Innovations in Health Product Distribution in Sub-Saharan Africa

MARKET INTELLIGENCE REPORT
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DrugStoc
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Co-Founder/Co-CEO
Drugstore.ng
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EHA Clinics
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Emmanuel Fiadzorgbe, Co-Founder
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Uzor Ofulue, Partner, Strategy
& Business Expansion
Lauren Parker
Nett Pharmacy
Chris Ehimen, Co-Founder
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<th>Company</th>
<th>Founder/CEO</th>
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<tr>
<td>OBM Pharmacy</td>
<td>William Boateng, Head of Pharmacy</td>
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<tr>
<td></td>
<td>Jonathan Addo, Head of e-Pharmacy</td>
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<tr>
<td>OneHealth</td>
<td>Adeola Alli, Co-Founder/CEO</td>
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<td>PharmaSecure</td>
<td>Nakul Pasricha, CEO</td>
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<td>PharmilyKe</td>
<td>Geoffrey Kiprop, Founder/CEO</td>
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<td>PharmXpress</td>
<td>Cynthia Madubuko, Co-Founder</td>
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<tr>
<td>Pill Doctor</td>
<td>Maxwell Sofo, Business Development Manager</td>
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<td>Primacare Pharmacy</td>
<td>Chukwuka Ezekpudoghu, Co-Founder/CEO</td>
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<td>Pronov</td>
<td>Edwin Ajogun, CEO</td>
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<td>Remedial Health</td>
<td>Samuel Okwuada, Founder/CEO</td>
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<td>Rocket Health</td>
<td>John Mark Bwanika, Co-Founder/Director</td>
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<td>RxAll</td>
<td>Adebayo Alonge, Co-Founder/CEO</td>
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<td>Safari</td>
<td>Kifayatou Sime, Founder/CEO</td>
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<td>SASAdoctor</td>
<td>Francis Osiemo, Co-Founder/COO</td>
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<td>Shelf Life</td>
<td>Michael Moreland, Co-Founder/CEO</td>
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<td>Samirah Maison, Co-Founder/CEO</td>
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<td>Ashifi Gogo, Co-Founder/CEO</td>
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<td>TeleAfya</td>
<td>Vincent Chepkwony, Founder</td>
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<td>Uthabiti</td>
<td>Towett Ngetich, Founder/CEO</td>
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<td>VIA Global Health</td>
<td>Noah Perin, Founder/CEO</td>
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<td>VigorHealth</td>
<td>Joseph Tetteh, Founder/CEO</td>
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<td>Wella Health</td>
<td>Ikpeme Neto, Founder/CEO</td>
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<td>Whispa Health</td>
<td>Morenike Fajemisin, Co-Founder/CEO</td>
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<tr>
<td>Zuri Health</td>
<td>Ikechukwu Anoke, Co-Founder/CEO</td>
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<td></td>
<td>Daisy Isiaho, Co-Founder &amp; Chief Product Officer</td>
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Executive summary

In the midst of the COVID-19 pandemic, the need for innovative, cost-effective, robust, technology-enabled systems to deliver health products and information has never been more clear. Across Africa, where supply chain constraints result in critical bottlenecks in the movement of essential medicines from manufacturer to end-user, leveraging technology to ease this flow holds tremendous promise.

Start-ups across the continent are developing innovative, commercial models to transform health product distribution for consumers and providers alike. With a focus on Nigeria, Ghana, Kenya and Uganda, we present an overview of market trends and recommendations for key stakeholders in global health to engage innovators to strengthen access to critical health information and products.

Key findings

The ecosystem is growing: More than 60 companies in the focus geographies are now working to transform health product distribution with new models serving consumers directly, easing product supply to providers, and offering product data services. The most active hubs are Nigeria, Kenya and Ghana; very few companies appear active in this space across Francophone Africa.

Consumer-facing service offerings include new services for digitally enabled direct-to-consumer models for delivery of over-the-counter and prescription products, telemedicine paired with product delivery, patient engagement via chatbots and SMS, and more. Provider-facing service offerings include inventory-management software, tech-enabled and vendor-managed inventory services, digital product marketplaces with fulfillment services, and stock financing. Product data services include methods for counterfeit drug detection, track-and-trace technology, and data analytics.

In response to COVID-19, several major shifts in innovators’ business models have emerged. Innovators are often serving both consumers and providers, are expanding services to include lending and telemedicine, are adapting to distribute products to rural customers in addition to those in urban areas, are wavering between investing in owning product stocks and operating as asset-light,
and are increasingly finding themselves competing with brick-and-mortar health businesses that are developing digital channels.

**Most companies are still at early stages of maturity and operating in a single country.** However, around 30% of innovators appear to have found product-market fit, suggesting they may be well-positioned to scale. Though consumer services are offered by the largest proportion of companies in the data set, user retention appears low among companies in this category, while provider-facing companies report much higher levels of retention. Product data services are dominated by relatively mature companies that operate at large scale within and beyond the healthcare sector.

Unfortunately, **grant, equity and debt financing for innovators remains limited** and highly concentrated. Innovators report raising a total of US $153 million in external funding of any type since their founding, with seven companies accounting for 82% of reported funds raised. African founders who lack ties to high-income countries face clear fundraising ceilings; most have raised less than US $150,000.

For the first time, e-commerce giants like Konga, Copia and Jumia are showing a strategic interest in health. Copia and Jumia now offer over-the-counter health products on their e-commerce platforms, while Nigeria-based Konga has plans to launch a healthcare product distribution subsidiary in the summer of 2021. The entry of traditional e-commerce players into health product distribution is inhibited by lack of clear and harmonized regulations, but should these be overcome, they may be poised to transform product delivery to both providers and consumers at large scale.

