

OpenLMIS Advocacy and Community Engagement

Submitted by Tenly Snow (OpenLMIS) on January 16, 2018 - 9:40am

Last revised by Web Producer on June 21, 2018 - 3:09pm.

Proposal Status: Awarded--Fully Funded

Executive summary

This proposal is being submitted on behalf of the [OpenLMIS](#) community. OpenLMIS is an open source electronic logistics management information system (LMIS) that has been designated a Global Good by the Digital Square initiative and is supported by a community of health, technical, and financing partners working collaboratively to advance health logistics data management globally. The primary purpose of this proposal is to request support for advocacy activities for the Initiative. Expected outcomes are (i) an increase in the number of implementations of the software globally, (ii) greater engagement of end users and dialogue between different implementations of the system, (iii) an expanded number of Community members and implementers of OpenLMIS, and (iv) an increased number of resources and guidance for current and potential users of OpenLMIS. These activities will help communicate the value-add of OpenLMIS and advance the initiative's development according to the Global Goods Maturity Model.

Consortium team



This proposal is requesting support for advocacy activities not covered through previous or current funding sources. Funding from this proposal will allow us to conduct an additional set of community-specific activities on behalf of the OpenLMIS Community to raise awareness for the Initiative, expand the global footprint of OpenLMIS, sustain community processes that support the Initiative, and create or improve resources for users and implementers of OpenLMIS.

The OpenLMIS Community is a consortium of over 20 global health, implementation and technology partners working collaboratively toward a shared goal of supporting and extending the reach of OpenLMIS globally. These partners include USAID, the Bill & Melinda Gates Foundation, Chemonics, JSI, Ona, VillageReach, Gavi, and CHAI (amongst others). A full list of OpenLMIS Community partners can be found [here](#).

The Community is a unique body that is positioned to serve as a centralized point for implementers, funders, and end users alike to collaborate and share resources. This proposal will enable this consortium of partners to carry out community and awareness-building activities that will both sustain the current state of the Community and expand the global reach of the Initiative.

Project description

Background

As an open source initiative supported by a collaborative group of partners, OpenLMIS provides a unique offering to the global health community. OpenLMIS is not just software; it is a space where global stakeholders work to strengthen health supply chains in low-resource settings by collaborating and aligning priorities for global logistics and supply chain activities. The OpenLMIS Community comprises over 20 global health partners who collaborate openly to discuss product feature development, community governance, country implementation opportunities, and technical architecture of the software. The OpenLMIS software is currently used to manage logistics processes at more than 10,000 health facilities across eight geographies in Africa, providing ordering, reporting, and inventory management for a mix of health programs including for Vaccines (EPI) as well as HIV, Malaria, TB, Family Planning, and Essential Medicines. The OpenLMIS Community provides the essential function of coordinating needs, best practices, and defining the product roadmap across the diverse pool of country implementations and stakeholders.

Challenge

The goal of the OpenLMIS Community with this proposal is to reduce barriers to implementation of the software and increase understanding of OpenLMIS by community partners, end users, and potential adopters alike. The Community is singularly placed to support this goal, serving as a primary space for collaboration and direction to the overall initiative, but finds itself at a critical point in its development. While the OpenLMIS software was first conceived in 2007, the Community itself was formally organized in 2015 and has been steadily growing since then. OpenLMIS currently counts nine deployments in eight separate geographies, with growing interest in the software as more and more countries consider electronic LMIS as part of their eHealth strategy and architecture. Over the last year alone, signups for the OpenLMIS mailing list have doubled, three new organizations have joined the Community as contributing partners, and the initiative has received over 200 inquiries from country programs and global organizations.

This expanding number of partners and broad scope of deployments has created a growing challenge for the OpenLMIS Community to maintain direction, engage with end users, produce supportive documentation, and effectively advocate for the Initiative. Some of the challenges faced in the Community are:

- Countries interested in using OpenLMIS are aware of the software but struggle to know where to start in order to implement it;
- Several separate code bases exist for the software and current users feel disconnected from the Community and core code line;
- Current and prospective implementers of software lack awareness of the shared benefit of the microservices, modular-based architecture and open source nature of OpenLMIS;
- There is a paucity of materials and guidance to support prospective implementers. Implementing partners need guidance in order to engage with the Community and to feel prepared to run an OpenLMIS deployment.

