact effectiveness and acceptance across diverse communities.



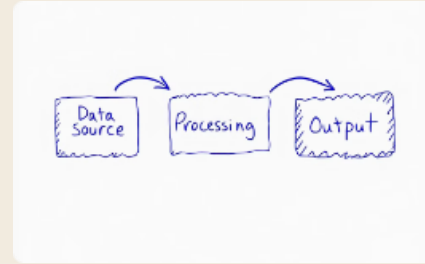
✓ **TIP #3:** Map your AI implementation to specific community values. Make these connections explicit.

Additional Considerations for Ethical AI Use



Bias Mitigation Safeguards

Implement protocols to identify and address potential biases within AI systems before deployment and during ongoing operations.



Data Transparency

Maintain clear communication about how data is collected, processed, stored, and utilized throughout AI applications.



Minimize Data Collection

Gather only essential information required for effective functionality, reducing privacy risks and security vulnerabilities.



Human-in-the-Loop

Integrate feedback loops and accountability mechanisms that keep humans involved in critical decision-making processes.



Environmental Impact

Consider and mitigate the substantial energy consumption and carbon footprint associated with AI model training and operation.



Accuracy & Reliability

Ensure AI systems consistently produce correct, dependable results that stakeholders can trust for decision-making.



Accessibility

Design AI tools that can be effectively used by people with diverse abilities, ensuring equitable access to benefits.



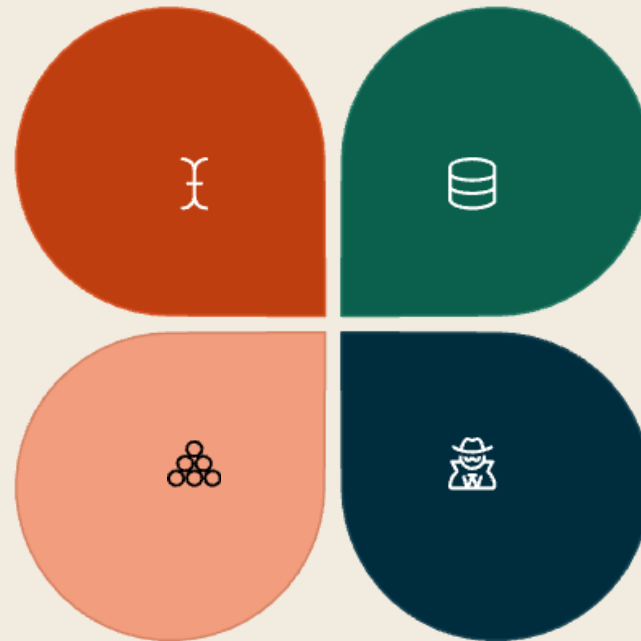
Ethical Labor Chains

Develop AI systems using fair labor practices throughout the entire development and implementation process.

Mitigating Bias in AI Systems

Modify Models & Data

Adjust existing algorithms and datasets to reduce bias



Diverse Data Sources

Use EHRs from varied demographic populations

Ethical Principles

Establish clear guidelines for equitable decision-making

Human-in-the-Loop

Integrate expert oversight at critical decision points

Why it matters: AI models can enhance population health but risk amplifying existing biases (PubMed, 2024).

✓ **TIP #4:** Conduct 'bias pre-mortems' to imagine how your AI system could potentially harm the community you are intending to serve, then work backward to prevent it. I suggest using the Failure Mode and Effects Analysis (FMEA).

Human-in-the-Loop Approach

Purpose: balance automation with human oversight. Integrates human judgment and expertise at critical points in the AI decision-making process to identify and correct potential biases before they impact public health outcomes (PubMed, 2024).

AI Initial Assessment

System provides preliminary analysis based on available data

Human Expert Review

Clinicians and care teams evaluate AI recommendations using professional judgment