**Innovators express high interest in supporting public health efforts related to COVID-19,** offering to leverage patient engagement programs, track-and-trace technology, and expertise in health product delivery to support delivery of information, testing and vaccines.

While some commercial partnerships between distributors, pharmaceutical manufacturers and private insurers are emerging, larger-scale partnerships that can facilitate impact at scale are nascent. Major purchasers and producers of essential medicines, such as governments, NGOs, pharmaceutical companies and donors, should be actively testing the costs, effectiveness and reach of the most promising innovations to understand how locally driven, technology-enabled delivery models might reduce costs and improve coverage. Such efforts to date appear limited.

**Recommendations for global health actors**

In the wake of COVID-19, health systems are stretched thin. Global health stakeholders should act boldly to usher in a new wave of health product distribution by supporting, partnering and scaling highly cost-effective, locally driven, technology-enabled innovations. Based on findings, there are seven key opportunities to act:
1 **Invest in African founders.** Reshape investment ecosystems to ensure more equitable funding and professionalized support is accessible to high-potential African founders who typically lack access to global networks, including female founders and innovators in Francophone Africa.

2 **Mainstream partnerships with the most promising companies to drive impact and scale.** With a subset of promising innovators, catalyze partnerships with major purchasers and producers to support innovators’ maturation and enable the distribution of publicly subsidized products through tech-driven platforms. Study the costs, efficiency and reach. Leverage innovators’ granular consumption data to sharpen supply forecasting, and leverage digital relationships to test the transfer subsidies for essential health products directly to consumers or to providers at the point of sale. Explore opportunities to engage innovators to support access to COVID-19 information, testing and vaccinations.

3 **Fast-track the introduction and harmonization of innovation-friendly regulations.** Review, develop and harmonize regulations for telemedicine providers and innovators offering digitally enabled D2C distribution of medicines. Favorable government policy is critical to growth and impact for such companies.

4 **Prioritize rural coverage.** Leverage highly risk-tolerant grant capital to support the commercial development and scale of models to serve rural populations: e.g. hybrid of in-person and technology interventions for distribution to consumers and accessible, offline technology solutions for providers. Enable innovators to distribute publicly subsidized essential medicines.

5 **Increase access to affordable working capital.** Economic shocks driven by COVID-19 may further constrain providers’ access to credit to purchase health products, hampering availability. Develop mechanisms to improve providers’ access to affordable working capital, and to enable innovators to offer low-cost onward lending to their customers.

6 **Harness innovators’ product information systems and data analytics capabilities.** Aggregate sizable product datasets, currently existing in silos, for better public health supply chain planning and visibility. Develop mechanisms to enable this at scale.

7 **Investigate the potential for scaling decentralized quality assurance mechanisms.** Explore opportunities to scale decentralized quality assurance mechanisms, such as the deployment of point-of-sale counterfeit detection technologies. Determine the efficacy and cost-effectiveness, understand demand for such approaches from providers and governments, and explore how joint purchasing or partnerships might enable deployment at scale.

“New technology, better use of data, and entrepreneurial passion in improving distribution channels is reaching a critical mass with the potential to drive extraordinary improvements in availability, affordability and quality of health products.”

— Prashant Yadav and Amanda Glassman, Center for Global Development
### By the numbers

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Percentage/Count</th>
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<tbody>
<tr>
<td>Innovators changing how health products are distributed with tech-enabled models</td>
<td>61</td>
</tr>
<tr>
<td>Share of innovators whose operations were founded in the last two years</td>
<td>31%</td>
</tr>
<tr>
<td>Providers reached by innovators in product distribution</td>
<td>100k+</td>
</tr>
<tr>
<td>Share of innovators now pursuing operations in both urban and rural areas</td>
<td>49%</td>
</tr>
<tr>
<td>Innovators now operating in more than one country</td>
<td>23</td>
</tr>
<tr>
<td>Share of innovators led solely by a female founder</td>
<td>8%</td>
</tr>
<tr>
<td>Fundraising ceiling for most African founders who lack ties to high-income countries</td>
<td>$150k</td>
</tr>
</tbody>
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## Acronyms and definitions

