**Concept Brief: OpenLMIS for Private Health Customers**

**Customer Profiling & Prototype Feedback**

OpenLMIS Sustainability – October 2019

***Potential OpenLMIS Customer:*** Private sector clinic, hospital, and/or pharmacy retail network in low- or middle-income country that meets OpenLMIS criteria for prototype testing. For ease of reference, these potential OpenLMIS customers are referred to in this document simply as “customers.” Findings in this document are based on customer feedback as well as input from OpenLMIS stakeholders and other market research.

***Customer Criteria***

1. Operating 2+ private health facilities in a low/middle income country
2. Need a supply chain solution (must match 2 of 3 sub-criteria below)
   1. Use partial or no solution for core supply chain management functions
   2. Have major supply chain needs/pain points that prevent them from meeting their objectives
   3. Actively seeking a new/ updated solution
3. Willing and able to invest in a new solution
4. OpenLMIS can address the majority of customer pain points

***Product Objective:*** Increase supply chain visibility to enable better business performance and growth.

**Customer Attributes**

Our research found that OpenLMIS for private health would be an appropriate solution for a range of private health clinic, hospital, and pharmacy retail networks across LMICs in Africa, Asia, and Latin America. We received interest from interviewees who operate between 2 and 415 facilities, range from purely commercial to purely nonprofit, with an estimated annual spend on software from $600 to over $40,000. Despite the differences in customer profiles, we found some key similarities to guide OpenLMIS’ private health customer approach.

* ***Supply chain pain points are preventing many from meeting their objectives*.** For example, frequent product stockouts and delays decrease patient satisfaction and drive away business. A lack of end-to-end visibility in their supply chains means they waste money and time planning and managing across multiple facilities, with frequent expedited orders, products expiring on the shelf and increased risk of fraud/ and theft. Because they do not have complete visibility or control regarding their supply chain, their purchasing and negotiating power with suppliers remains limited. These issues prevent private health customers from achieving important business objectives such as adding facilities, serving more customers or expanding their service offerings.
* ***They are actively seeking ways to optimize or replace their existing supply chain solution.*** Supply chain management is extremely salient for these private health networks. Ten of 12 customer interviewees had implemented a new supply chain solution in the past year or are planning to implement one by the end of 2020. Customer interviewees are aware of supply chain pain points and looking for solutions to help drive down operating costs and edge out their competition by making products more affordable and accessible to their clientele. Their feedback also suggests they are willing to invest in solutions that address their pain points and enable future growth rather than seeking the lowest-cost option.
* ***Supply chain and IT staff are key members of the management team.*** Most customers employ one or more senior staff to manage their operations and another individual or team for IT support. The IT staff may or may not be part of the operations team, and may also include external support for more complex IT needs such as the implementation of new software systems. The management team typically includes a representative from the operations and/or IT teams, and they are both consulted regarding major decisions like the selection of new software. In addition to an organization’s executives, these operations and IT staff will likely be key points of contact when introducing and selling OpenLMIS to these private health customers.
* ***Most of the customers interested in OpenLMIS take a social enterprise approach.*** Ten of 12 health networks interviewed qualify as a social enterprise, using their organization both as a business opportunity and a way to meet the population’s unmet health needs. They use a variety of social enterprise tactics: several receive grant funding to complete projects in addition to managing everyday profit-driven activities, others use tiered or subsidized pricing structures to reach disadvantaged populations and one includes a foundation that is funded and managed separately from its for-profit health facilities. This focus on mission in addition to profit is a clear match to OpenLMIS sustainability objectives and will be an important consideration aspect of appealing to future private sector customers.
* ***Private hospital, clinic and pharmacy retail networks struggle to find a supply chain solution that matches their needs.*** Half of customer interviewees found their current supply chain management solutions insufficient. Of the six that were satisfied with their current solutions, four had either built their own software or partnered with another company to pilot a new system because they were unable to find anything in the market to meet their needs.
* ***Currently, customers are using a variety of insufficient software solutions to manage different aspects of their supply chains.*** Their current software likely includes a clinic/ hospital management system to track patient records and interactions, which may or may not include features to support transactions, accounting and/or inventory management. However, these systems fail to provide the organization with full supply chain management and visibility. As a result, customers face difficulties in data collection and analysis, leading to manual, error-prone processes that prevent efficient supply chain planning and decision making.
* ***Customers want a simple solution to enable end-to-end supply chain visibility, save their teams time and money and enhance business performance.*** They are seeking a product that can support requisitions, fulfillment and inventory tracking for all their consumable and non-consumable items, provide a variety of reports and analytics and send automated alerts and suggestions. They are concerned about data protection and need distinct roles/permissions in their software as well as guarantees surrounding data security. Customers also value support and training as part of a product package and want a solution that is optimized for low-resource settings that experience frequent internet and electricity outages. Overall, customers’ preferred product can be described as user-friendly (i.e. easy and intuitive interface that does not require much support or training) and durable (i.e. will not break/ fail with regular use and offers customization/add-on options to grow with customer.