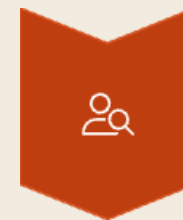
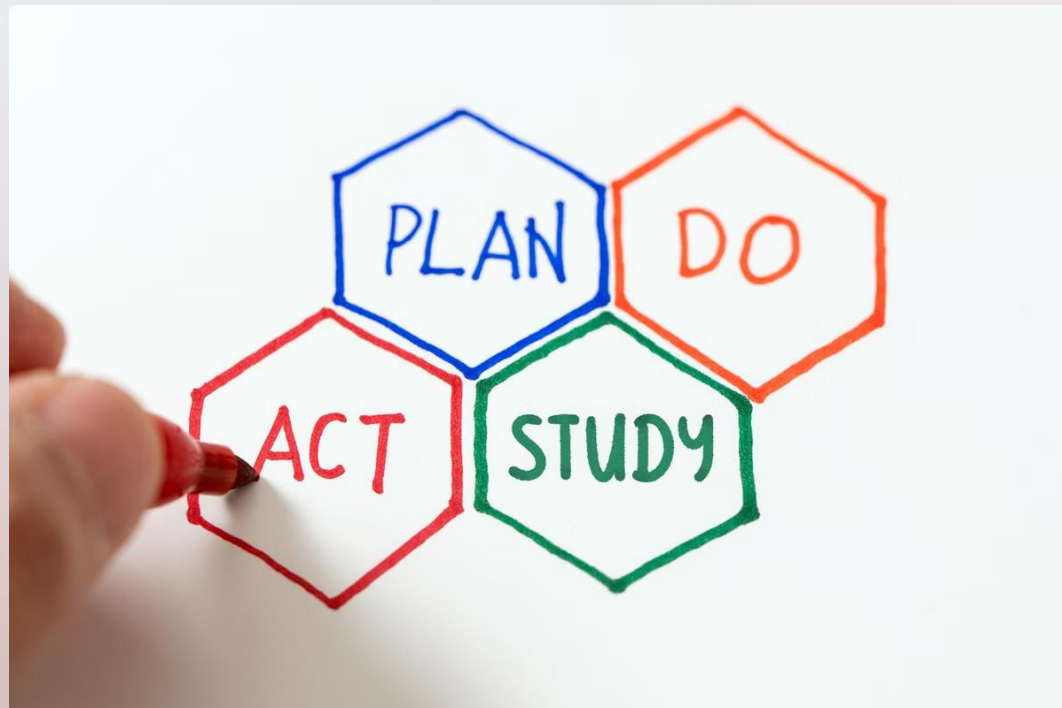
Collaborative Decision

Final determination made with both AI insights and human expertise

Continuous Learning

System improves from human feedback, creating virtuous cycle

AI Implementation Roadmap



Assessment

Data audit and needs evaluation



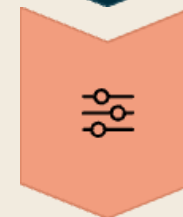
Pilot

Controlled testing with clear metrics



Scale-up

Expanding to additional departments



Optimization

Continuous improvement cycle

Technical challenges include lack of data standardization across healthcare systems. Privacy concerns create hesitancy to share comprehensive datasets needed for robust AI (NC Medical Journal, 2024).



TIP #5: Create an 'AI Ethics Committee' with diverse representation from all stakeholder groups.

90-Day AI Implementation Plan



Days 1-30: Data

Assessment and standardization of existing information



Days 31-60: Design

System planning with community input



Days 61-90: Test

Pilot implementation with clear success metrics

Evidence-Based Best Practices and Success Factors for AI use in Public Health:

- Start with data quality improvement initiatives (NC Medical Journal, 2024)
- Adopt human-in-the-loop approaches for initial applications (PubMed, 2024)
- Establish governance frameworks for ethical AI use (WHO, 2023)
- Invest in workforce training and community engagement (WHO, 2023)

