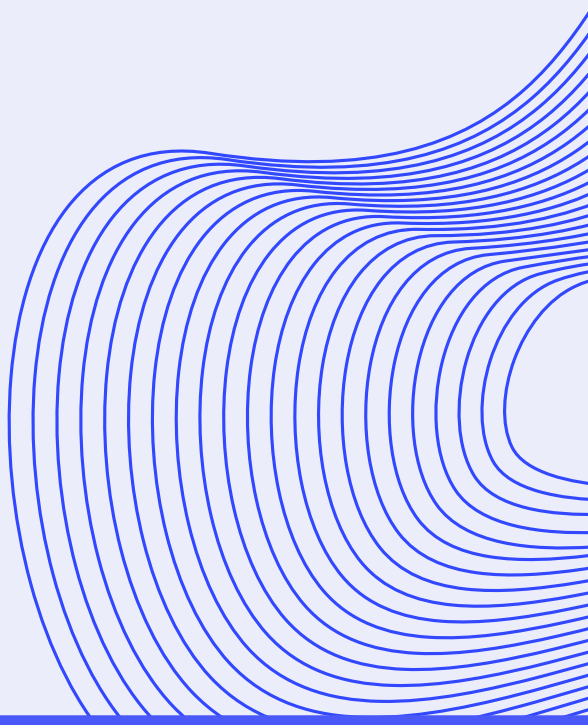
SALIENT

Innovations In Digitizing Health Supply Chains in Africa

Market Intelligence Report | July 2023

Table of Contents



Disclaimer

This report entitled "Innovations in Digitizing Health Supply Chains in Africa: Market Intelligence Report" (hereinafter referred to as "the Report") is produced for general informational purposes only. It is not intended to be an exhaustive source of information on the subject matter covered.

The information contained in this Report has been obtained from sources believed to be reliable at the time of publication. However, Salient Advisory does not guarantee the accuracy, completeness, or relevance of this information, nor does it guarantee the absence of errors, omissions, or potential changes in circumstances that could affect the validity of the information.

The Report is not intended to provide medical, financial, investment, legal, tax, or any other type of professional advice or services. Any actions or decisions taken on the basis of the information provided in the Report are at the sole discretion and risk of the reader. Salient Advisory disclaims all liability to the maximum extent permitted by law for any direct, indirect, incidental, consequential, punitive, or exemplary damages arising out of or in connection with the use of the Report or any of the information contained therein.

The opinions expressed in the Report are those of the authors and do not necessarily reflect the views of Salient Advisory, its board of directors, employees, or affiliates.

This disclaimer is to be interpreted in accordance with the laws of the United States of America and Canada.

This page is subject to change without notice. The most current version of this disclaimer can be found on our website.

For any queries or further information regarding the contents of this report, please contact us at **hello@salientadvisory.com**.

Acknowledgements

This work was led by Yomi Kazeem, Oladunni Lawal, Juddy Gitahi, Idris Bakare, and Zillah Waminaje, with support from Samantha Horrocks, Mara Hansen Staples, Remi Adeseun and on gender findings, Sharon Sutton PhD.

Special thanks to Ann Allen of the Bill & Melinda Gates Foundation who offered invaluable guidance and partnership, and to the innovators whose work continues to inform and inspire us.

This report is based on research funded by the Bill & Melinda Gates Foundation. The findings and conclusions contained within are those of the authors and do not necessarily reflect the positions or policies of the Bill & Melinda Gates Foundation.

Suggested citation:

Innovations in Digitizing Health Supply Chains in Africa; Market Intelligence Report. Salient Advisory, July 2023.

Executive Summary

An emerging generation of innovators are poised to reshape health supply chains across the continent. By deploying tech-enabled models, these innovators are solving perennially critical challenges to improve the availability, accessibility, quality, affordability, and visibility of health products.

More importantly, these innovators are fostering more resilient supply chains across Africa – a crucial role, given the long history of local health supply chains being fragmented, overburdened, and susceptible to the influx of fake or substandard products.[1]

With these critical deficiencies having been highlighted amid the COVID-19 pandemic, the growing activity of innovators with tech-enabled supply chain solutions is timely – and a better understanding of their solutions, operations, and impact is essential.

With expanded geographical coverage and scope of solutions tracked, *Innovations in Digitizing Health Supply Chains in Africa*, our fifth market intelligence report, provides the first description of the pan-African landscape of tech-enabled supply chain innovations, advances understanding of key trends, and highlights opportunities for stakeholders to effectively engage with innovators.