To address these challenges, we are requesting resources to support activities to bring together community members in a meaningful way, visit countries and support the development of LMIS projects, and build out existing and new documentation for implementers.

Goals and Activities

Success within the OpenLMIS Community is defined as group of organizations and individuals passionate about improving the use of LMIS in global health systems who are able to collaborate within a single space to use the OpenLMIS software effectively, share experiences, and increase their return on investment through code reuse. Success within the Community is measured (amongst other indicators) by (i) the number of active partners and new partner requests; (ii) number of implementations; (iii) inquiries into the software; (iv) participation by Community

members in communication channels or events (Slack, mailing list, webinars); (v) availability of accurate and updated documentation and guidance material.

To achieve this desired state, the OpenLMIS Community will deliver on the following core competencies. All potential activities are listed here; however, the budget narrative explains in detail the low, medium, and high scope based on available funding.

Community Feedback

- **East and West Africa regional workshops** Regional OpenLMIS workshops: East and West-Africa based workshops to bring together Community members and current and prospective users. Content to include software demonstrations, facilitated roundtable discussion, and presentations by existing users of the software. Attendees to include members of the OpenLMIS Core Team, OpenLMIS Community Members, representatives of countries where OpenLMIS is currently deployed, and representatives from prospective countries (Ministries of Health, NGOs, partners) interested in implementing OpenLMIS. **Key outputs:** (i) Gather attendees' input on the OpenLMIS product roadmap and development in progress and assist with feature prioritization considerations; (ii) facilitate discussion on achieving an upgrade or migration to the latest version of the software, (iii) build understanding of the shared benefit of code reuse between implementations (iv) build awareness of, and interest in, the software on behalf of prospective implementers.

Demonstrate Capacity

- **Targeted Demonstrations** Outreach visits to meet with potential financing or implementing partners of OpenLMIS to solicit support and/or encourage uptake of OpenLMIS within their managed geographies (examples: Gavi, UNICEF, PSI). Targeted outreach visits to key countries where an electronic LMIS project is being planned to help facilitate and support the project. **Key outputs:** (i) Direct engagement with stakeholders within key support organizations to grow understanding and awareness of OpenLMIS; (ii) potential for increase recommendation or utilization of OpenLMIS; (iii) conversion of country interest in OpenLMIS into deployments.
- **West and East Africa OpenLMIS Roadshow** In-person visits on behalf of the OpenLMIS Community Manager and core team member(s) to individual targeted countries to demo OpenLMIS and build support for implementation of the software. **Key outputs:** (i) Increase comprehension of OpenLMIS capabilities in select geographies; (ii) assist countries in developing their eHealth strategy or electronic LMIS project; (iii) build rapport between countries and increase engagement within the Community; (iv) promote code reuse through engagement with the Community.

Collaborate and Support

- **Implementer Toolkit & Documentation** Continue work on the OpenLMIS Implementer Toolkit (an initial phase to be released at the end of March, 2018), soliciting additional resources from Community partners, strengthening existing documentation, and beginning work on new documentation. Coordinate with selected Global Goods and other organizations (iHIMIS, OpenSRP, Bahmni, DHIS2, and others) for initial development of a shared Implementer Toolkit & eHealth architecture as a latter phase of the OpenLMIS Implementer Toolkit project. **Key outputs:** (i) Increase number of contributors and resources available; (ii) improvements on existing documentation, (iii) initial work on additional documentation to guide potential users and implementers; (iv) coordination with other open source projects and initial work on a shared implementer toolkit.
- **Digital Square Advocacy Support** Provide support to, and engage with, the Digital Square communications and advocacy team to promote and amplify the OpenLMIS message through activities like blogs, webinars, and videos to better communicate

the value of both OpenLMIS as a Global Good and Digital Square as an initiative. Support efforts to secure additional funding for the initiative.