Key Takeaways - The AI-CR Balance

Start Small, Learn Fast

Begin with focused use cases with clear metrics

Balance is Critical

Technical innovation must be paired with cultural responsiveness

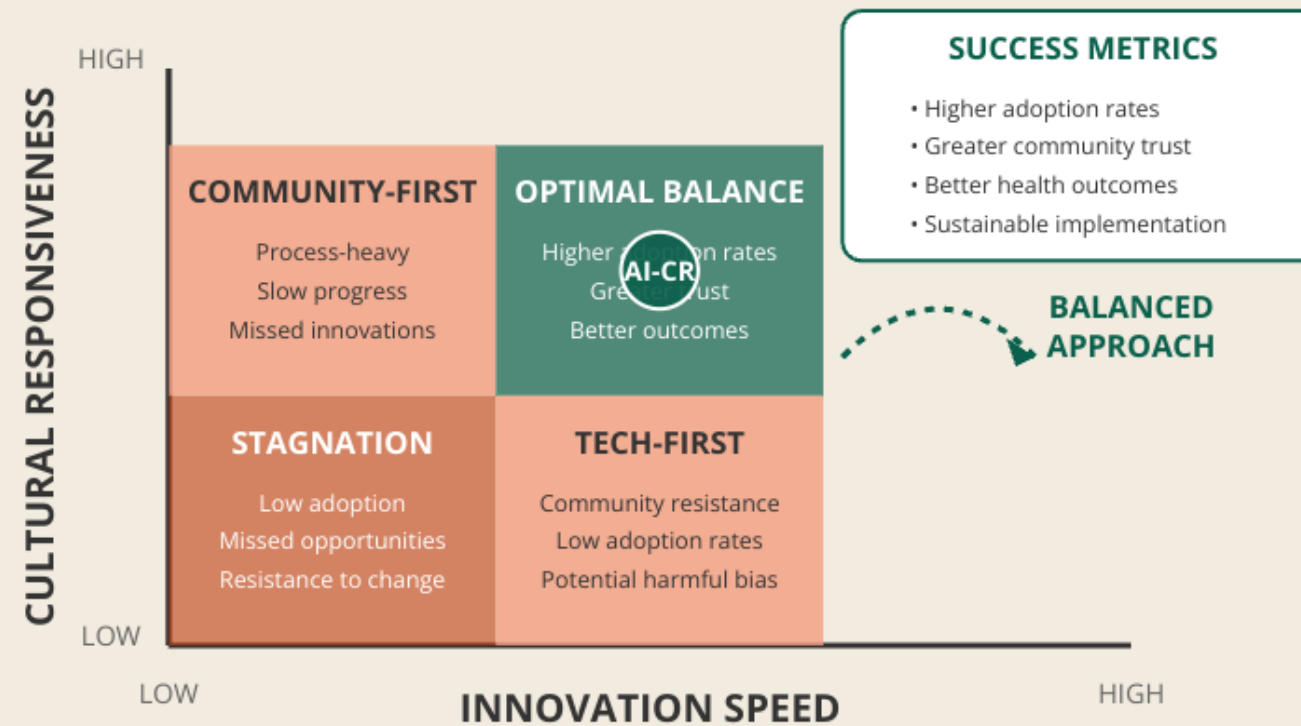
Community Voice Matters

Involve diverse stakeholders throughout the process

The path forward requires collaboration across multiple domains: technical innovations, policy frameworks, community engagement, and workforce development.

AI-CR Balance Framework

Balancing Innovation Speed with Cultural Responsiveness



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✔ **TIP #6:** Identify one AI application to implement in the next 90 days – and one cultural responsiveness measure to pair with it.

Resources for Your AI Journey

AI Tools

- Subscribe: [Rundown AI](#)
- Download: [AI Data Analysis \(without uploading data using ChatGPT\)](#)
- Join: [Health AI Community of Practice](#) (global forum for orgs – B2B)

More Tips

- Treat AI like a thought partner and personal assistant.
- AI is only as good as the user, and it relies on your expertise & discernment.
- Keep trying new things!

How to Reach Me:

- Email: pgirn@arizecare.org
- [LinkedIn](#)
- [Website](#)
- [Book a Free Consultation for Personalized AI Guidance](#)

Q&A and Closing

Takeaway: The future of AI in public health depends on our collective commitment to ensuring these powerful tools serve all communities equitably and respectfully.

Q&A

Time for questions

Feedback

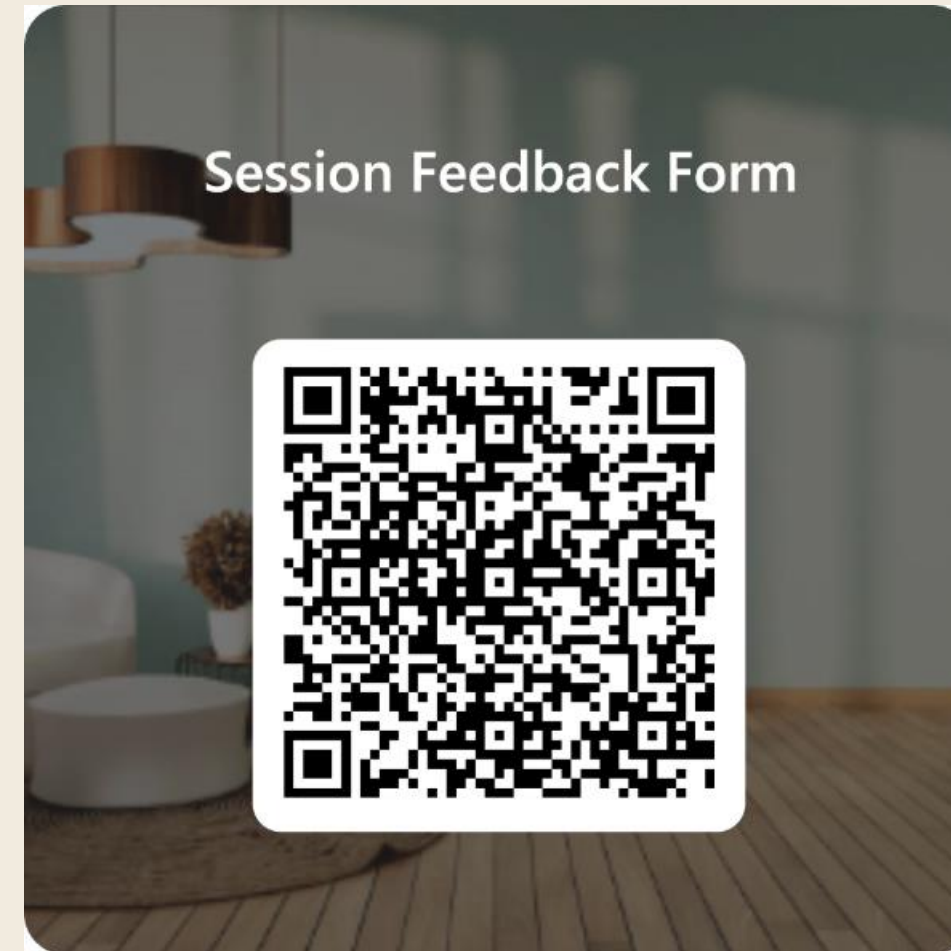
Complete a short survey



Let's work

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Execution

Resource
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Program
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