Key Findings

Nearly **350 innovators are digitizing health supply chain processes across the continent, with headquarters in 27 African countries**, as well as concentrated activity in the tech hubs of Nigeria, Kenya, South Africa, and Egypt. Twelve percent of healthcare supply chain innovators are headquartered in francophone African countries, while 10% are headquartered outside the continent, across Europe, the US, and Asia.

Innovators operate across five major supply chain process categories, with 25% operating in more than one area.

1. There are more than 100 innovators in the **Order and Inventory Management** category; most of them are headquartered on the African continent, serving providers and governments. Fourteen innovators – the most of any supply chain process category in our research – appear to have partnerships to serve governments. In spite of their prevalence, all the innovators in this category have raised only 9% of the total funding for supply chain innovations over time.

2. With nearly 200 innovators, the **Direct Distribution to Consumers** category contains the highest number of startups, most of whom are headquartered in Africa. Giant e-commerce companies that deliver a limited number of over-the-counter health products have captured the majority of funding in this space, while 193 online pharmacy companies operate on a smaller scale, with more limited funding and reach.

3 Innovators in the **Transport, Warehousing, and Reverse Logistics** category are enabling distribution for governments and providers. While innovators in this category have raised 28% of the total funding for supply chain innovations over time, this funding is highly concentrated. A small number of non-African medical drone delivery operators have raised 98% of the funding in the category, and, among innovators in this category, non-African drone companies have been the most successful in selling to governments.

4 With fewer than 10 identified companies, innovators in the **Product Protection and Visibility** category primarily serve manufacturers and governments. While several mature companies exist in this space, new entrants are gaining speed with national and international expansions in support of broader traceability agendas.

5 Fewer than 10 innovators are also focused primarily on healthcare supply chain **Data Analytics**. These innovators are mostly headquartered on the continent, at the nascent stage and have raised very few funds.

Fifty-seven percent of the innovators we tracked were founded in the last five years, suggesting that this is still an emerging ecosystem. However, after a peak of innovation amid the pandemic in 2020, **the number of new entrants declined by 88% from 2021 through 2022.**

However, there are **nearly 50 companies across the continent operating at the growth and mature stages**, a positive signal of their readiness for partnerships and impact at larger scale. Generally, mature- and growth-stage companies are more likely to be headquartered outside the continent.

Governments are leading the way with partnerships, working with innovators on nearly 50 past and present partnerships to leverage tech-enabled supply chain solutions. In total, governments in 12 African countries have partnerships, with governments in Nigeria, Kenya, and Rwanda being the most active. In contrast, partnerships appear to be almost nonexistent across Northern Africa. **Governments also dominate the partnerships landscape, with very few global health agencies or donor partners identified.** While the increasing number of partnerships represents growth given historical context, the stark reality is that the number of companies with partnerships represents just 8% of all innovators. Despite growing interest in partnerships on the part of governments, challenges around scaling existing partnerships, such as bureaucratic delays in implementation or access to funding, remain significant.

The ecosystem of healthcare supply chain innovations across Africa is dominated by men; only 8% of companies were founded solely by women. **Nigeria and South Africa are hubs for women founders, with 76% of companies solely founded by women headquartered in those two countries.** Strikingly, activity by women founders is minimal across Northern Africa, with only one solely women-founded company identified.

Supply chain innovators in health across the continent have raised $2.6 billion in

external funding since their founding, 93% of which has been in the form of equity investment. However, a small number of e-commerce giants and medical drone delivery operators account for 77% of all funding raised; **health supply chain innovators operating in other categories have raised only $584 million overall. Strikingly, companies founded solely by women have received only 2% of all funding over time.** Women leaders' lack of access to equity financing means they have been more reliant on grants and debt to grow their businesses and impact. Launched in 2022, the Investing in Innovation program appears to be the most active funder of supply chain innovators featured in our research, while Plug and Play is the most active source of equity funding, with six deals.[2]

Recommendations for Global Health Actors

There is a robust pan-African ecosystem of tech-enabled innovators who offer significant supply chain solutions. Stakeholders have a range of opportunities to effectively engage and systematically accelerate the scale and impact of these innovators, engender stronger local supply chains, and also advance gender equity.