**Competition**

Our research suggests that OpenLMIS can offer growing networks of private hospitals, clinics and pharmacy retailers a unique product that fits their needs in a way that very few other products can. However, LMIC private heath markets include a range of software providers and products that could compete with OpenLMIS offerings:

* ***A few market innovators are likely OpenLMIS’s toughest competition.*** Often driven by donor investments but with increasing backing from seed/ impact investors, platforms like MaishaMeds and MedSource offer simple for private health provider networks that include inventory ordering, tracking, delivery and payment capabilities. These are particularly competitive when it comes to pharmacy retail networks. Other large-scale innovators like PharmAccess have recently started building solutions to support entire private/parastatal health systems. A pilot system built for the Christian Health Association of Ghana (CHAG) will be used by over 300 CHAG health facilities aims to drive down drug prices nationally by including suppliers, distributors and providers in a single system that oversees all aspects of supply chain management.
* ***Locally developed solutions often leave supply chain gaps.*** These products are designed and implemented by local firms to meet the needs of health providers in each country. The solutions they offer are often tailored for each customer and frequently, but not always, the cheapest available option. The systems typically serve mainly as a clinic or hospital information management system to manage patient records and interactions and may include added features for basic point of sale, inventory tracking and accounting processes. These solutions vary in price, quality and features, but offer customers common advantages like a deep understanding of the local market and the ability to provide local implementation and technical support. Although these types of providers are increasing in number and sophistication, few offer reliable end-to-end supply chain visibility or management options.
* ***Expensive end-to-end ERP solutions remain cumbersome an out of reach for most.*** Advanced, well-known ERP solutions like Microsoft Dynamics, Oracle and SAP are available in LMICs, offering tried and tested solutions underscored by massive global partnership networks and extensive support communities, and investment in innovation and best practices. However, they tend to be too expensive for smaller private health entities in LMICs, and their extensive user training requirements are perceived as a burden.
* ***Other up-and-coming international players struggle to read the market.*** Software providers based in countries like China, India, Israel are also interested in capturing health software customers in LMICs. They are known for quick product development and go-to-market capabilities and often offer extensive customization and service options. However, their ability to penetrate the private health markets remains incomplete due to limited market knowledge and presence and a tendency to set prices far above customers’ expected range.

**Feedback from Interviews**

The rest of the document details key insights from Resonance’s customer interviews including scoping discussions and prototype presentations.

***Key Insights – Product Characteristics***

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| **Characteristics & Descriptions** |
| **Value for money**   * Appropriate and affordable for target customers * Demonstrably reduces costs and/or improves performance |
| **Usability/ Intuitiveness**   * Easy to set up and maintain (does not require too much support or training) * Not too many bells and whistles: clear and efficient processes for all users |
| **Interoperability/ Integration**   * Allows for end-to-end visibility from central procurement to patient |
| **Durability**   * Can grow/change with customer (customization/add-on options) * Will not break/fail with regular use (i.e. can withstand multiple and/or simultaneous users, has limited bugs, responds well despite limited electricity/internet) |
| **Support and training**   * Offers quick and reliable support as part of a product package * Offers some training opportunities, but does not require much user training to get started on system |
| **Suitable for low-resource settings, including:**   * Electricity outages * Limited connectivity |
| **Data protection options to address data sensitivity issues ​**   * Roles/ permissions options * Data security guarantees |

***Key Insights – Performance Specifications***

* Most customers are seeking end-to-end visibility on their supply chain, including information on the relationship between supply chain management and finances, patient care, and other aspects of the business.
* Currently, customers’ partial/combined solutions make it challenging or impossible to get these insights. Requisitions, inventory management and reporting/ analytics are the most common areas for their supply chain pain points.
* Customers identified key existing OpenLMIS functions as priorities:
  + Digital requisitions system (3/5 customers)
  + Inventory management of drugs and other products (3/5 customers)
  + Reporting/ analytics (2/5 customers)
* Some customers prioritize additions/ upgrades not currently included in OpenLMIS:
  + Real-time (or close) inventory tracking (4/5 customers)
  + Sales/ Transactions System (2/5 customers)
  + Stock level/ expiry/ consumption alerts (1/5)
  + Integration of price/ currency information and fluctuations (2/5)
* Offering interoperability/ integration with some of their existing systems, particularly clinic/ hospital management systems with inventory management features and/or financial/ accounting systems, will help OpenLMIS become more appealing to customers. Most customers would consider replacing one or more of their current systems if they could, but they also want a product that could complement their current systems if possible.

