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AI for Pharmaceutical QA in Kenya

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Unlocking Africa's Health Potential

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Background

- Kenya, home to over 35 licensed pharmaceutical manufacturers, experiences **technical problems** in QA processes, including **in-process quality control**, **equipment maintenance**, and **visual inspections**.
- Only around **56%** of pharma manufacturers **comply** with the WHO's Good Manufacturing Practice (GMP) standards. (Vugigi et al., 2019)
- The **Kenya National AI Strategy (2025-2030)** makes it a national priority to build **AI Research and Development capabilities**. It aims to encourage innovation and position Kenya as a leader in AI.
- This commitment presents an **opportunity** for Kenyan pharmaceutical manufacturers to enhance QA processes using AI.

Objectives

- To assess the **current Pharma QA practices** in Kenya.
- To explore **Opportunities for AI incorporation** in Kenya's Pharma QA.
- To identify **Challenges** and **future directions** for AI integration into Kenya's Pharma QA.

Methods

Step 1: Define scope

Topic: AI in Pharma QA in Kenya

Timeline: July-August 2024

Step 2: Literature search

Google Scholar

Keywords: ‘AI’, ‘Quality Assurance’, ‘Pharma’, ‘Kenya’

Boolean operators: ‘AND’, ‘OR”

Step 3: Screening & Selection

Titles, Abstracts, & Full texts

Excluded irrelevant papers

Snowballing

42 articles were included

Step 4: Analysis

Narrative synthesis

Grouped by themes

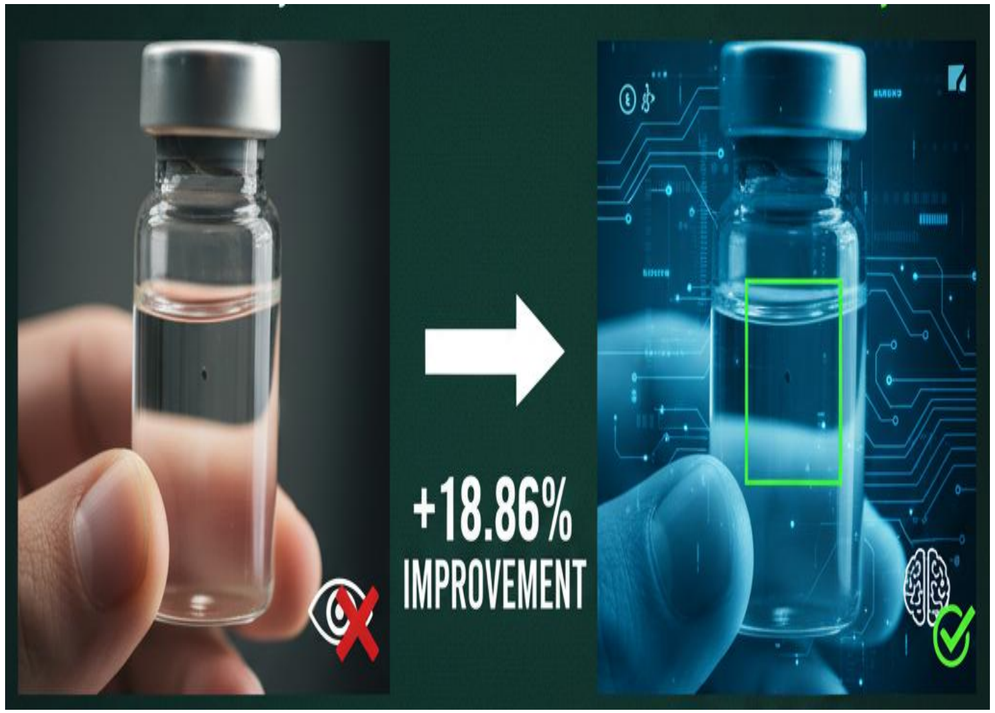
QA processes, Opportunities, Challenges

Current Pharma QA practices in Kenya

Quality assurance practice	Description	Challenges	Reference
Manual inspections	Visual and manual checks of materials and products	Time-consuming, prone to human error	[3, 9]
Documentation	Detailed record-keeping of processes and results.	Inefficient paper-based systems.	[4, 7]
Environmental monitoring	Regular checks of storage and production conditions.	Consistent oversight.	[2, 9]
Equipment maintenance	Reactive and preventive maintenance strategies	High downtime, costly repairs	[23]
Quality control testing	Laboratory testing of raw materials and finished products	Limited access to advanced equipment	[5, 24]
Regulatory compliance	Adherence to PPB and international standards	Complex and evolving regulations	[6, 25]