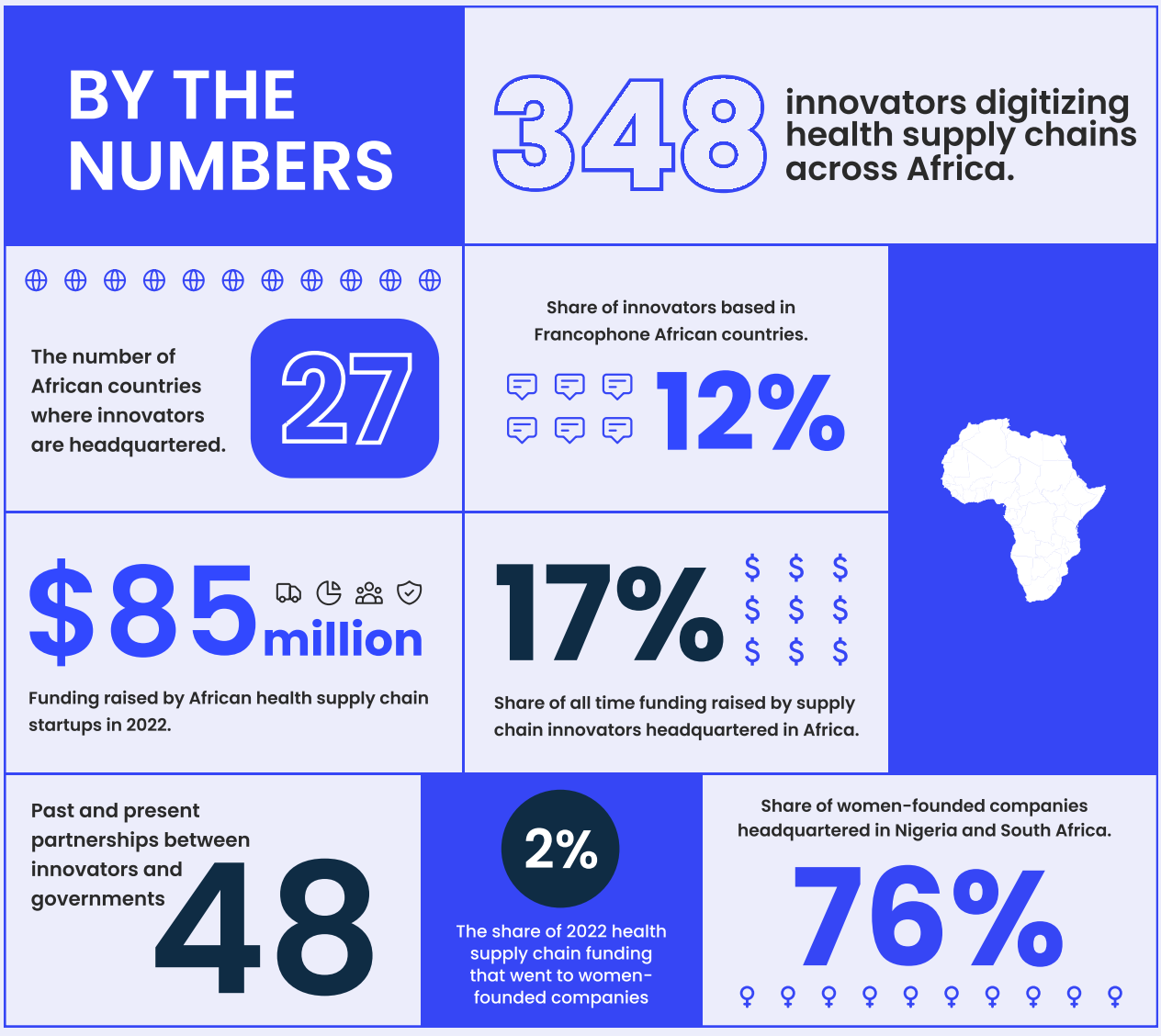
Governments are leading the way in partnering with innovators, but these partnerships require support.

