



# 1. OAP Concept Note

## OpenBoxes Shelf Readiness Project

**Making OpenBoxes Shelf Ready through Push Button Deployment and Onboarding Wizardry**

### Overview

OpenBoxes is a purpose-built open source logistics management information system designed to serve the supply-chain management demands of public health systems. A major gap identified in the shelf-readiness of OpenBoxes is user-friendly deployment and configuration of the software. Partners In Health (PIH) proposes to leverage its decade of experience with OpenBoxes implementation, development, and project management to lead the OpenBoxes Shelf Readiness Project. Our goal for this project is to create a user-friendly installation and setup package that is available online and makes implementation independently manageable by nontechnical users so that the software is more accessible to those who need it.

### Executive Summary

Since its initial design in 2010, Openboxes has been implemented by 5 organizations across 8 countries. While the OpenBoxes team receives regular inquiries from organizations interested in using the software, complex and poorly documented deployment and configuration procedures create a barrier to adoption for many. In order to achieve our goal to provide free, high-quality LMIS software to anyone who needs it, the next step toward making OpenBoxes shelf-ready must be a user-friendly installation and configuration package.

The OpenBoxes Shelf Readiness Project team, led by PIH in collaboration with OpenBoxes and SolDevelo, will create a simple, easy to use installation and setup package that will be available online to all users. Investments from Digital Square will be used to fund the project management, business analysis, development, testing, and implementation activities of the OpenBoxes Shelf Readiness Project team, including identifying gaps in the current onboarding process, researching new technologies, and defining and implementing solutions. PIH has extensive experience implementing and using OpenBoxes across multiple countries and settings and is uniquely suited to lead a project focused on increasing the ease of implementation of the software. Thus, PIH will identify users from its network and other implementing organizations and will analyze and document pain points as these users work through the current configuration process. Concurrently, the OpenBoxes lead developer and developers from SolDevelo will research technologies to enable push-button installation. From those pain points and suggestions, the project team will design a configuration package, develop the package using an agile framework with regular QA and UAT, and test the solution with users at PIH's care delivery sites. Throughout this process, the implementation team will engage with the OpenHIE community and documentation to ensure that any solution deployed will be compatible with a future integration into Instant OpenHIE.

### Consortium Team

#### Partners In Health (Prime)

Partners In Health (PIH), the prime organization for this project, is an international health organization relentlessly committed to improving the health of the poor through public sector partnerships in 11 countries. PIH's unique position of working at community, health center, hospital, and national levels has enabled us to see the practical needs of health management at each of these levels, and to develop and implement strategies that respond to all of these needs.

In 2010, informed by involvement with OpenMRS, PIH began funding the creation and support of OpenBoxes. PIH has since implemented the system at its care-delivery sites in Haiti, Malawi, Rwanda, Sierra Leone, and Liberia and has provided technical assistance for other implementing organizations in Madagascar and the Dominican Republic, with an implementation in progress in Dominica. PIH proposes to leverage this experience and lessons learned from implementations

in various settings to lead the OpenBoxes Shelf Readiness Project and manage its financial, administrative, and business analysis components.

### OpenBoxes (Supporting)

Partners In Health will partner with OpenBoxes to improve the installation and onboarding processes for new software implementations. Justin Miranda, the creator and lead developer of OpenBoxes, will oversee development and tool selection, ensuring that all improvements integrate seamlessly with existing functionality. Justin will function as lead developer and scrum master for the project, supervising other developers from SolDevelo.

### SolDevelo (Supporting)

SolDevelo is an IT outsourcing and consulting firm that has worked on several open source HMIS solutions. SolDevelo worked with PIH and Justin Miranda to develop a new version of OpenBoxes that was finished in 2018, and has been a key contributor to OpenBoxes ever since. SolDevelo will provide both developer support and quality assurance testing for the project.