(Inshutiyimana et al., 2025)

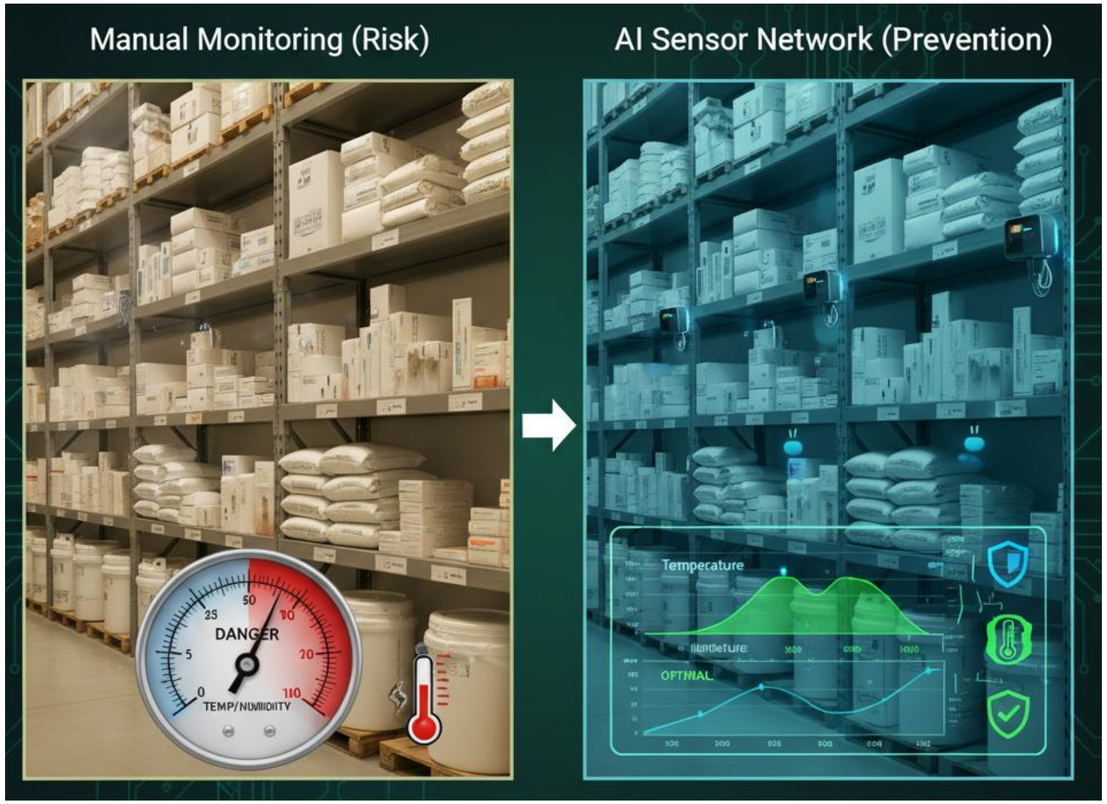
Opportunities for AI incorporation in QA of Kenya's Pharma Industry



Inspection accuracy

AI model: **98.86%**

Manual: 80%



AI sensors can help **detect changes** in warehousing conditions (temperature & humidity), **preventing deterioration** of raw materials and finished products.