<table>
<thead>
<tr>
<th>Acronym and Definition</th>
<th>Description</th>
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<tbody>
<tr>
<td>Agent-led product delivery</td>
<td>The use of agents (such as community health workers) to deliver health products directly to patients.</td>
</tr>
<tr>
<td>Business-to-Business (B2B)</td>
<td>The direct conduct of business transactions between one business (oftentimes an innovator) and another business (oftentimes a hospital, clinic, pharmacy or chemist).</td>
</tr>
<tr>
<td>B2B marketplace and fulfillment</td>
<td>Online marketplace that connects several distributors or wholesalers with hospitals, clinics, pharmacies and chemists for product supply and re-supply.</td>
</tr>
<tr>
<td>Counterfeit drug detection</td>
<td>Technologies used to detect counterfeit medications through authentication of product packages or assessment of the product’s chemical contents.</td>
</tr>
<tr>
<td>Digitally enabled Direct-to-Consumer distribution (D2C)</td>
<td>The ordering and direct delivery of prescription and over-the-counter health products to patients through online and mobile channels.</td>
</tr>
<tr>
<td>High-Income Country (HIC)</td>
<td>A country with gross national income per capita exceeding $12,536.20.¹</td>
</tr>
<tr>
<td>Non-Governmental Organization (NGO)</td>
<td>A voluntary group or institution with a social mission that operates independently from the government.</td>
</tr>
<tr>
<td>Over-the-Counter (OTC)</td>
<td>Sale of medicines without the need for a prescription. Regulations specifying where products may be sold, who is authorized to dispense them and whether a prescription is required vary by country.</td>
</tr>
<tr>
<td>Patient engagement</td>
<td>Remote consultation with patients via chatbots, online chats, and social media to enable patients to use and choose medications correctly.</td>
</tr>
<tr>
<td>Pharmacy inventory-management software</td>
<td>The provision and sale of technology-enabled inventory management software to hospitals, clinics, pharmacies and drug shops.</td>
</tr>
<tr>
<td>Product locators</td>
<td>Platforms that enable patients to locate health products in specific pharmacies where they may be available.</td>
</tr>
<tr>
<td>Patent and Proprietary Medicine Vendor (PPMV)</td>
<td>A category of retailer established by the Nigerian Ministry of Health to provide a source of medicine in communities with limited access to essential health commodities. Vendors are allowed to dispense a limited range of pharmaceutical products without formal training in pharmacy.</td>
</tr>
<tr>
<td>Point of Sale (POS)</td>
<td>A place where a retail transaction is carried out.</td>
</tr>
<tr>
<td>Short Message Service (SMS)</td>
<td>A text messaging service that can be exchanged between two or more people or phones as a form of communication.</td>
</tr>
<tr>
<td>Stock financing</td>
<td>The provision of credit to hospitals, clinics, pharmacies and chemists for stock.</td>
</tr>
<tr>
<td>Track and trace</td>
<td>The ability to identify the origin of a drug and determine its current and past locations in the supply chain, thus enabling quick tracing up the supply chain in the case of return, recall or counterfeiting.</td>
</tr>
<tr>
<td>Telemedicine</td>
<td>Synchronous or asynchronous remote medical consultations between consumers and health professionals. This study excludes provider-to-provider telemedicine services, and telemedicine without product delivery, as they do not entail the delivery of medicines to patients.</td>
</tr>
<tr>
<td>Unstructured Supplementary Service Data (USSD)</td>
<td>A communications protocol or code that allows quick and easy communication between GSM cellular phones and network operators computers. USSD can be used for prepaid call back service, mobile-money services, location-based content services and more.</td>
</tr>
<tr>
<td>Vendor-managed inventory services</td>
<td>Programs that allow hospitals, clinics, pharmacies and chemists to fully outsource management of inventory to a partner company.</td>
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Introduction

In the wake of the COVID-19 pandemic, the need for innovative, cost-effective, robust, technology-enabled systems to deliver health products and information has never been clearer. In many contexts, public sector delivery systems are stretched thin, and a large proportion of patients rely on private distribution channels to access essential medicines, often paying out of pocket. However, private sector supply chains for medicines can be highly fragmented, with multiple layers between the point of manufacturing and the point of dispensation.

Private sector health product distribution in some contexts in Sub-Saharan Africa is fragmented and multi-layered, affecting product visibility, affordability, availability and quality. This graphic represents the structure of a market in a country like Nigeria.²

The fragmented and multi-layered structure of private sector supply chains can negatively impact patient access in a number of ways, including but not limited to:

1 **PRICE:** It is estimated that 60% of a product’s “price to patient” is due to costs added from the point at which the product enters the port to the moment it is dispensed. These costs influence the stocking behavior of providers and reduce affordability for patients. Additionally, when donors or pharmaceutical access programs subsidize products at higher points in the supply chain, they are unable to control the effects of subsidies on actual prices to patients.

2 **VISIBILITY:** Though public, private and NGO supply chains can intersect, the flow of information in an end-to-end fashion is often limited, hampering strategic decision-making for manufacturers, providers and payers. Patients also struggle to locate providers who have their preferred products in stock, at competitive prices, and at high quality.

3 **QUALITY ASSURANCE:** As products pass through multiple channels and players, it is difficult to ensure proper storage and handling and to prevent the entry of substandard or counterfeit products.

**What’s new?**

There is an emerging ecosystem of commercial innovators in Sub-Saharan Africa who see an opportunity to sustainably scale disruptive, technology-driven models. In the wake of COVID-19 the context of healthcare provision is evolving quickly, and investors, governments, donors and public health agencies struggle to understand the key trends and opportunities to engage and advance public health goals.

**Objective of report**

This work aims to describe the ecosystem of innovators in health product distribution and address two main questions:

1 **What are the key trends emerging in health product distribution in Sub-Saharan Africa?**

2 **How can global health actors (donor agencies, implementing partners, governments, industry, and impact investors) help accelerate the impact and scale of high-potential innovations?**

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**Scope**

The project is focused on innovative companies working to **improve the movement of health products from the point of local manufacture or clearance at the ports to the point of dispensation**. It includes patient engagement and telemedicine companies that play a direct role in product distribution to patients, but excludes those who do not facilitate product delivery. The report further excludes companies working on innovations in cold chain, medical devices, or unmanned aerial vehicles; upstream innovations in health-system governance, procurement, product registration, logistics management and information systems; and downstream innovations focused on organizing the dispensation of drugs through pharmacovigilance, social marketing, social franchising, provider training and more. Some NGOs (large and small) have also developed innovations in product distribution to complement their core service offerings. These innovations are not covered, unless the innovation is part of the core services the organization provides.

**Geographies**

The project focused on identifying innovators in health product distribution in four countries in Sub-Saharan Africa: **Ghana, Nigeria, Kenya and Uganda**. During data collection, landscaping was extended to 12 French-speaking countries (Benin, Burkina Faso, Cameroon, Congo, Côte d’Ivoire, Chad, Democratic Republic of Congo, Guinea, Mali, Niger, Senegal and Togo) with findings in this report including three innovators in health product distribution operating in **Benin, Côte d’Ivoire and Mali**.