Key outputs: (i) Production and publishing of a variety of communications materials in conjunction with the Digital Square communications and advocacy team.

- **Standards and Working Groups** Continue to play a leading role in the OpenHIE Supply Chain Subcommittee, assisting with agenda development, partner coordination, leading conversation, and developing assistive materials.

Key outputs: (i) Working group meeting regularly with engaged partners; (ii) standards for supply chain interactions defined and agreed-upon by partners

- **Open Source Development** Continue to support and encourage open source development on OpenLMIS through programs like Google Summer of Code, Outreachy, and Social Coder.

Key outputs: (i) Increased number of volunteer developers committing code to OpenLMIS

- **Advocacy Materials:** To empower community members to advocate for, and on behalf of, the OpenLMIS community, the community needs continued investment in building materials and resources which explain how OpenLMIS works and key learnings. The following materials are top priorities:

- Thought and practice-leadership webinars and software development update webinars to inform global stakeholders of software offerings, best practices, and lessons learned from other LMIC settings;
- Additional demo videos to cover the full spectrum of functionality available in the OpenLMIS system;
- Support for a demonstration environment that can be used by Community members;
- Translation and/or creation of additional advocacy materials in priority languages.

Key outputs: (i) informational and advocacy materials easily accessible online in key languages (English, French, Portuguese); (ii) software demonstration environment available that supports the latest release and features

- **All Community Meeting** Hold a community meeting to bring together implementers, developers, country stakeholders and partners.

Key outputs: (i) Define the multi-year community roadmap for OpenLMIS; (ii) align expectations, build consensus, and improve collaboration.

- **Conferences** Attendance and presentation at major global health and digital health conferences to promote OpenLMIS and share key Initiative information. Examples of conferences include: DHIS2 Symposium, Global Health Supply Chain Summit (GHSCS), Global Digital Health Forum, TechNet-21, and Health and Humanitarian Logistics (HHL).

Key outputs: (i) Communicate new software development and Community achievements to the broader global health community; (ii) identify prospective implementing and Community partners; (iii) connect with other digital health partners and open source initiatives.

Use Cases, User Stories and Activities - Summarize key use cases and user stories that will be addressed by this intervention. More detailed information may be provided in an appendix.

The OpenLMIS Community does not plan to use funds from this proposal for additional software development, therefore this section on use cases and activities does not fully apply. Instead, we would like to use this section to outline two stories of users who would be supported by the activities outlined in this document, describing the need expressed in this proposal from a different viewpoint.

Implementer user story

Who am I? I am a Health and Information Systems Specialist employed by a major global health partner in a West African country. I am a

native French speaker, and I have over 20 years experience in the field of global health and logistics.

What is the current situation? Through work with the Ministry of Health and other in-country partners, the country has identified a desire to automate elements of their LMIS for health commodities. The Ministry has secured funding and is prepared to launch an electronic LMIS project; they have asked my organization to research available electronic systems and make a recommendation. They have expressed a preference for using open source software, and have suggested OpenLMIS, which they learned about during a presentation at a recent regional conference and also heard about from Ministry officials in a neighboring country.

What do I need to be successful? I would like to have easy access to relevant resources in French so I can understand the benefits of using OpenLMIS. I would like these materials to be easily accessible and shareable so I can present them to the Ministry and effectively make a case for the software. Once the Ministry has narrowed down their choices or selected the software, I would like a representative from OpenLMIS to come to my country and make a presentation to the Ministry, answering questions, meeting with other partners, and helping to facilitate next steps for a proposal and project. I want to benefit from the knowledge and success of others using OpenLMIS in other countries to help advance the LMIS practices in my country.

Contributor user story

Who am I? I am a Technology Lead/Software Development Manager working for a major global health organization which has been a participating member of the OpenLMIS Community for several years. I have many years experience developing and implementing HIS systems in LMICs, and I oversaw the implementation of a major deployment of OpenLMIS.

What is the current situation? As a Community Member, I am aware of the development of an Implementer Toolkit for OpenLMIS and I would like to contribute resources to the toolkit from my organization's experience implementing OpenLMIS.