- **Partnerships need to be de-risked through the use of innovative trade financing solutions.** Innovators need trade financing solutions that will enable them to deliver on large orders from government clients and other major purchasers. Currently, the lack of these financing solutions significantly limits innovators' ability to fulfill large orders and serve major clients. By providing trade financing solutions directly to innovators, partnerships can be de-risked, ensuring short- to medium-term sustainability of these partnerships as innovators validate their potential for impact.
- **Innovation support programs are likely required, for innovators and for public purchasers.** With innovators generally lacking experience in working with public sector actors, and public sector actors typically unfamiliar with innovators' solutions and fast-paced approaches, two-way capacity building and learning programs can bridge crucial gaps. Venturing beyond surface-level introductions, these programs can provide both sides with increased clarity on pathways to sustained partnerships, as well as provide specific support to governments with regard to structuring performance-based contracts and pilot programs.

Global health agencies and donors have significant opportunities to become more actively involved in fostering local innovation in supply chains by:

- **Investing in measuring the impact of ongoing government-led partnerships.** As data show, governments partnerships are on the rise. Funding of implementation research to generate evidence of the impact of these partnerships will position donors and global health agencies to embark on this path as well, and purchase supply chain services from local innovators if and when the outcomes and costs offer significant advantages over current systems.

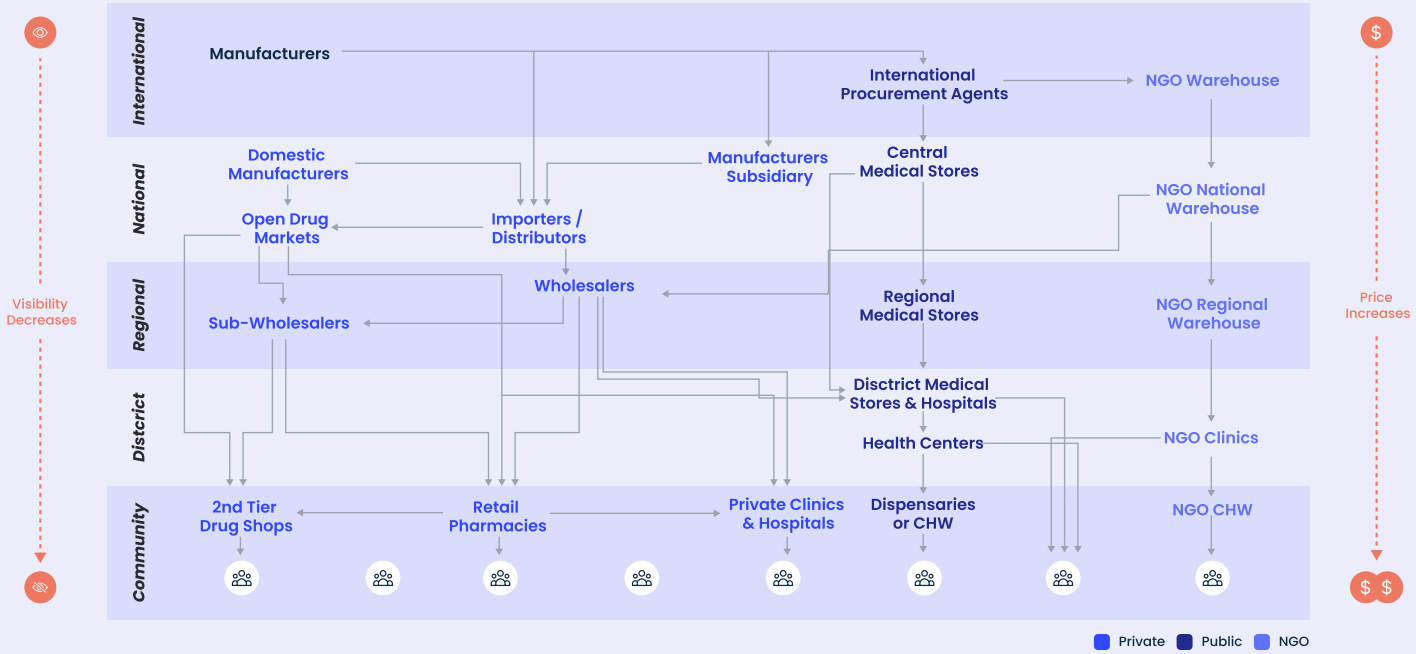
- **Adjusting purchasing processes to engage with promising innovators.** As innovators scale and demonstrate impact, donors and global health agencies must adapt procurement mechanisms to enable purchasing of supply chain services from leading local innovators. In markets where external donor financing plays a dominant role in the purchase of supply chain services, leading innovators simply cannot reach impact at scale without donor patronage.
- **Continuing to leverage grants to create more equitable innovation ecosystems.** Funding data show that women founders remain largely excluded from equity financing. Targeted grant programs are critical to building inclusive ecosystems, bridging existing funding gaps, and achieving equity across ecosystems.