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**Focus geographies:**
- Ghana
- Nigeria
- Kenya
- Uganda
Methodology

Data were collected and analyzed over five months, between December 2020 and April 2021.

**LANDSCAPING**  
Landscaping began with a detailed review of Salient Advisory’s database of start-ups in health product distribution. This was followed with detailed desk, network and internet research. 156 companies were identified through landscaping (N=156).

**PRE-SCREENING RESEARCH AND INTERVIEW**  
Pre-screening calls were conducted to ascertain that the companies fit within scope. During the pre-screening process, 47 companies were eliminated. These companies were no longer active, not yet operational or carrying out services that are out of scope (N=109).

**DATA COLLECTION**  
Data on business models, processes, operations, financing needs, scale of operations, customer profiles, business model pivots and more were collected through structured key informant interviews with company leadership. The interviews were recorded, answers transcribed and the notes were returned to the informant for corrections. Due to lack of response to requests for interviews, 48 companies were excluded (N=61).

**Limitations**

Some companies may have been missed during the initial landscaping. The report also cannot comment on the companies that declined participation. Data collected have not been independently verified and company offerings, scope and scale may change quite rapidly. As such, the relevance of the insights and findings in this report may shift over time.
Findings

The ecosystem of innovation in health product distribution is growing consistently, driven by new entrants. More than 60 companies are now operating in this space, mostly concentrated in Nigeria, Ghana and Kenya.

Research surfaced more than 60 companies working to change how products are distributed with technology-enabled solutions. This represents a more than 100% increase in the number of companies tracked since 2018. More than 40% of the companies featured were founded in the last three years. Nigeria, Ghana and Kenya remain key hubs of activity, with 90% of all companies surfaced having operations in at least one of these geographies.

Health technology companies are blossoming in Francophone Africa; 74 companies were identified through landscaping in the region. However, very few (N=6) are working in health product distribution, three of which are featured in this report. Others were excluded due to lack of response to interview requests.

In 2018, operating as Impact for Health, Salient began tracking health tech start-ups in Sub-Saharan Africa. Since then, there has been more than 100% growth in the number of companies tracked, from 28 companies in 2018.
Research surfaced 61 companies working to change how health products are distributed with tech-driven solutions. Note that some companies are working across multiple geographies.
Innovators broadly offer three types of solutions: consumer-facing services, provider-facing services, and product data services. Hybrid models that work across two or more categories are common. Though consumer-facing services are most commonly offered, user retention appears challenging.

**Consumer-facing service offerings** include new models for digitally enabled direct-to-consumer models for delivery of over-the-counter and prescription products; telemedicine companies that pair consultations with product delivery; and patient engagement (via chatbots and SMS). **Provider-facing service offerings** include innovations in inventory-management software (including point-of-sale systems); tech-enabled vendor-managed inventory services; digital product marketplaces with fulfillment services; and stock financing. **Product data service offerings** include methods for counterfeit drug detection, track-and-trace technology and product data analytics.  

**Service Categories**

**Consumer-facing services**
- Improve distribution, enable dispensation and provide health information to patients through technology-enabled services.

**Provider-facing services**
- Provide inventory-management services and improve distribution to hospitals, clinics, pharmacies and PPMVs through technology-enabled services.

**Product data services**
- Provide information on product authenticity and movement to manufacturers, consumers and government.

**Example Companies**

- **Consumer-facing services**
  - myPaddi, Drugstore.ng, Mobihealth, MYDAWA, Kash, ePharmacy Ghana, AddPharma4u, Rocket Health, more

- **Provider-facing services**
  - Drugstoc, Lifestores Pharmacy, Maisha Meds, Shelf Life, Pronov, more

- **Product data services**
  - Sproxil, PharmaSecure, mPedigree, Chekkit Meditect, RxAll, more

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4 We note emerging adoption of artificial intelligence (AI) by innovators to facilitate product distribution. Meditect (Côte d’Ivoire) and AfyaRekod (Kenya) both offer AI-based solutions to power counterfeit detection capabilities using image recognition technology. Additionally, ClinicMaster (Kenya) deploys AI to offer medicine recommendations based on symptoms provided, through its health management information system. This trend could gain traction, as other innovators in focus geographies indicated interest in developing AI-driven solutions, and may deserve further investigation.
At least 30% of companies offer a blend of services. RxAll provides stock financing and pharmacy inventory-management software to hospitals and pharmacies (provider-facing), a digital marketplace and fulfilment service (consumer- and provider-facing) and nano-scanners for counterfeit drug detection (product data services). Advantage Health Africa’s my-medicines.com offers stock financing and vendor-managed inventory services to hospitals and pharmacies (provider-facing) and digitally enabled direct-to-consumer services (consumer-facing). It remains unclear if companies will focus as the market matures, or if broad-based approaches to services and customers will continue.

64% of companies report offering consumer-facing services. However, user retention in this category appears low. While the number of companies offering provider-facing services is lower, user retention in this category appears higher. Only a few companies offer product data, but most are operating at scale, having reached tens of millions of users. Some of these companies report profitability.

Data on registered and active users is limited: 51% of companies declined to provide this data. However, for those that disclosed user data, findings suggest that provider-facing companies may be better positioned to retain customers: 67% of registered customers are active per month. Only 10% of registered users of consumer-facing companies are active per month.

<table>
<thead>
<tr>
<th>Consumer-facing: N=30</th>
<th>Provider-facing: N=12</th>
<th>Product data: N=4</th>
</tr>
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<tbody>
<tr>
<td>10% retention</td>
<td>67% retention</td>
<td>35% retention</td>
</tr>
<tr>
<td>4,000 median number of registered consumers</td>
<td>600 median number of registered providers</td>
<td>100M median number of registered users</td>
</tr>
<tr>
<td>390 median number of active monthly consumers</td>
<td>400 median number of active monthly providers</td>
<td>35M median number of active monthly users</td>
</tr>
</tbody>
</table>

The ecosystem is still young; most companies are at early stages of maturity and are operating in a single country. However, 30% of companies appear primed for growth.