What do I need to be successful? As a potential contributor, I would like an easy way to contribute resources to the Implementer Toolkit. I would like the toolkit to be an easily accessible resource online and I would like a clear process and support for contributing my materials. I want my contribution to align with and address the needs of others.

Digital Health Technologies - Provide an overview of key digital health tools, technologies and standards that the project will be utilizing or investing as well as the interactions between them. Detailed information (e.g. architecture or sequence diagrams) can be provided as supporting documents.

The majority of health supply chains have a wide variety of needs for data management that cannot be met by a single electronic system. OpenLMIS as a community and initiative is moving the needle on a variety of interoperability and standards discussions in order to advance system capabilities and features, but requires additional funding to continue to advance in line with the Maturity Model Core Indicator Software, sub-indicator Interoperability and Data Accessibility. The OpenLMIS philosophy and vision is to enable and encourage interoperability with other HIS tools utilized for health data management and to embrace global industry standards in order to create high-performing supply chains. Interoperability can provide a large number of benefits for health systems, unlocking potential to reduce the burden of data entry and management on health workers, providing responsive and comprehensive views of supply chain behaviors to decision-makers and facilitating integrated supply chains to increase efficiencies and accountability. Leveraging global standards pushes OpenLMIS toward the core of industry interoperable systems and puts the software at the forefront of critical conversations to advance the maturity of data management tools.

The purpose of this proposal is to fund advocacy activities to support the unique and forward-thinking approach that OpenLMIS takes to managing supply chains using standards and interoperability. Advocacy and additional deployments of the software advance the initiative's ability to adhere to industry best practices and provide leadership amongst global LMIS software solutions. The OpenLMIS commitment to standards-based design and development sets the software apart from other tools available in the HIS landscape, and support for advocacy activities will help drive further adoption and evolution of critical standards in global health.

Specific digital health technologies, tools, and standards that OpenLMIS supports and advocates for:

- **Architecture** The architecture of the OpenLMIS software is designed specifically with interoperability at its core - providing RESTful API endpoints for all system components in a microservices architecture, allowing other systems to connect with independent services for different functional areas.
- **Standards**
 - **Product Registry GS1** OpenLMIS provides functionality for medical commodity logistics: ordering, shipping, receiving, and managing stock. In the OpenLMIS version 3 series, the model for storing and managing this data has been redesigned to align with the Global Standards One (GS1) standards and the Global Health Logical Reference Model. OpenLMIS is currently working to support the identification of trade items which can be ordered, invoiced, fulfilled, shipped, and inventoried using Global Trade Item Numbers (GTINs) and classification systems for assisted ordering.
 - **Facility Registry mCSD w/ FHIR STU3, GLN** OpenLMIS is expanding its support for IHE's mCSD Facility Registry profile, which enables federated facility list management using HL7's widely popular FHIR STU3 standard. Leveraging public GLN registries and the GLN's ability to be embedded in supply chain barcodes with FHIR's support for adding GLN identifiers to the facility registry, OpenLMIS will be able to follow where medical products are, where they have been, and where they're going, aligned with point of care systems, internet-of-things monitoring systems, and aggregated reporting systems.
 - **Equipment Registry FHIR STU3 Device (inventory location)** OpenLMIS has leveraged IHE's FHIR Device Resource to align the Location (aka Facility) where cold chain equipment is physically located with Nexleaf's Coldtrace. This gives both OpenLMIS and Nexleaf a standard, interoperable means of aligning facility lists without brittle custom formats or bespoke mapping lists.
 - **Supply Chain transactions EDI** OpenLMIS wants to leverage supply chain and software architecture best practice and turn many of the transactional messages exchanged between OpenLMIS Services into GS1 EDI messages. In this way, typical messages such as an Order, Advanced Shipment Notice, Proof of Delivery, etc., can arrive to, and be sent from,

OpenLMIS services to other systems that support supply chain transactions. This not only furthers the total interoperability OpenLMIS provides, but also furthers our goal of OpenLMIS services being interchangeable with other supply chain software.