## Project Description

### Background and Problem Statement

OpenBoxes has transformed the supply chain activities of implementing organizations by providing user-friendly workflows, data visibility, and tools for data-informed decisions. The OpenBoxes team fields frequent inquiries from interested groups and is supporting several organizations considering implementations. Using the Global Goods Maturity Model, OpenBoxes scores a medium for software productization. While the software can be, and has been, implemented without the support of the core development team, it is not practical for most users. Installation and configuration are manual, time-consuming processes that require technical expertise. Installation instructions only exist for Ubuntu and configuration documentation is limited. To facilitate OpenBoxes' alignment with OpenHIE standards and its wider use as a shelf ready LMIS solution, the software's deployment and configuration process must be improved.

### Objectives

The objective for this project will be to allow a non-technical user to install and configure OpenBoxes in the most intuitive way possible. In order to achieve that goal, the project team will conduct the below activities, organized into three work packages.

#### **Work Package 1: Push Button Deployment**

Objective: Create a user-friendly installation experience for non-technical users.

Activities:

- Research platforms and technologies
- Implement an initial solution
- Test and iterate using the agile framework
- Test solution with users at multiple levels of technical skills and in multiple geographic locations
- Adjust according to feedback

#### **Work Package 2: Configuration Wizard**

Objective: Create a workflow that allows users to easily configure the software, including desired settings and data migration.

Activities:

- Interview and observe users as they configure the software
- Document discovered and known pain points for configuration and data migration
- Define user stories with acceptance criteria
- Prioritize backlog
- Complete features in sprint
- User acceptance testing
- Deploy to production servers

### **Work Package 3: Improved Documentation**

Objective: Create documentation to guide users through installation and onboarding processes.

Activities:

- Draft installation and onboarding documentation
- Collect user feedback and incorporate into documentation
- Publish documentation, continuing to iterate with user feedback and updates

#### Deliverables

- Push button deployment process using platform and infrastructure services from major cloud providers
- Onboarding wizard that addresses identified pain points
- Installation documentation
- Configuration manual, including instructions for the wizard and manual configuration

#### Schedule

- Months 1-2: Research and define requirements
- Months 3-6: Develop an MVP and draft documentation for user testing
- Months 7-9: User testing and feedback; Update documentation
- Months 10: Release installer and wizard; Publish documentation

#### Monitoring & Evaluation

The OpenBoxes team uses the Agile scrum methodology to iteratively develop new features from our community-facing roadmap. The development team has adopted a [branching model inspired by Gitflow](#) that uses a main branch to reflect production-ready code and a develop branch to reflect a stable pre-release version of the code. Once code is merged to the develop branch it is deployed to a test environment. User acceptance testing is performed for each new feature to ensure implementers are satisfied with the delivered product. After several sprints, we create a release branch deploy to a staging server. The release branch goes through an extensive QA process before the code is released to production servers.

Within the application we provide several mechanisms for user feedback including a Zendesk chat widget, UserVoice feedback and a custom bug reporting feature. We also use NewRelic and Sentry.io to monitor performance and exceptions that occur within the application.

#### Risk Mitigation

We recognize several risks in implementing this project, including the cost of ownership, the limited availability of data centers, and scope creep. The cost of ownership of a system running on the cloud is high. We can mitigate this risk by using cloud providers that have non-profit discounts, and also including an overview of the cost of ownership on the OpenBoxes website. There is also limited availability of data centers in countries where OpenBoxes might be used. To mitigate this risk, we can use providers that have data centers in Africa (i.e. AWS in South Africa) and research technologies that can be used more universally (i.e. Docker, Kubernetes). We will use the work that has already be done through Instant OpenHIE to inform our approach to these problems. There is also a risk that unforeseen challenges and roadblocks may affect the timeline or the scope of the project. We will mitigate this risk by investing in project management capacity in order to anticipate and respond to risks.

#### Source Code

<https://github.com/openboxes/openboxes>

#### Digital Health Atlas

The following projects have been registered in the Digital Health Atlas:

Malawi: <https://digitalhealthatlas.org/en/-/projects/1004/published>

Haiti: <https://digitalhealthatlas.org/en/-/projects/1001/published>