Most companies are operating at early stages of maturity. However, 30% appear to have reached a growth stage, with significant sales, end users and geographic reach. These companies may be primed to scale their reach and impact.
While 62% of companies operate in a single country, 38% of innovators now operate either regionally or internationally. Findings suggest that regional expansion (defined as expansion to more than one country within an economic region) is emerging among both provider- and consumer-facing companies, including Copia, Maisha Meds, mPharma, and Rocket Health.

International expansion (defined as expansion to more than one country outside an economic region or African continent) appears most common among companies specializing in counterfeit drug detection, though there are some notable exceptions.

Innovators across all categories appear to be making a push to expand into rural areas; a majority of companies now report serving both urban and rural customers, though most companies’ rural operations are nascent. A lack of accessible technology for rural communities and poor access to subsidized products remain barriers to rural scale.

For the first time, the number of innovators that report operating in both urban and rural areas (49%) is slightly higher than the number of innovators that operate exclusively in urban areas (48%). For most, rural operations are still very nascent. The number of innovators that exclusively serve rural areas remains low; Maisha Meds, Healthy Entrepreneurs and Copia are thus notable exceptions.

Innovators report starting operations in urban areas and gradually expanding to serve rural communities to drive scale, impact and profitability. Rural operations often require business model adaptations that move away from a reliance on internet or smartphone access in favor of hybrid approaches that leverage both in-person and offline tech-

“We cannot do one without the other. There is a lot of behavior change that we have to do.”

– Innovator, on combining tech and in-person approaches
nologies (e.g. USSD). Honing these hybrid models takes time, and most rural operations are in the early stages. However, the push to expand in rural settings appears common across most categories of services.

Companies that report operating in both urban and rural areas span several service categories.

In rural areas where purchasing power is limited, partnerships with governments, donors or NGOs to enable innovators to distribute publicly subsidized, quality-assured products is critical. Without access to subsidized products, innovators’ ability to expand equitable access to essential medicines is likely limited. In instances where private markets for essential products are underdeveloped, the inability to source from quality-assured channels can also put patients at risk. For example, an innovator in Nigeria highlighted challenges in stocking the long-acting contraceptive Implanon, indicating that because availability is very limited in private sector channels, they resort to sourcing the product in open markets to fulfill customer demand. When sourcing from open markets, ensuring the purchase of genuine products is very challenging.

To facilitate access to medicines in contexts with low purchasing power, donors and pharmaceutical manufacturers can also leverage innovators to improve the deployment of subsidies. For example, Maisha Meds is building a digital reimbursement platform that enables donors and pharmaceutical manufacturers to offer patients partial subsidies or discounts at the time of sale. The platform can prequalify specific patients for discounts or set product prices based on demographic or geographic characteristics. Because the system sets the price and incentive at the last mile (rather than adding a subsidy at the manufacturer or wholesaler level as is common today), it helps ensure markups in the supply chain do not erode the value of the subsidies for patients. The system is being tested with malaria and sexual and reproductive health products, and findings suggest that targeted incentives or discounts can lead to dramatic changes in demand for the product at the point of care. Such approaches would enable donors and manufacturers to ensure that subsidies result in reduction of product prices to priority patients, while generating real-time and granular data on consumption to inform demand forecasting, public health campaigns and more.

Propelled by COVID-19 and growing digital adoption, consumer-facing companies are partnering to expand their service offerings, creating more seamless, end-to-end patient journeys by pairing telemedicine and product-delivery services.
As competition increases, consumer-facing companies are attempting to expand the scope of their services, telemedicine players are adding product distribution, and D2C distributors are adding channels for telemedicine. In fact, telemedicine paired with D2C distribution is the most common service offering among innovators founded within the last five years.

Most common service offerings by companies founded in the last five years (N = 35)

<table>
<thead>
<tr>
<th>Service Offering</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telemedicine-paired D2C distribution</td>
<td>21</td>
</tr>
<tr>
<td>Digitally-enabled D2C distribution</td>
<td>16</td>
</tr>
<tr>
<td>B2B marketplace &amp; fulfillment</td>
<td>11</td>
</tr>
<tr>
<td>Pharmacy inventory management software</td>
<td>8</td>
</tr>
<tr>
<td>Track and trace</td>
<td>6</td>
</tr>
</tbody>
</table>

Note: Companies often offer services in more than one category.

Innovators are often partnering to enable end-to-end service provision. In Nigeria, my-medicines.com is facilitating product distribution for Doctoora and Gerocare. In Kenya, the D2C distributor MYDAWA now offers telemedicine services powered by SASAdoctor, and powers product delivery for Zuri Health.

If you want to solve healthcare problems in Africa, you have to target the entire ecosystem of healthcare, don’t just micro-target one part.

– Innovator

Telemedicine provides a unique opportunity for Africa to leapfrog her healthcare challenges.

– Innovator

While video-based telemedicine services are common in high-income countries, telemedicine innovators in focus geographies also offer voice- or chat-based consultations to help users save money and avoid gaps in internet access and quality. In Nigeria, DRO Health offers audio and chat-based consultations through a mobile app while, in Kenya, Zuri Health offers an SMS-based service that allows patients to interact with doctors via text — without internet connectivity.
Innovators may increasingly find themselves competing with brick-and-mortar health businesses that are developing digital channels. Several retail pharmacies have begun launching digitally enabled D2C distribution to maximize their reach, and there are strong indications that other prominent retail pharmacy players will start digital operations soon.