- **Mobile Architecture** The OpenLMIS Community is actively defining a mobile architecture which extends the reach of the software, and visibility, to last-mile supply chain. This includes the development of a reference mobile application and a robust set of APIs to enable other applications to interface with OpenLMIS along with an evaluation of optical barcode support. Interoperability is planned with OpenSRP, a potential integration is under discussion with SIGLUS, and a side-car concept is being evaluated to enable supply chain best practices to be bundled into any third party health and logistics software.
- **Big Data** To help OpenLMIS users make better sense of their supply chain data, the initiative has implemented a modern open source big data tool set and streaming architecture. With this we hope to establish a standardized community approach for consuming, processing, analyzing and visualizing logistics data from OpenLMIS. This infrastructure allows for ingestion of data from multiple systems to support analysis of information across systems in near real-time. This allows for the consolidation of big data processing across systems and enables the creation of composite indicators sourced from many disparate IT systems.

Community Feedback - Describe how the consortium proposes to engage with the broader digital health community for feedback and input. Indicate the expected frequency of such engagements as well as the type of expected input (e.g. feedback on architecture/design, use case alignment).

The OpenLMIS Initiative provides a collaborative space where global and digital health partners meet regularly to provide feedback and direction to the product and initiative. These partners come from a wide variety of public health sectors and represent a majority of leading voices in the global digital health landscape. Within the OpenLMIS Community, processes to facilitate dialogue and transparency are well-defined, including three committees (Governance, Product, and Technical) which meet on a regular cadence and are structured through official membership and charters.

Outside of OpenLMIS committee discussions which draw on expertise from OpenLMIS Community partners and provide the majority of feedback to the software and initiative, OpenLMIS solicits input from the broader digital health community through a broad and growing number of avenues and activities. Funding from this proposal will enable the OpenLMIS Community to sustain or expand the engagement of the OpenLMIS user base, identify and engage volunteer open source developer resources, attend additional conferences and regional events, and more:

- **Integration** OpenLMIS is actively pursuing integration projects with digital health applications OpenSRP and NexLeaf (among others), to expand the scope of the OpenLMIS software offering and improve the skills and knowledge of each project. Through collaboration and integration, OpenLMIS is engaging with other digital health technologies to promote best practices in vaccine/EPI and other global health supply chains and solicit input from outside perspectives to further mature the OpenLMIS product.

How this funding can sustain or improve this: Funding to support in-person meetings and conference travel will help bring together partners throughout the Community, including new representatives from digital health technologies with the potential to integrate with OpenLMIS.

- **Design Workshops & Collaboration** OpenLMIS is committed to gathering as much feedback as possible on the design and architecture of the system in order to build a functional and responsive product and define the product roadmap. From the start

of the initiative, OpenLMIS has drawn on multi-country requirements, peer feedback and review, and the perspective of in-country system users through several types of design workshops and in-person meetings:

- [Copenhagen Vaccine Module Prioritization](#): workshop to prioritize features
- [Senegal User Centered Design Workshop](#) : to learn more about the resupply process and needs
- [Re-Architecture Design Workshop](#) : define the scope for the microservices re-architecture project
- [Stock Management Design Workshop](#) : onboard Thoughtworks to the stock management user stories
- [ODK & OpenLMIS Integration Mapping](#) : define the scope and needs for integration
- [OpenSRP/OpenLMIS/DHIS2](#) : 3-day summit
- [USAID GS1 and BI&A](#) : working meeting

How this funding can sustain or improve this: Funding from this proposal will enable the Community to bring together current and potential system users and global health partners through additional in-person meetings, soliciting concrete feedback from end users of the system.

- **Standards and Working Groups** OpenLMIS strives to lead and drive conversations in the LMIS space for standards-based design, working closely with organizations like OpenHIE to define supply chain standards for interoperability, and with Global Standard One (GS1) to provide end-to-end supply chain visibility and product tracking. OpenLMIS also participates in the Health Data Collaborative - LMIS Working Group. The HDC-LMIS WG supports countries with information systems policies and guidelines for health commodities, developing a global strategy to support digital health solutions for LMIS, documenting learnings about LMIS options, and developing on a common framework an approach and principles for coordination of LMIS investments.

