



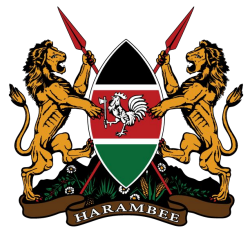
Using AI to Enhance Forecasting in Kenya & Tanzania



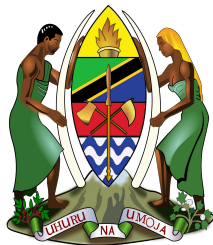
inSupplyHealth
CO-CREATING INNOVATIONS FOR HEALTH

Current Stakeholders

Government Agencies



Kenya



Tanzania

Implementing Partners



AFYA INTELLIGENCE

Funder



Patrick J
McGovern
FOUNDATION

Implementing Counties in Kenya



Isiolo County



Nakuru County



Trans Nzoia County

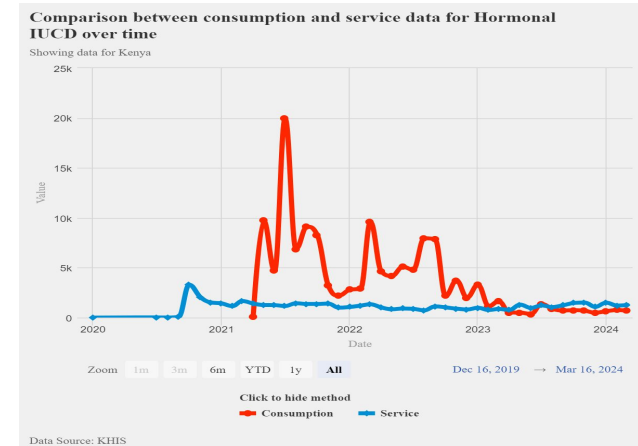
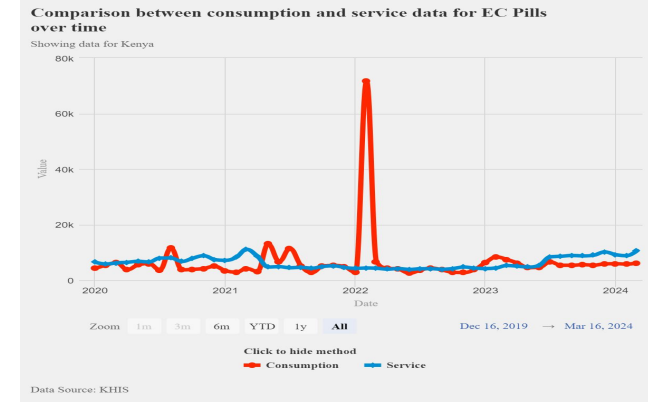


Kakamega County

Background

- Forecasting in global health is both an art and a science and has always relied on imperfect, incomplete data.
- Traditionally forecasts are done at national levels (in aggregate).
- Open source tools often only exist for vertical programs and do not automate all steps in the process.

Problem we set out to address: Data quality, processing and management pose the biggest barriers to forecasting principles of using multiple sources of data and methodologies since they are rely heavily on manual processes



Guiding Principles & Approach

Guiding Principles

- Using imperfect data is better than no data
- Data quality improves when data is used routinely
- Technology is adopted, scaled sustained when it solves a real problem defined by users in a way that works for them



Our Approach

- AI is a new concept; we unpacked it and spent time on process to build confidence
- Involved users and decision makers from the start, replicating their existing approach in a fully transparent process
- Our tools/outputs include human-in-the-loop touchpoints for users to review and approve data at all steps of the way

We started by addressing the biggest pain point by automating data extraction and cleaning and built trust and excitement from there....



Before:

Data for family planning commodity was manually collected from the Kenya Health Information System for all 47 counties, using only 12 months of data, visually checking for outliers and estimating needs using average monthly consumption.

After:

Our family planning tool streamlines this process:

- Reduces data processing time from **2.5 days to 15 minutes**
- Automatically extracts 3.5 years of data from >10,000 facilities, standardizes and cleans the data, including outlier detection and missing value completion.

Before:

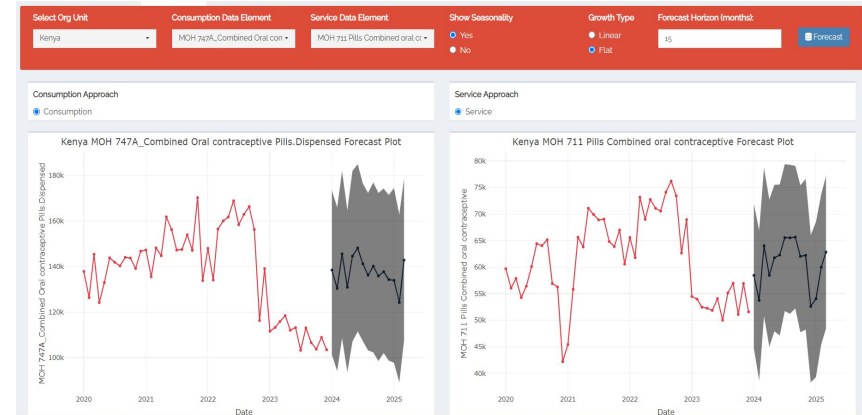
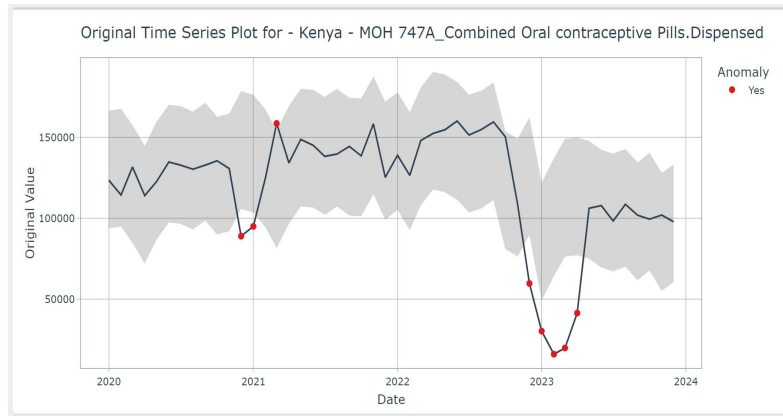
Facilities used to manually clean and validate product and cost data for 100-1000 items to forecast essential medicines. Many submitted forecasts without cleaning the data, leading to rejections.