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| **Function** | **Customer Needs** | **Priority Level** | **Current OpenLMIS Features** |
| **Requisitions:** requesting of new stock (based on consumption or estimated need) and approvals to generate an order for fulfillment | Request and view order | High | Users can manually report on the past periods' stock levels or leverage the electronic stock cards from Stock Management to inform the requisition process. When a requisition is approved, it is converted to an order (i.e. a purchase order). |
| Amend order |
| Approve order |
| View past/ pending orders |
| Incorporate information to/from existing software (e.g. clinic management, accounting system) |
| **Fulfillment (Dispatch & Receive):** Process of creating, viewing, and receiving an order via the proof of delivery | Create and view purchase order | High | V3 provides basic support for integrating with an external warehouse /ERP system as well as internal management of simple fulfillment workflows (useful for smaller fulfillments and for items that need special handling (e.g. vaccines). |
| Create and view proof of delivery |
| Incorporate information to/ from existing software (e.g. clinic management system, accounting system) |
| **Inventory/ Stock Management:**  Ongoing accounting of stock on hand, including medical commodities and inventory-able items. | Real-time (or close) traceability | High | Users can record transactions like issues (debit), receipts (credit), stock counts (+/-), and a variety of adjustments (+/-).  No offline support (yet)  Does not get down to the patient or CHW level (mobile or tablet would be needed) |
| Incorporate information to/ from existing software (e.g. clinic management system, accounting system) |
| **Reporting & Analytics:** Routine reporting and ad-hoc analysis. | Create and share regular and ad hoc reports on stock levels, consumption, orders placed and received, etc. | High | Great visuals with easy to create routine & custom reports |
| Create reports analyzing trends/ patterns by time period (e.g. annual, seasonal), facility, facility type, supplier, etc. |
| Incorporate information to/ from existing software (e.g. clinic management system, accounting system) for better end-to-end visibility |
| **Cold Chain:** Needed for resupply workflows around vaccines | Validate cold chain | High (not specified, but all customers deal with vaccines) | Integration with Nexleaf.  Comes preloaded with the WHO PQS list, can track what equipment is installed at which location, and is able to integrate with remote temp monitoring devices to inform functionality  Relevant CCE information is displayed when creating or view requisitions.  Cold chain information is not tied into fulfillment (ie, to avoid facilities with faulty equipment) |
| **Pricing:** Viewing/ changing product prices | Set product prices (may be different in different facilities) | High | The person ordering and approving orders can see individual product prices for the proposed order quantity. A total order price is shown at the bottom of the screen before order is approved. This is something that clients can opt to turn on or off in the requisition process. |
| Change product prices |
| View product prices |
| Include multiple currencies and/or fluctuating exchange rates |
| **Alerts** | Low/ high stock alerts | High | Currently unavailable |
| Product expiry alerts |
| Consumption alerts |
| **Equipment Management:** De-centralized inventory management for lab equipment, separated out from Cold Chain Equipment | Manage/ track non-consumable items such as lab equipment | Medium | Does not do full asset management: warranties, manuals, install dates, issue tracking, etc.    Not suitable for cold chain equipment |
| **Mobile/tablet capabilities:** Ability to function as/with mobile platforms | Not specified, but some work with mobile payment and data collection systems that could potentially require interoperability | Not specified | In general, OpenLMIS provides mobile capabilities via integrations with other mobile systems (OpenSRP and, potentially, SIGLUS). |

***Key Insights – Interoperability/Integration Requirements***

* None of the customers interviewed use the same systems or systems that are currently interoperable with OpenLMIS. In addition to using paper and standard software like Microsoft Excel, examples of customer systems include Bengel, EasyClinic, Xero, MPesa, Sage, and Omnisol. A detailed breakdown of systems per customers can be found below.
* Although customers are open to replacing some of their current software (possibly with OpenLMIS), many of them want to keep their clinic/ hospital management system (or parts of it) in place, both because it offers non-supply chain features (e.g. patient record management) and because they have already heavily invested in that system. Interoperability and/or integration with these systems is therefore seen as a key decision factor for selecting a supply chain new/ improved management solution.