How this funding can sustain or improve this: Through this proposal, OpenLMIS core members will have the support needed to continue to engage with the OpenHIE Community to lead supply chain standards discussions through the [Supply Chain Subcommunity](#).

- **Open Source Development** Encouraging volunteer open source development is a priority for the Initiative and supports visibility and sustainability efforts. OpenLMIS solicits support and feedback from the DIAL Open Source Center on its open source development practices, and participates in volunteer coding programs like Google Summer of Code, Rails Girls Summer of Code, Social Coder, and Outreachy.

How this funding can sustain or improve this: With support from this proposal, the OpenLMIS core team can continue to seek out and engage volunteer developers through participation in volunteer coding programs and provide ongoing guidance and support to coders through public communication channels like Slack and Confluence.

- **Conferences and Forums** A key activity to expand the OpenLMIS Community and solicit feedback from a diverse group of global health partners is attendance at global health conferences and participation in online discussion forums. OpenLMIS has presented 17 times at 9 different events including the Global Digital Health Forum, the DHIS2 Symposium, VAN Workshops, TechNet-21, the Health and Humanitarian Logistics conference. Additionally the OpenLMIS Community posts regularly on the IAPHL, TechNet-21, and Global Digital Health Network forums.

How this funding can sustain or improve this: Funding from this proposal would directly support preparation and travel

costs for OpenLMIS Community member(s) to travel to international and domestic conferences.

- **Webinars and User Documentation** Through webinars that are free and open to the public, OpenLMIS disseminates information about current software development and community activities and provides a collaborative space for commentary and feedback. Several webinars are available on the OpenLMIS YouTube Channel:
 - [Vaccine Update](#)
 - [ESMS Demonstration with ThoughtWorks](#)
 - [Tupaia Demo](#)

Some demo videos and other user documentation is available on the OpenLMIS YouTube channel in a variety of languages (English, French, Portuguese). Work is underway on an Implementer Toolkit to be released in March, 2018.

How this funding can sustain or improve this: Funding from this proposal will be used to increase Community activities under Core Indicator Community, sub-indicators, User Documentation and Multi-Lingual Support, to bring OpenLMIS documentation closer to including the full subset of features and made available in priority languages. Funding from this proposal will also support the ongoing development of the OpenLMIS Implementer Toolkit and allow the Community to improve current documentation and add additional, needed resources.

A self-assessment on the Global Good Maturity Model (submitted as a link or an Excel attachment). Find the Maturity Model [here](#).

Global Good Maturity



OpenLMIS self-assessment: Global Good Maturity Model

Following a self-assessment of OpenLMIS against the Global Good Maturity Model, we believe that this funding would greatly help the initiative advance in several of the core indicator categories in the Model:

- **Global Utility, Country Utilization and Country Strategy**
 - OpenLMIS is currently deployed in eight geographies and has received over 200 inquiries from dozens of countries globally. Funding for additional advocacy activities will enable the Initiative to further expand its reach of deployment
- **Community, Developer, Contributor, and Implementer Community Engagement**
 - Nearly 100% of software developers in OpenLMIS participate in Community communication platforms and a large (and growing) number of partners engage with the Community through these platforms. Community leadership and representation from countries where OpenLMIS is deployed, however, is very low. Funds from this proposal would assist the Community to build rapport with country implementations and increase Community engagement.

- **Community, User Documentation and Multi-Lingual Support**

- Some user documentation for OpenLMIS exists, and of that, some has been translated into key languages (French and Portuguese primarily). Funding from this proposal would greatly assist the Community with creating new, much-needed documentation (such as User and Developer Guides), improving existing documentation (such as the Implementer Guide), and making these materials available in other languages.

- **Software, Technical Documentation**

- Source code in OpenLMIS is generally well-documented; however, new adopters would likely find adapting and using the code challenging without the assistance of a software developer with OpenLMIS experience, and only one tutorial video is available to assist developers with a common development task. Funding from this proposal would directly assist the Community in the development of guidance materials, tutorials, and additional videos to assist adopters in utilizing the software.

