

**INTELLIGENT DATA MINING TO IMPROVE SUPPLY CHAIN MANAGEMENT IN
PROVISION OF TEACHING AND LEARNING MATERIALS (TLMs):
TRACK AND USE**

Maureen Ochako

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Introduction

- Education is a powerful agent of change, and improves health and livelihoods, contributes to social stability and drives long-term economic growth.
- “Six out of ten students around the world are not reaching proficiency in reading and mathematics.” UNESCO Institute of Statistics, 2017.
- USAID digital Strategy: Digital technology has the power to spur economic growth and improve development outcomes.

Track and Use

Track and Use is a system that not only tracks TLMs throughout the book supply chain BUT also tracks the usage of the TLMs by the end users.

T & U is founded on the principles of transparency, visibility, accountability and engagement with key stakeholders

Track and Use in Theory of Change

Problem

Low literacy levels

Causes

Inadequate supply of TLMs due to:

- Inadequate and unpredictable financing
- Inefficient book supply chain systems
- Lack of real-time & accurate data for predicting demand and planning book provision

Solution

Tracing of TLMs to improve book provision, accessibility and usage by engaging key stakeholders.

Outcome

- i) Increased TLMs accessibility to teachers and learners
- ii) Feedback on TLMs usage
- iii) Improved reading outcomes / higher literacy levels
- iii) Social Stability and Economic growth

Track and Use Approach

- **Scoping Mission**

Country's Digital Ecosystem

Telecommunication Infrastructures (mobile network coverage and internet connection), MOE and key stakeholders, local partners' indicators and data needs)

- **Alpha Test**

Test Track and Use solution tested on a small sample of 20 – 50 schools.

Test software solution for [Scalability, Reliability and User-ability](#).

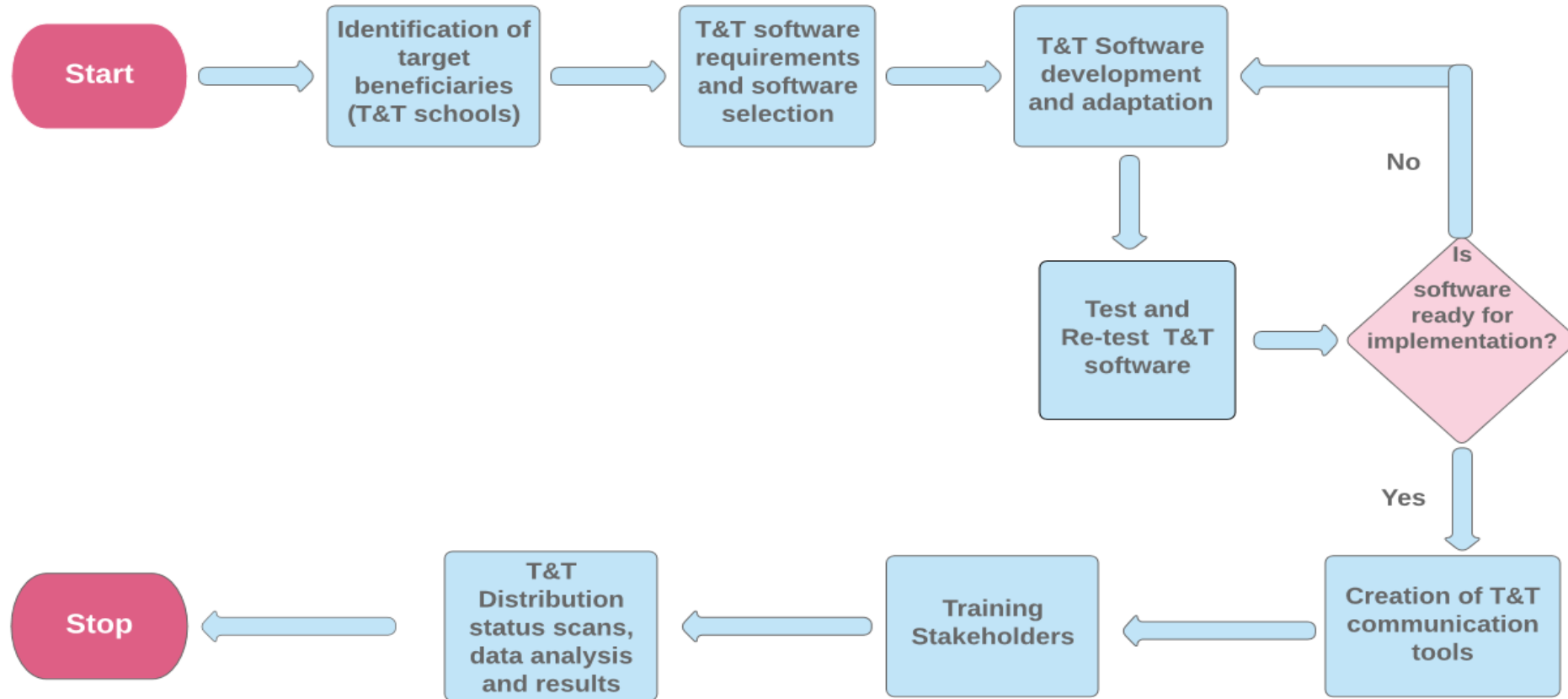
- **Beta Test**

Adaptation of alpha test findings and further tests of the software solutions in 200 – 500 schools.