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| **Name** | **System type** | **Target Customer Use** | **OpenLMIS Interoperable** | **Priority** |
| **Rabito Clinics/ Africa Health Holdings** | | | | |
| [Bengel](http://www.bengelwiki.org/index.php?title=Main_Page) | Clinic management | Patient records, patient transactions, some inventory management | no | High |
| **Penda Health** | | | | |
| [EasyClinic](http://www.easyclinic.in/) | Clinic management | Patient records, some inventory tracking | no | High |
| [Xero](https://www.xero.com/) | Financial Management | Accounting | no | Medium – may be replacing |
| MPesa | Mobile Payments | Patient payments | no | High |
| **Rapha Health Systems** | | | | |
| [Omnisol](https://www.omnisol.co.zw/product_info.php) | Clinic management | Patient records, some basic inventory management | no | High (integration would be better) |
| **Nyaho Medical Centre** | | | | |
| Unknown name | Hospital Information System (HIS) | Patient records, patient transactions, inventory management | no | Medium – may be replacing |
| Sage | Accounting | Accounting | no | Not specified |
| **Anonymous** | | | | |
| Unknown Name | EMR | Patient records | no | High |

***Prototype Feedback***

* All four customers that tested the prototype responded positively to the presentation and valued many of the product’s key features and characteristics. Customers unanimously found that the product would be intuitive and easy to use and could address some of their major pain points. Customers’ favorite features and characteristics included:
  + Configurable dashboard with reports and alerts (4/4)
  + Interoperability with existing systems for comprehensive supply chain overview (3/4)
  + Ease of use (4/4)
  + Offline syncing capabilities (3/4)
* All four interviewees indicated that they are willing to participate in product testing.
* Most interviewees (3/4) are likely to buy a product like this in the next 12 months.
* Most interviewees (3/4) expect the product to cost around $25,000 per year including all service and implementation costs.
* Product questions and concerns to be addressed also emerged from customer feedback:
  + How OpenLMIS will work with customers’ existing clinic/hospital management and/or accounting systems (3/4)
  + Data security (1/4)
  + Depth of financial data/ functions (e.g. billing, pricing, currency fluctuations) available through OpenLMIS (3/4)
  + Barcode functionality, i.e. tracking product location in addition to performing safety check (2/4)
  + Ability to track laboratory item consumption (1/4)
  + Update frequency (1/4)
  + Mobile/ tablet use (1/4)

The table below outlines prototype feedback per customer:

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| **Favorite Features/ Characteristics** | **Less Valuable Features** | **Additional**  **Needs/ Questions** | **Annual Cost Expectations** | **Likelihood of buying** |
| **Penda Health** |  |  |  |  |
| - Dashboard  - Interoperability  On-demand support  - Searchable product database with alternatives  - Automatic requisition and bulk orders  - Financial reporting capabilities  - Supply tracking and rebalancing for drugs and other supplies  - Configurability  - Ease of use  - Medical provider network focus | - Offline functions not as important, they are an online cloud-based company  - New point of sale feature may conflict with current process: physical handoff from reception to pharmacy is part of unique value proposition for patients. | - How strong is the financial component? Would pricing data go all the way to margins and SKU? Wants to replace Xero so will need additional financial/ accounting support.  - How to track data with full confidence? Would barcode be for all inventory or just as safety check?  - Point of sale feature must integrate with MPesa  - Inventory tracking should cover lab item/ test consumption | $25,000. Could be $35,000 considering scale-up but would need the right features/ package to completely cover their needs | High: looking to select a system in 10-12 months to get to scale.  Challenge would be deciding between end-to-end system and OpenLMIS + existing EMR + new financial system |
| **Nyaho Medical Centre** |  |  |  |  |
| - 360-degree view from supply chain to payment  - Configurability  - Ease of use | Dashboard may be duplicative since they already have data warehouse where they pull all data from different systems | - Options to guarantee data security  - Reliable user permissions to enable specific dashboard per user/department  - Update frequency should be limited and not come with huge costs  - Need proper API in place for interoperability and API commitment enabled in order to access data behind the system without compromising baseline tables  - Staff should be able to access/ enter data on system with tablets and phones for real-time updates | $25,000 likely top of price range ($35,000 too high). Cost depends on a lot of factors, cheaper is better. Current HIS: 350 users with license per server. | High: looking to buy by end 2019, need this functionality now |
| **Rabito Clinics** |  |  |  |  |
| - Dashboard | - Point of sale in current EMR already meets their needs | - How would billing and patient records from EMR integrate?  - How offline is offline? Will offline syncing be enough?  - How to guarantee data is real/ reliable? | $8,000- $10,000 | High: Currently reviewing options, planning to implement changes in the next 12 months |
| **Anonymous** |  |  |  |  |
| - Ease of use  - Predictive supply and purchasing  - Comprehensive to address all pain points | N/A | - Currency fluctuation management for international purchasing: Need to document and harmonize prices into a standard cost for purchasing while allowing for changes in exchange rates | $10-$12,000, could go up as network expands. Prefer subscription model. | Medium: depends on growth plan for clinic |

**Appendix 1: Private Health Sources**

Below is a list of selected sources that contributed to our analysis of the viability of private health markets:

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Yadav, Prashant (2015). Health Product Supply Chains in Developing Countries: Diagnosis of the Root Causes of Underperformance and an Agenda for Reform. Health Systems & Reform, 1:2, 142-154. Retrieved from: https://doi.org/10.4161/23288604.2014.968005