Workplan, Project Deliverables & Schedule - Indicate the expected timing of and responsibility for activities and high-level milestones for the project by consortium member. Use of GANTT and RACI charts are encouraged and we recommend linking activities to anticipated areas of improvement on the Global Goods Maturity Model.

An initial draft of the workplan and schedule for the community advocacy activities can be found here:

[OpenLMIS Notice B Workplan, Deliverables, and Schedule](#)

Budget Narrative

Activities in this proposal have been divided into a **small, medium, and high** priority framework. Each estimation (small, medium, high) is listed on a separate sheet in the attached Excel budget.

Activities included in the **small** category are those activities deemed most necessary by the Community to achieve goals of better supporting and engaging implementers and maintaining open source community processes.

- These activities include **Targeted Demonstrations** and all activities that fall under **Collaborate & Support**.
- Key staff and total LOE for **small** estimation:

| Activity | Staff | LOE Cost |
|-------------------------|--|----------|
| Targeted Demonstrations | Tenly Snow, Community Manager <ul style="list-style-type: none">• Mary Jo Kochendorfer, Product Manager• Dercio Duvane, Information Systems Program Officer | \$8,390 |
| Collaborate & Support | <ul style="list-style-type: none">• Tenly Snow, Community Manager | \$46,907 |

The **medium** category includes an expanded number of activities.

- These activities include **Collaborate & Support, Targeted Demonstrations, East Africa Workshop, Community Meeting**, and some support for **Conferences**.
- Key staff and total LOE for **medium** estimation:

| Activity | Staff | LOE Cost |
|-------------------------|--|----------|
| Targeted Demonstrations | <ul style="list-style-type: none"> • Tenly Snow, Community Manager • Mary Jo Kochendorfer, Product Manager • Dercio Duvane, Information | \$8,390 |

Systems Program Officer

| | | |
|-----------------------|---|----------|
| Collaborate & Support | <ul style="list-style-type: none"> • Tenly Snow, Community Manager • Mary Jo, Kochendorfer Product Manager • Josh Zamor, Architect • Sam Im, Analyst • Chonsun Ahn, Software Development Engineer | \$46,907 |
| East Africa Workshop | <ul style="list-style-type: none"> • Tenly Snow, Community Manager • Mary Jo Kochendorfer, Product Manager • Brandon Bowersox-Johnson, Software Dev. Manager • Dercio Duvane, Information Systems Program Officer | \$20,208 |

- The **high** category includes all activities in the proposal
- Key staff and total LOE for **high** estimation

| Activity | Staff | LOE Cost |
|-------------------------|--|----------|
| Targeted Demonstrations | <ul style="list-style-type: none"> • Tenly Snow, Community Manager • Mary Jo Kochendorfer, Product Manager • Dercio Duvane, Information | \$9,271 |

Systems Program Officer

| | | |
|-----------------------|---|----------|
| Collaborate & Support | <ul style="list-style-type: none"> • Tenly Snow, Community Manager • Mary Jo, Kochendorfer Product Manager • Josh Zamor, Architect • Sam Im, Analyst • Chonsun Ahn, Software Development Engineer | \$46,907 |
| East Africa Workshop | <ul style="list-style-type: none"> • Tenly Snow, Community Manager • Mary Jo Kochendorfer, Product Manager • Brandon Bowersox-Johnson, Software Dev. Manager • Dercio Duvane, Information Systems Program Officer | \$20,208 |
| West Africa Workshop | <ul style="list-style-type: none"> • Tenly Snow, Community Manager • Mary Jo Kochendorfer, Product Manager • Brandon Bowersox-Johnson, Software Dev. Manager • Olivier Defawe, Senior Manager Health Systems | \$16,470 |
| Community Meeting | <ul style="list-style-type: none"> • Tenly Snow, Community Manager | \$23,135 |

Small/Med/High Budget Totals (all activity costs)

| | |
|-------|--|
| Total | |
|-------|--|

Large \$436,150.27