In the midst of the economic shocks of COVID-19, stock financing is emerging as a key provider-facing offering, as innovators attempt to help retail pharmacies access working capital.

The World Bank’s Doing Business 2020 report ranked the Sub-Saharan Africa region as having the second poorest access to credit in the world. Amid the COVID-19 crisis we expect that access to capital for healthcare providers has become even more limited. Innovators are attempting to respond to this challenge; nearly half of companies that are primarily provider-facing now report offering stock financing services to retail pharmacy clients (N=7/18). Stock financing services take a variety of shapes; Shelf Life, which operates in Kenya and Nigeria, allows pharmacies to pay for the stock it supplies only after the items have been sold, preventing the pharmacy from tying down money in inventory. Maisha Meds provides unbanked pharmacies with microcredit facilities. In partnership with a financial institution, Pronov allows pharmacies to apply for loans, receive products worth the requested amount and pay back at later dates.

Amid the economic shocks of COVID-19, whether innovators can build the capacities to unlock access to more affordable working capital at scale is yet to be seen. However, very few partners or competitors exist. Traditional banks are unable to lend competitively into the sector, supply chain finance innovations in health are nascent, and innovators report that partnering with start-ups in fintech to

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lend to providers is impractical as the rates are too high. 6, 7

Companies offering provider-facing stock financing include: DrugStoc, Shelf Life, RxAll, Pronov, Remedial Health, Healthy Entrepreneurs and Lifestores.

**Funding in the ecosystem remains limited and highly concentrated.** Local founders without ties to high-income countries face clear fundraising ceilings, inhibiting their impact and growth. Only a small proportion of companies are solely female-led.

8% of all companies are led solely by a female founder. However, ~30% of all companies have mixed-gender leadership, which may allow the innovators to bypass barriers that women-led companies face in hiring, fundraising and growth.

60% (N=37) of innovators we track in health product distribution report ever having received external financing of any type, totaling US $153 million. In previous rounds of data collection, only 50% of companies reported having received external financing of any type, suggesting that funding momentum is growing for the innovators we track.

6 Innovators are also attempting to approve affordability and reduce out-of-pocket payments for consumers. In Nigeria, Wella Health offers micro-insurance packages to allow consumers access healthcare and products to treat specific ailments. mPharma is rolling out a lending service (Mutti) to provide interest-free loans to consumers. It will determine creditworthiness with a proprietary assessment system, likely based on transaction history. Another consumer-facing innovator is developing a nano-credit facility to allow patients to pay for purchased medication in instalments. While interesting, the potential for micro-insurance and consumer-focused lending to impact the affordability of medicines at scale appears very limited.

7 There are very few potential competitors developing supply chain finance solutions for health. Notable exceptions include Kountable who offer bundles of funding, credit and trade finance solutions to SMEs, including in the health sector, allowing participating SMEs to better procure and deliver products; and IMFact which is testing the use of factoring of invoices from private distributors in Kenya, as a way to unlock working capital in the distribution sector.

However, funding remains highly concentrated in a handful of companies: Seven companies account for 82% of all reported external funding. Only one of these companies has an African founder or co-founder. While three of the companies have female founders or co-founders, none of them are African.

Notes on graphic: eHealth Africa, a non-profit which has raised $18 million in grants, has been excluded from this analysis and the funding total as we were unable to distinguish what proportion of grant financing was dedicated to their technology-driven innovations in product distribution. Jumia, being a publicly listed company, was also excluded. We also note that mPharma, which has raised the largest amount of funding among innovators being tracked, has broad operations that extend into retail pharmacy operations and diagnostics equipment.

African innovators who lack ties to high-income countries (HIC) find it particularly difficult to raise funding. Receiving education from or garnering work experience in HICs, and having nationals from HICs as founders or co-founders on the team, can play a key role in facilitating access to global investor networks. The majority of African founders without HIC ties who have received external funding have raised less than US $150,000 (N=10). In stark contrast, the majority of innovators with ties to high-income countries — through work experience, education, or non-African co-founders who have raised external funding — have garnered over US $1 million in support (N = 27).
This apparent fundraising ceiling reflects long-running beliefs about perception bias on the part of global investors in Africa’s tech ecosystems, particularly among venture capital investors who appear more likely to fund innovators with HIC ties. Indeed, eight of the top 10 Africa-based start-ups that received the highest amount of venture capital in 2019 had non-African founders or co-founders.⁹

Lack of clear and harmonized regulations remain a barrier to growth in scale and scope, particularly for direct-to-consumer distribution and telemedicine companies.

At the time of data collection, none of the focus countries had guidelines for the regulation of e-pharmacies (digitally enabled D2C distribution) and telemedicine companies, though they were in development in Nigeria, Ghana and Uganda. Innovators operate in a gray area, and this limits the types of services they provide. For example, some D2C distribution companies report focusing primarily on over-the-counter products because the lack of e-pharmacy regulations represents a risk in launching online distribution of prescription products. In addition, multi-lateral investors report that the nascent state of regulation intensifies the risks of investing in this space.

Telemedicine innovators also highlight that lack of regulation constrains geographic expansion. In each new country of operations, a regulatory assessment needs to be conducted, and without clear guidelines it is costly and time-consuming. Clear and harmonized guidelines would help facilitate geographic expansion.

Finally, in Kenya a new digital tax presents a burden for e-commerce companies as it raises the price of services. The tax regulation is also not clear on e-commerce-specific transaction challenges such as returned items, which can complicate operations.

