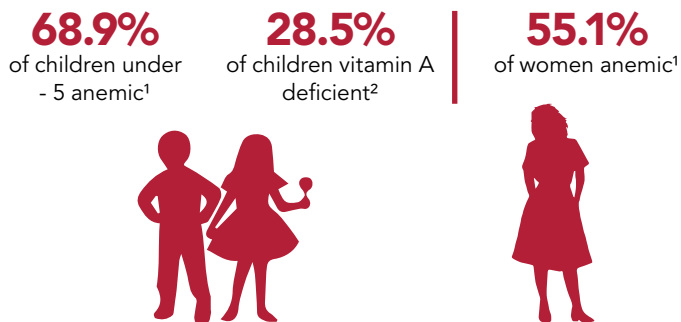


# Changing Nigeria's future - a digital solution to guarantee nutritional quality of staple foods

## PREMISE #1:

### A national nutrition catastrophe

Nigeria has grave issues with micronutrient deficiencies:



This is driving huge public health problems:

- Nigeria accounts for almost 20% of the world's maternal deaths<sup>3</sup>
- It has amongst the highest number of children suffering from micronutrient deficiencies that impair intelligence, physical health, and immunity<sup>4</sup>
- It is losing 17% of productivity<sup>5</sup> due to anemia and \$1.5bn a year of GDP annually due to micronutrient deficiencies<sup>6</sup>

## PREMISE #2:

### A solution through food fortification

The fortification of wheat flour, maize flour, vegetable oil, margarine, salt and sugar has been mandatory in Nigeria for over 10 years.

Global studies<sup>7</sup> show food fortification can reduce anemia by 34%, neural tube defects by 41%, and protect 3m children globally from vitamin A deficiency.

## PREMISE #3:

### Quality constrained by technical infrastructure

Monitoring the quality of fortified foods has traditionally been a manual, time-consuming process, which relies primarily on sporadic testing once products have reached the market. Testing products once packaged can be wasteful, and it's too late to correct this problem at the factory, as products are already at the point of purchase for consumers. Without adequate fortification of foods to national standards, the intended public health impact will not be achieved.

## The Solution

Automating data collection during the production process is much more efficient than sporadic testing. Specialized technologies and devices can be used at the factory to quickly gauge whether products will meet national standards. This production process data can be verified using on-site testing devices, which produce results in less than 20 minutes.

A partnership of international specialists and experts is working with Nigerian food producers to develop a platform of sensors and software, enabling oversight of the production process and product quality at every point along the fortification value chain.

Food fortification requires a partnership between the public and private sectors to achieve a health impact. Likewise, the monitoring of fortification quality will benefit from a partnership with the information technology sector.

Organisations involved in this initiative include:

**GAIN**, coordinating the pilot in Nigeria as part of its global large scale food fortification programme in support of improved nutrition for all;

**Technoserve**, promoting business solutions that fight poverty;

**Hewlett Packard Enterprise**, a leader in data system development, technology solutions, and analytical software;

**Bioanalyt**, the world's leading innovator in one-the-spot food nutrient tests;

**DSM**, one of the world's largest manufacturers of the vitamin and mineral premix used in fortified foods;

**GH Labs**, building tools and technologies to address unmet needs in health; and

**Camelot**, specializing in data security and data system technologies.

Together with Nigerian food producers and government agencies, these partners are creating a digital system which will provide:

- i. Tracking of premix with 2 dimensional "QR code" labels that hold quality certificates, composition data, dates of production and more
- ii. In-line sensors to measure process flow and ensure correct dosing

- iii. Doser sensors to ensure the correct premix weights are added and dispensed
- iv. In-line product testing for nutrient levels
- v. Tracking of foods through transport and distribution
- vi. Market-level testing for nutrient levels
- vii. Software platforms and analytics to capture data and show where problems are arising, such as excessive storage leading to nutrient breakdown, or variable process flows.

This system will equip producers to:

- Manage inventory
- Use resources more efficiently
- Course correct
- Map distribution
- Prevent stock-outs
- Identify equipment and maintenance issues
- Provide data as proof of quality and impact,
- Enhance brand reputation and financial performance
- Benchmark against other producers.

The platform is designed to give producers complete privacy and control over their data, benchmarking against the performance of competitors where this is desirable. The partnership is supporting development of the system, but it does not control, own or have access to the data on the system.

The project aims to support a cohort of 30 fortified food producers in Nigeria.

If you wish to be considered for inclusion in the project, please contact

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