- **National Upscale**

Gradually and in collaboration with MOE and key partners

Track and Use Activity Flowchart

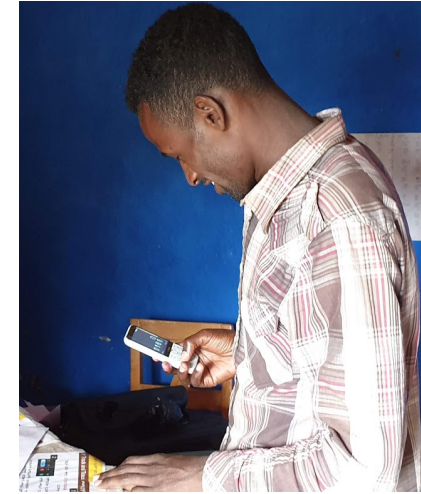
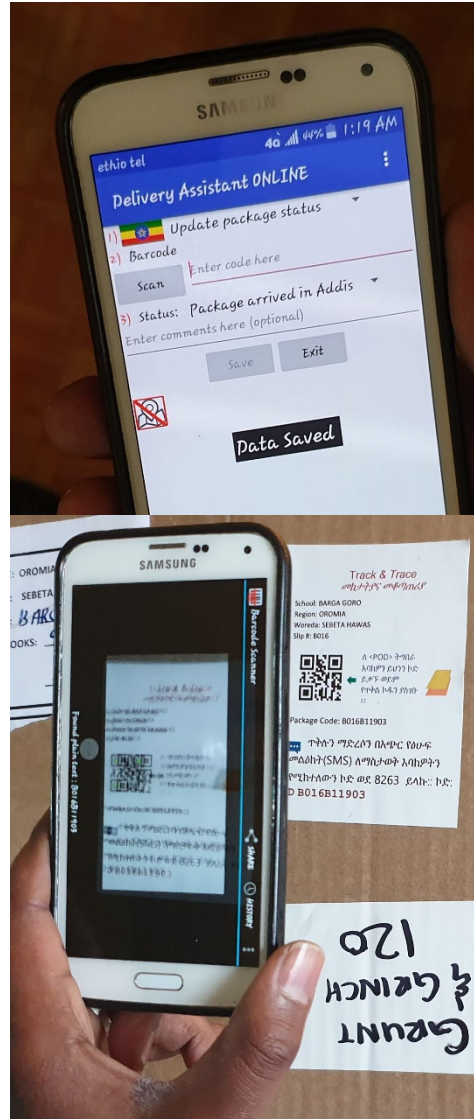


Software Solutions

SMS

Mobile App

Interactive Voice Response



Track and Use Data in Book Supply Chain

Planning

- **Data for predicting TLMs demand of (Student population data)**
- **Trend analysis for forecasting demands –for future procurements / funding proposals**

Execution

- **Real time alerts and accurate data**
- **Database on geolocation of the schools**
- **Measurement of project impact (M&E indicators e.g no of books delivered)**

Control

- **Feedback on quality and quantity of TLMs**
- **Data on book usage**
- **Data on student performance**
- **Community engagement to create awareness and ownership**

Data protection

All the software solutions have a dashboard on the back end where all the collated data is stored. bTG is governed by the General Data Protection Principles (GDPR)

1. Lawfulness, fairness and transparency
2. Purpose limitation
3. Data minimization
4. Accuracy and up-to date
5. Storage limitation
6. Data security and integrity
7. Accountability and governance

Intelligent Data Mining - Collaboration



The data collected can be integrated into shared management information systems, allowing accessibility of data to various government departments and relevant stakeholders.

Intelligent Data Mining

- Cross Ministry [data sharing](#) such as
Education Programs, National School Feeding Program, School Water Provision Programs need student data, number and exact geolocation of schools.
Migration and Displacement Patterns and Human Resource Planning
- Enhances transparency and accountability which eventually leads to [improved government and development projects performance](#)
- Fosters entrepreneurial opportunities and growth e.g. estimating the market demand for a niche

Role of Government on Open Data

Sitting at the nexus of key stakeholders, any government is ideally positioned to extract value from open data and to help others do the same.

- Enablers of digital ecosystem (infrastructure, regulations, sensitization)
- Promotion of Public Private Partnerships
- Protective measures (cybersecurity)
- Prevent data monopolies

Examples of open data sites - data.gov (US), opendata.go.ke (Kenya), datosperu.org (Peru).

Ms. Maureen Ochako
Regional Manager / Technical Lead
blueTree Group
Tel: +254724794795
maureen.ochako@bluetree-group.com