The CAP 244 which is a law that regulates pharmacy practice in Kenya did not capture online trade of drugs. That’s why at the moment we don’t deal with prescription medicine, we deal with just OTC.

– Innovator

Regulation is an important issue [for investors]. Tech-related regulations are often non-existent, for example, data storage rules in Kenya, unclear or inconsistent, as is the case with telemedicine in several countries, or lack harmonization between neighboring countries, inhibiting companies’ growth.

– Multilateral investor

Very few provider- and consumer-facing innovators are deploying counterfeit-detection technologies. Partnerships between the innovators could help improve product quality assurance among innovator companies — and beyond.

Provider- and consumer-facing innovators rely heavily on existing regulatory guidelines to control the quality of products distributed. Innovators ensure packaging has not been tampered with and that drugs are registered with the regulator and sourced from trustworthy suppliers. However, companies lack the capacity, resources and infrastructure to empirically verify quality; only six (11%) companies reported being able to engage in batch testing. The need for robust quality-assurance mechanisms is high as innovators still run the risk of sourcing products from unsecure suppliers.

Innovators like RxAll offer counterfeit-detection technologies at the point of sale, while others such as Chekkit, PharmaSecure, Meditect, Sproxil and mPedigree package products with unique barcodes for consumers or providers to conduct mobile phone-based product authentication. Unfortunately, there are very few examples of partnerships between consumer- and provider-facing innovators to deploy decentralized counterfeit-detection technologies.

For the first time, some e-commerce giants are showing a strategic interest in health. Some may be poised to deliver at scale if they are able to overcome regulatory hurdles.

Since our last report, three e-commerce companies that distribute a wide range of products have now added over-the-counter health products to their offerings. Jumia, Konga and Copia have been operating for nine years in Africa and have an incredible reach: Jumia operates in more than 13 countries, Konga operates in all states in Nigeria, and Copia operates at a national scale in Kenya. Together, they boast at least 25x the user base of health-focused direct-to-consumer delivery start-ups we track, with highly developed digital systems for ordering, payment and fulfillment.

Considering their reach, scale, maturity and infrastructure, the impact of e-commerce giants on the distribution of health products could be significant. In the short term, they can be leveraged to deliver donor-subsidized over-the-counter medications and self-tests. Their digital systems could allow
for real-time understanding of product flow and consumption, and may enable better control of costs to patients than current mechanisms of private sector distribution. Long-term, e-commerce could be partners in the distribution of prescription products if regulatory frameworks allow.

In the US and India, partnerships with or acquisitions of e-pharmacies have recently enabled e-commerce giants to circumvent regulatory barriers. In 2019, Amazon acquired PillPack, a start-up specializing in the online distribution of prescription medication in the US. The acquisition reduced regulatory barriers for Amazon, as PillPack had already obtained licenses to ship prescription medication in 49 states.\(^{10}\) In India, Walmart-backed Flipkart partnered with 1MG, a leading online pharmacy, to provide over-the-counter products via its platform.\(^{11}\)

However, in Sub-Saharan Africa, the entry of e-commerce giants into health product distribution is nascent. Nigeria’s Konga appears to be leading the charge, having recently announced the launch of a subsidiary focused on health product distribution, called Konga Health.\(^{12}\) Leveraging the backbone of Konga’s infrastructure provides significant advantages: Konga has received US $79.5 million in investment, built an online ordering system, e-payment capacity, and logistics capabilities including cold-chain. Konga has processed more than 15 million online orders nationwide. Following the acquisition of Konga by the Zinox Group in 2017, the company is now led by Zinox’s chair, Leo Stan Ekeh, a seasoned technology entrepreneur who has founded a host of successful technology companies including BuyRight Africa, Task Systems and Technology Distributors.

As e-commerce giants gain traction, and some signal an interest in health, this space will be very important to watch.

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The majority of innovators are interested in distributing COVID-19 products, including the vaccines. Innovators can leverage patient engagement platforms to distribute information, track-and-trace technology and expertise in vaccine delivery to support the efforts.

Since the onset of the pandemic, innovators have been contributing to the fight against COVID-19. Direct-to-consumer companies such as Kasha have been distributing personal protective equipment and sanitizers in line with social distancing rules. In Ghana, mPharma invested in developing and enhancing COVID-19 testing capacity by providing partner hospitals with molecular diagnostic equipment for COVID-19 free of charge in exchange for a revenue split per test conducted. MedSource and Maisha Meds leveraged their distribution data to help address stock-outs and optimize allocation for key COVID-19 products. Innovators such as Mobihealth in Nigeria and MedPharma in Ghana have also offered at-home testing capabilities, while AfyaRekod in Kenya has developed an app specific to COVID-19 that enables users to run a COVID-19 assessment test, track symptoms, consult with doctors and access information on the virus.

More than half of innovators (53%) hope to support distribution of COVID-19 vaccines by providing track-and-trace services, supporting last-mile delivery and aiding in vaccine administration. In Ghana, mPharma has led a private sector consortium of banks, telecommunication companies and oil companies that agreed to pay for the vaccine for their employees and donate an equivalent number of vaccines to the government. The first batch of vaccines that arrived was donated to vaccinate health workers. Others hope to find ways to contribute in the coming months. For example, MYDAWA’s cold-chain capacity is already used to facilitate delivery of chronic medications to patients through a partnership with the Non-Communicable Diseases Alliance in Kenya, and could be expanded upon to enable the distribution and administration of COVID-19 vaccines. Additionally, MYDAWA can leverage its existing data systems to provide links to key patient data and facilitate track and trace efforts. In Uganda, Rocket Health is already licensed to administer 30 vaccines and hopes to leverage these capabilities to support COVID-19 vaccine distribution efforts. All consumer-facing companies with direct digital relationships with consumers could be engaged to distribute trusted information on public health recommendations, symptom screening, testing (including processes, locations and results) and vaccinations (including eligibility, locations and follow-up).