Introduction

Private and public health supply chains across Africa have long been characterized by inefficiency and fragmentation. These problems were amplified during the COVID-19 pandemic as delays and failures in the distribution of critical health products heightened the visibility of existing gaps in local health supply chains.

Multiple touchpoints between manufacturing and dispensation result in fragmented supply chains in Nigeria, Africa's largest market. [3]



Existing deficiencies have spurred tech-driven innovations that offer digitally enabled solutions, which can optimize health supply chains to improve the availability, affordability, and quality of health products, driving positive health outcomes.

These innovators and the distribution systems they foster are pivotal to leapfrogging and overcoming the long-standing health supply chain challenges that have been seen across the continent. The range of solutions includes: enabling direct distribution of products to consumers; simplifying order and inventory management processes for clinics, hospitals, and pharmacies; providing tech-enabled transport, warehousing, and reverse logistics services; enabling product protection and visibility across supply chains; and fostering data-driven approaches to forecasting and demand planning.

This report aims to describe the landscape of innovators digitizing health supply chains on the continent, with two key objectives:

1. Provide the first Africa-wide view on the landscape of digitally enabled health supply chain innovations.
2. Identify key trends and critical opportunities for effective stakeholder engagement.

Scope

Unlike our previous reports' focus on specific countries, this research sought to identify innovations that leverage technology to optimize health supply chains, from the points of local manufacture or importation to points of dispensation, across all 54 African countries.

This includes innovators who: facilitate direct distribution of medicines, consumables, and devices to consumers; enable clinics, hospitals, and pharmacies to order and manage their inventory of medicines, consumables, and devices; provide transport, warehousing, and reverse logistics services to hospitals, clinics, and pharmacies; enable product protection through counterfeit detection solutions, and product visibility through track and trace solutions; and provide data analytics to support forecasting and demand planning.

The Report excludes companies working on upstream innovations in health-system governance, procurement, product registration, public sector logistics management, and information systems, as well as downstream innovations focused on organizing the dispensation of drugs through social marketing or social franchising. Non-governmental organizations have also been excluded.

Methodology

Qualitative and quantitative data were collected via primary and secondary research methods from October 2022 through March 2023.

Landscaping n=3,077

Using Salient's database and other secondary sources, 3,077 health technology innovators operating in Africa were identified. A total of 2,499 were excluded, as their operations were not focused on health supply chain solutions. The 578 innovators that appeared within scope were included in the screening phase.

Screening n=578

Screening was conducted through desk research, email, and telephone outreach to ascertain the eligibility and current operational status of identified companies. We eliminated 230 as we determined that their business models and geographical coverage were out of scope. Overall, 348 companies were finally confirmed as being within scope, and included in the data collection phase.

Data Collection

n=348

The first phase of data collection relied on secondary research methods to collect data from publicly available sources concerning company demographics, business models, supply chain service offerings, geographical scale of operations, and funding. These data were gathered through desk research, external databases, and Salient Advisory's database. Data were collected and cross-referenced across three distinct information sources.

The second phase of data collection relied on primary research methods to fill existing data gaps and resolve identified discrepancies. Email outreach was conducted to 336 innovators, requesting information to fill identified data gaps. We received 123 responses and updated our database to enhance data completeness. In total, we have 80% or more data completeness for 98% of featured innovators.

The third phase of data collection relied on primary research methods to explore specific hypotheses. Structured interviews were conducted with 18 key informants, a group that consisted of innovators, ecosystem stakeholders, and government officials, and data were collected on partnerships, ecosystem trends, and more. The interviews were recorded, responses were transcribed, and interview notes were returned to interviewees for corrections, amendments, or updates.

Limitations

Reliance on secondary data sources may have resulted in the omission of some eligible companies during the landscaping. The primary and secondary data collected have not been independently verified. As innovators' service offerings, scope, and scale may change, the relevance of the insights and findings presented may shift. Gaps exist in the data collection, as noted above.

