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Getting the Right Books to All Children at the Right Time: Read@Home's Track and Trace App

Most classrooms in low income countries lack sufficient instructional resources, despite substantial investment in textbooks and other teaching and learning materials (TLM) over decades. One major cause of this continuing scarcity is that complex, costly, and opaque supply chains cause books to go missing or be delayed. Past attempts at developing distribution management solutions have been overly complex, too project-specific, and/or too expensive, making broad-scale adoption impossible.

Read@Home's Track and Trace (R@HTnT) app is a revolutionary low-cost platform designed to bring transparency and efficiency to the TLM supply chain. Whether it's a school textbook, teacher guide, book for reading practice, or tablet, ensuring TLMs get from the production point and into students' hands is crucial. The open-source app, funded by the World Bank's Read@Home initiative, can ensure that every stakeholder has real-time visibility into the journey of their TLMs and allow them to solve problems and correct issues that arise along the way.

Key Features:

1. Real-time Tracking: Monitor the movement of TLMs in real time, from the supplier to the end user.
2. Use of QR Codes: Each box of books or other TLMs is assigned a unique QR code, making scanning and tracking straightforward and error-free.
3. Effortless Scanning: Download the user-friendly application, input your phone number, and start scanning.
4. Offline Mode: In areas with limited connectivity, the app records data offline and syncs when online.
5. Dashboard Analytics: Accessible via web browsers, customized dashboards provide users with an overview of shipments, any delays, and delivery confirmations.
6. Multi-language Support: Currently has support for English and French; additional languages can be integrated.
7. Customizable: Adaptable to country-specific supply chain needs.

Benefits for Stakeholders:

1. Client governments: Allows governments to track TLMs and solve any distribution problems immediately; improves efficiency and transparency.
2. World Bank project teams: Allows teams to track TLMs and support clients in solving any distribution issues.
3. Schools: Provides updated delivery schedules and promptly relays feedback on distribution challenges for swift resolution; helps ensure TLMs reach their intended learners on time, every time.
4. Communities: Stay informed about anticipated TLM deliveries and can promptly address any delays.
5. Publishers: Ensure that printed books reach their intended distributors, retailers, or schools.
6. Distributors: Gain visibility into shipment status and optimize storage and delivery processes.

Implementation & Support:

1. Easy Setup: The platform seamlessly uploads distribution lists and other information from existing systems such as EMIS and warehouse management systems, facilitating implementation.
2. Cost-Effective: As an open-source platform, the app bypasses licensing and maintenance costs, allowing operations at under $100 per month.
3. Rapid Deployment: The system can be set up in under a month.

For additional details or inquiries, please reach out to the Read@Home team at the World Bank: Read_at_Home@worldbankgroup.org.

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Overview of the TnT System Technologies

The TnT system is meticulously designed to achieve modularity and synergy, emphasizing cost-effectiveness and ease of maintenance.

Main Components of the TnT Ecosystem:

1. Database:

Utilizes MongoDB, a NoSQL database tailored for flexibility.
Stores boxes and scans in collections using binary JSON format.
Data is accessible via the API or web application.

2. API/Server:

Operates on a secured Express.js server.
Facilitates the management of scans and boxes within the MongoDB database.
Incorporates API key authentication for enhanced security, with the exception of scan insertion.

3. Web Application:

Built with the React.js framework, complementing the MERN stack

architecture. Enables users to:

Insert new database entries (boxes).
Generate QR codes automatically.
Visualize the stored data in an intuitive interface.
Produce labels for printing and scanning.
Employs a user-authenticated system; users access only their data using unique credentials.

4. Mobile Application:

Crafted for both iOS and Android using React Native, ensuring a unified codebase for simpler maintenance.
Mainly functions to scan the QR codes produced by the web app.
Captures metadata like box ID, location (coordinates), timestamp, and optional comments.
Uses a phone number for user identification and prepares for subsequent scans.