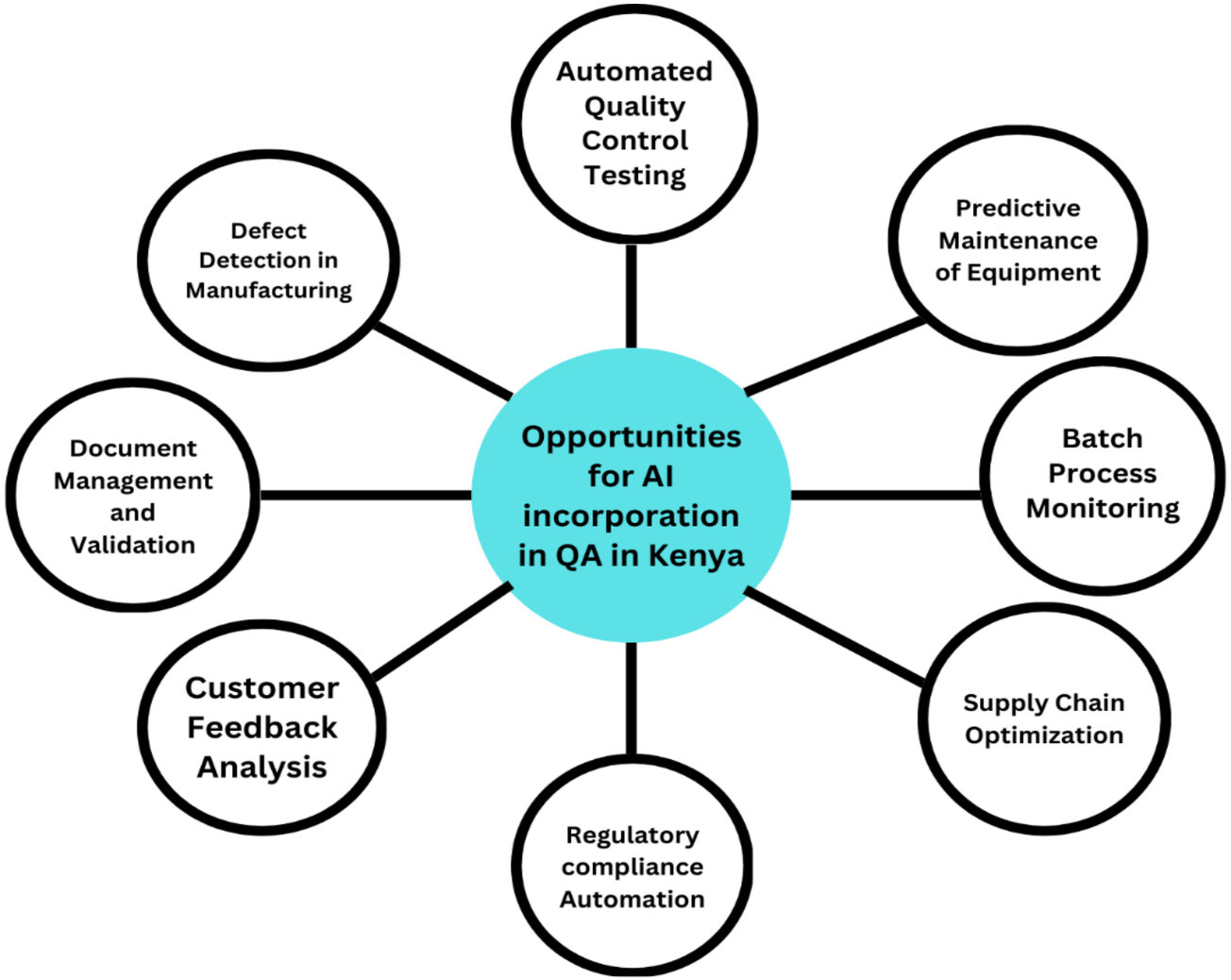
Opportunities for AI incorporation in QA of Kenya's Pharma Industry

- Predictive maintenance **reduced maintenance costs** by up to **40%** and **downtime** by **50%**.

Opportunities for AI incorporation in QA of Kenya's Pharma Industry

- Other technologies (**Virtual reality**) enable the delivery of efficient **personalized staff training** and have **reduced training time** by up to **30%**.

- **Significant challenges** to AI incorporation in Kenya's Pharma QA include a **lack of technical expertise**, **high implementation costs**, and **fear of losing jobs**.



Conclusion & Recommendation

- Kenya's pharma industry could substantially transform QA processes by leveraging AI.
- This promises to **increase GMP compliance** and **elevate patients' confidence** in locally manufactured pharmaceuticals.
- There is a need for **capacity building among manufacturers** and **targeted investment in Pharma AI solutions** in Kenya.
- To achieve this, collaboration among **Government institutions**, **Pharma manufacturers**, **AI companies**, and **Researchers** will be paramount.

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Artificial Intelligence for Pharmaceutical Quality Assurance in Kenya

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Any Questions?

Thank you!