Findings

1

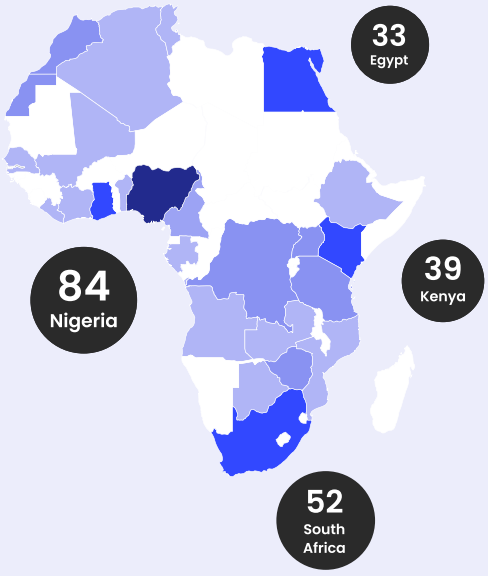
Nearly 350 innovators are digitizing health supply chains across the continent, spread across 27 African countries with a concentration in Nigeria, South Africa, Egypt and Kenya.

The first ever pan-African landscape assessment of innovators digitizing African health supply chains revealed 348 innovators headquartered across 27 African countries, signaling a robust pan-African ecosystem.

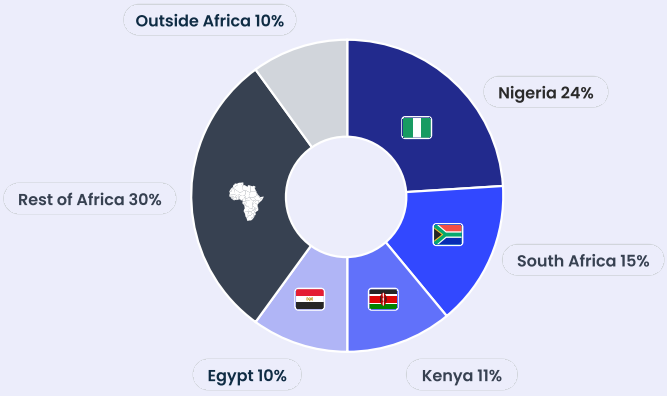
Nigeria, South Africa, Kenya, and Egypt – the "Big Four" – stand out as key hubs for tech-enabled heath supply chain solutions; of all innovators, 60% (n=208) are headquartered in these countries.

Twelve percent (n=41) are headquartered in francophone African countries, such as Côte d'Ivoire, Cameroon, Democratic Republic of Congo, and Senegal. Ten percent (n=35) are headquartered outside of Africa, and are spread across North America, Europe, and Asia.

Nigeria, South Africa, Kenya and Egypt stand out as key markets among innovators headquartered in Africa (n = 313)



90% of innovators are headquartered in Africa, with only 10% located outside the continent (n=348)



Eighty-one percent of companies each operate in a single country. Multi-country operations are likely limited by the nascency of the ecosystem as well as uncertain regulatory environments.[4,5] Current economic headwinds suggest multi-country operations may remain limited in the short-to-medium-term as innovators restructure for efficiency. For example, Kenya-based e-commerce operator Copia reversed

expansion plans and recently shuttered operations in Uganda, citing the need to "assure short-term profitability and long-term success." [6]

2

Innovators who are digitizing health supply chains in Africa operate across five major supply chain processes. 25% of innovators operate in more than one category.

Serving Consumers

1 Direct distribution to consumers

Processes that enable consumers to access and purchase health products through digital channels, including online pharmacy operations, telemedicine with product delivery, and access pricing solutions. [7]

Online Pharmacy | Telemedicine with product delivery | Access pricing/product discounts

Serving providers, manufacturers, and health systems managers

2 Order and inventory management

Processes that enable providers to restock, track and/or finance inventory through digital marketplaces, inventory management, and inventory financing solutions.

B2B digital marketplaces | Inventory management services | Inventory financing

3 Transport, warehousing, and reverse logistics

Processes that enable providers and governments to efficiently distribute health products to and from health facilities by using cold chain transport, tech enabled logistics, and medical drone delivery solutions. It also includes reverse logistics solutions to aid in the collection, management, and disposal of medical waste at health facilities.

Tech-enabled logistics services | Cold-chain services | Drone delivery services | Medical waste management

4 Product protection and visibility

Processes that enable manufacturers to protect product movement along supply chains through counterfeit drug detection and track and trace solutions.

Counterfeit drug detection | Track & trace

5 Data Analytics

Processes that enable providers, manufacturers, and governments to efficiently manage demand planning, and to better understand consumer consumption trends.