After:

Our Bottom Up Quantification tool:

- Reduced the review and finalization time from **3 weeks to a single day**
- Automates data extraction and cleaning for 2 years of data, adjusting for gaps, unreported data, and outliers and includes visuals to facilitate easy review and approval by facilities

With a baseline of trust, we could then explore more robust forecast methods by training models/ML algorithms that could capture non-linear relationships and adapt to changing patterns in the data.

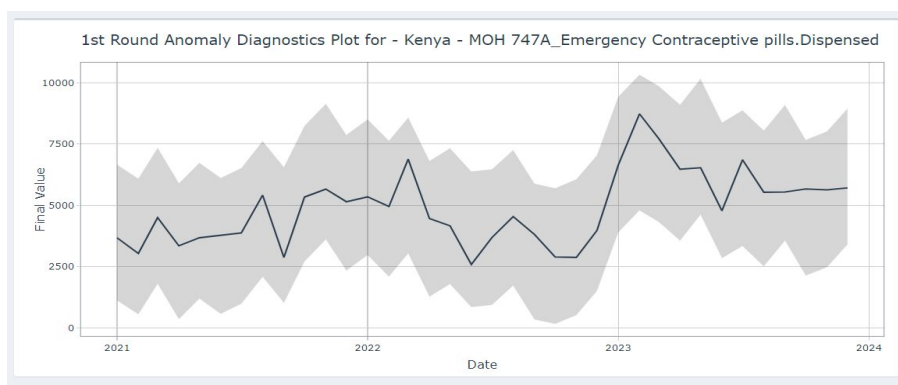
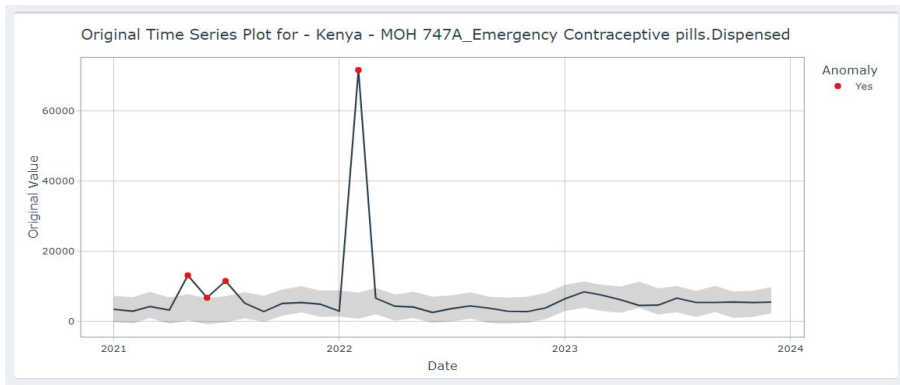


From Anomaly Detection



To Forecasting

User friendly visualizations at all stages of the process to facilitate users to interpret the changes, validate AI predictions and inform decisions were critical for stakeholder buy in



Time plot before handling outliers



Same time plot after handling outliers

Key Lessons

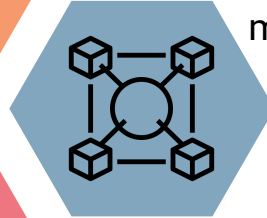
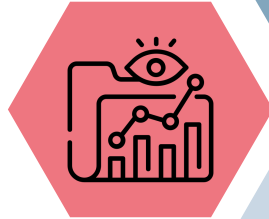
Early, Continuous Stakeholder Engagement is Critical:

Co-developing solutions with the Ministry of Health is essential for building trust, ownership, and sustainability.



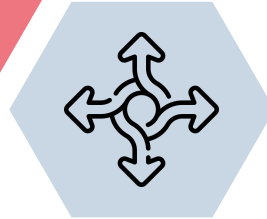
Tool User Interface and

Experience: Focusing on the user experience and interactivity of AI tools enhances the user journey and demystifies AI (technology).



Once Data is Seen as Valuable, Data Security Becomes a

Concern: Data imperfections are magnified when data is used manually.



AI adds value to imperfect data:

If the people and process aspect of AI adoption is done right, people's enthusiasm and excitement grows exponentially as they realize how much easier their work is and how much more effective they can be with their time.

Thank you!



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