However, plans for involvement are highly dependent on governments’ and donor agencies’ willingness and capacity to engage private sector actors and health tech innovators in distribution programs. Given the magnitude of the challenge COVID-19 presents, responses would benefit from mechanisms to leverage the reach, agility and ingenuity of private sector innovators.

Large-scale partnerships to power impact at scale still appear nascent.

To generate public health impact at scale, innovators will need to become channels for the delivery of health products by large purchasers, producers or distributors of medicines. Partnerships with donor and multilateral agencies, implementing partners, governments, pharmaceutical companies, insurance companies and logistics companies can test the effectiveness and efficiency of these systems in expanding access to medicines. To date, examples of commercial partnerships are nascent but include:

- **AstraZeneca’s partnership with MYDAWA** enables patients to access AstraZeneca products on its platform, receive counseling and refill reminders to support adherence.

- The largest logistics company in Anglophone Africa, **Imperial Logistics, and Newtown Partners** launched a US $20 million fund to invest in technology-driven companies and has deployed this funding to support: Field Intelligence’s **Shelf Life**, a tech-enabled vendor-managed inventory service for community pharmacies in Kenya and Nigeria, **RedBird**, a supplier of rapid diagnostics tests in Ghana, and **Lori Systems**, a digital freight exchange that uses technology to provide long-haul transport solutions.16 Imperial also acquired South Africa-based **Parcelninja**, to accelerate their digital capabilities and expand into last-mile distribution and e-commerce fulfillment.17

- Private insurance companies including **Britam, Sanlam, AAR, UAP** and others have established partnerships with **SASAdoctor, MYDAWA, Rocket Health and Wella Health** to ease beneficiaries’ access to medicines and reduce costs.

However, partnerships with public purchasers, including major procurers of donor-subsidized products such as the Global Fund, UNFPA or USAID, national health insurance schemes, and Ministries of Health appear almost non-existent in the focus geographies.18 Pilot projects to test innovators’ capacities in specific health areas are more common, but efforts to study the potential cost-effectiveness and reach of these systems as larger channels for the distribution of product information and publicly subsidized products are still lacking.


18 Kasha’s partnership with the Ministry of Health in Rwanda to pilot the home delivery of antiretrovirals (ARVs) to HIV/AIDS patients appears to be a notable exception. Through this program, ARVs are availed for free (similarly to public health clinics) with the patient only paying the delivery fee. Patients also receive counseling prior to dispensation and refill reminders.
Recommendations for global health stakeholders

In the wake of COVID-19, health systems are stretched thin. Global health stakeholders should act boldly to usher in a new wave of health product distribution by supporting, partnering and scaling locally driven, technology-enabled innovations.

Unlocking the growth and public health impact of African health technologists could pay dividends – for all. The need has never been more urgent.

Based on findings, there are seven key opportunities to act:

1 **Invest in African founders.** Reshape investment ecosystems to ensure more equitable funding and professionalized support is accessible to high-potential African founders who typically lack access to global networks, including female founders and innovators in Francophone Africa.

2 **Mainstream partnerships with the most promising companies to drive impact and scale.** With a subset of promising innovators, catalyze partnerships with major purchasers and producers to support innovators’ maturation and enable the distribution of publicly subsidized products through tech-driven platforms. Study the costs, efficiency and reach. Leverage innovators’ granular consumption data to sharpen supply forecasting, and leverage digital relationships to test the transfer subsidies for essential health products directly to consumers or to providers at the point of sale. Explore opportunities to engage innovators to support access to COVID-19 information, testing and vaccinations.

3 **Fast-track the introduction and harmonization of innovation-friendly regulations.** Review, develop and harmonize regulations for telemedicine providers and innovators offering digitally enabled D2C distribution of medicines. Favorable government policy is critical to growth and impact for such companies.

4 **Prioritize rural coverage.** Leverage highly risk-tolerant grant capital to support the commercial development and scale of models to serve rural populations: e.g. hybrid of in-person and technology interventions for distribution to consumers and accessible, offline technology solutions for providers. Enable innovators to distribute publicly subsidized essential medicines.

"New technology, better use of data, and entrepreneurial passion in improving distribution channels is reaching a critical mass with the potential to drive extraordinary improvements in availability, affordability and quality of health products."

– Prashant Yadav and Amanda Glassman, Center for Global Development
5 Increase access to affordable working capital. Economic shocks driven by COVID-19 may further constrain providers’ access to credit to purchase health products, hampering availability. Develop mechanisms to improve providers access to affordable working capital, and to enable innovators to offer low-cost onward lending to their customers.

6 Harness innovators’ product information systems and data analytics capabilities. Aggregate sizable product datasets, currently existing in silos, for better public health supply chain planning and visibility. Develop mechanisms to enable this at scale.

7 Investigate the potential for scaling decentralized quality assurance mechanisms. Most innovators rely on supplier vetting as their primary product quality assurance strategy, as batch testing to determine drug quality is difficult outside of large, government-owned laboratories. More reliable signifiers of drug quality are needed to accurately identify genuine products, including cheap generics, and distinguish them from poor quality fakes. Incentivizing product authentication to enable end-to-end visibility, and deploying hand-held devices like the RxAll nano-scanner at point of sale could be potential solutions to this problem. Global health actors should determine the efficacy and cost-effectiveness of decentralized quality assurance mechanisms, understand demand for such approaches from providers and governments, and explore how joint purchasing mechanisms or partnerships might enable deployment at scale.

https://core.ac.uk/download/pdf/35282367.pdf
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