Product analysis | Consumer analytics

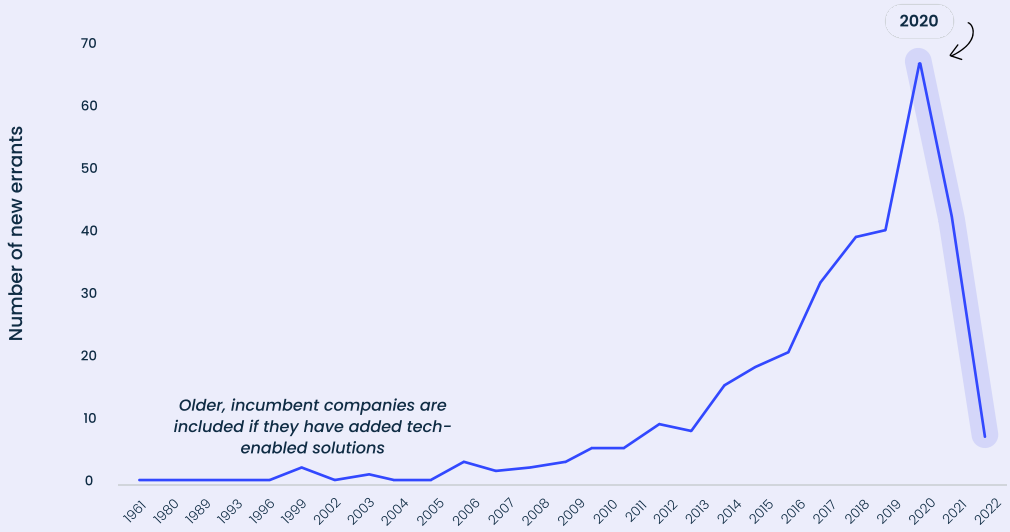
As with previous rounds of our research, classifying the innovators is not straightforward. For such innovators, classification has been based on the primary supply chain processes they engage in.

3

Health supply chain ecosystems are seeing a sharp decline in new market entrants, following a pandemic-induced peak in 2020.

Reflecting global health technology ecosystem trends, digital health solutions across Africa experienced a boom during the COVID-19 pandemic.[8] This effect remains evident in our research: with pandemic-related conditions fueling interest, demand, and urgency, 19% (n=66) of identified innovators were founded in 2020. **However, as pandemic-related movement restrictions eased and general business operations increasingly normalized, the number of new entrants declined by 88% from 2021 through 2022.**

The number of new market entrants dropped precipitously across ecosystems since 2020. (n=342)



This steep decline may be due to several factors, including saturation of companies providing similar solutions, post-pandemic decline in demand for digital-first products, and large incumbents adapting to provide consumers services similar to what startups offer.[9, 10]

In the US, with giants like CVS and Walgreens replicating innovators' features, consumer-focused pharmacy startups appear to be struggling for growth, which can result in multiple rounds of layoffs, as in the cases of Truepill, Alto, and Capsule, and shuttered operations, as in the cases of Medly and NowRx.[11, 12]

The decline in new entrants may also be due to the current bearish outlook of venture capital funding: Salient's data show that overall funding for African health technology innovators slowed in 2022.[13] Globally, the investment momentum for digital health solutions also slowed between 2020 and 2022 with decreased funding, a decline in merger and acquisition exits, and decreased deal sizes.[14]

Our determination of the number of companies founded in 2022 may be a slight underestimate, as new companies tend to operate below the radar in their first years of

operation. Regardless of this potential underestimation, it remains likely that the pace of new entrants has slowed.

4

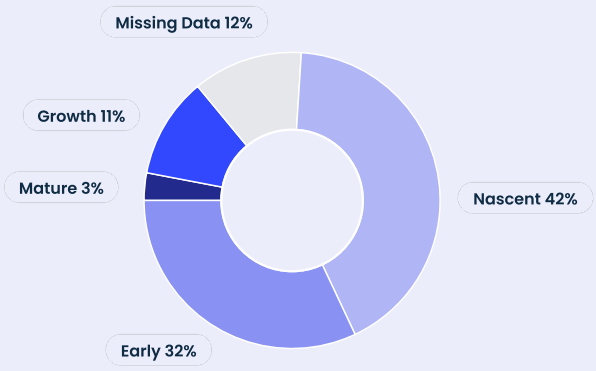
There are nearly 50 companies operating across the continent at growth and mature stages, signaling readiness for partnerships and impact at larger scale.

There are 48 companies in either the growth or mature stages and appear primed for scale, increased impact, and partnerships with public purchasers.[15] In fact, 35% of these growth and mature stage companies already have partnerships with governments at national and sub-national levels across the continent. See page 21 for further analysis on partnership trends across African health supply chain ecosystems.

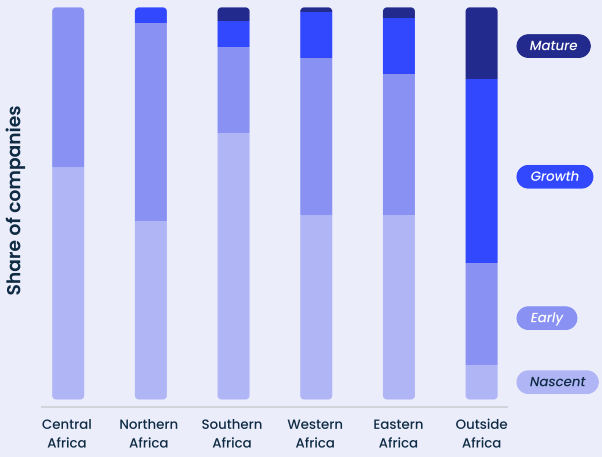
Mature- and growth-stage companies are more likely headquartered outside the continent; Fifty-seven percent of companies are headquartered outside Africa, in the US, Europe, and Asia. Examples include e-commerce giants operating in the direct distribution to consumers category, such as Glovo, as well as medical drone delivery companies in the transport, warehousing, and reverse logistics category, such as Zipline and Swoop Aero.

We were able to obtain the data necessary to classify growth stages for all but 12% of the innovators considered in this Report.

Fourteen percent of the innovators are at growth or mature stages. (n=348)



Growth and mature companies are also likely to be headquartered outside the continent. (n=306)



Nascent- and early-stage innovators most often sell to consumers. A critical step in maturation is the ability to sell to manufacturers, providers, governments, and other health system managers.[16]

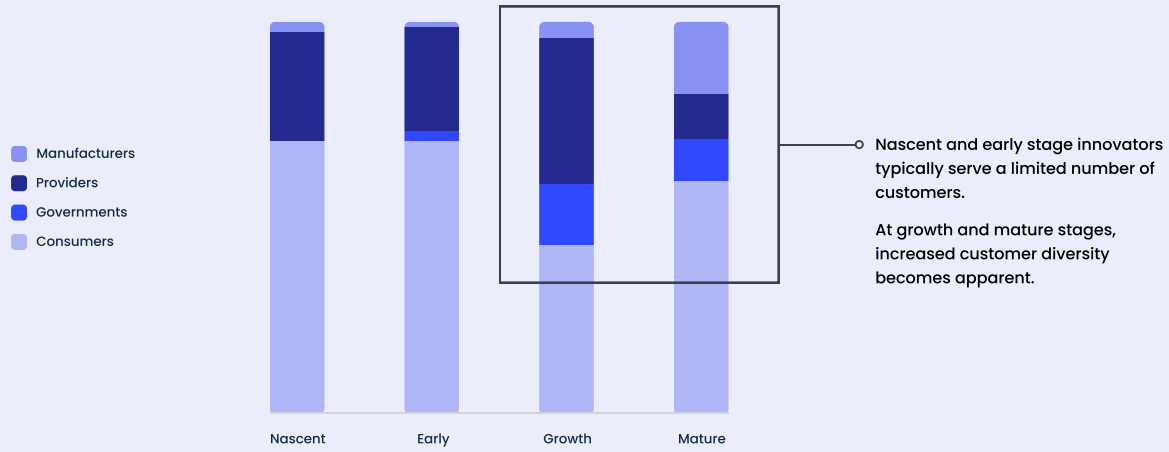
Innovators broadly serve four types of customers: consumers, providers, manufacturers,

and governments. Twenty-eight percent of innovators (n=99) offer services to more than one customer type, with the customer blend of consumers and providers being the most common.

Nascent-stage companies mostly serve consumers. As innovators mature, customer bases tend to diversify to include providers, manufacturers, and governments.

Medical drone delivery companies are the most common types of innovators serving governments as their primary customers.

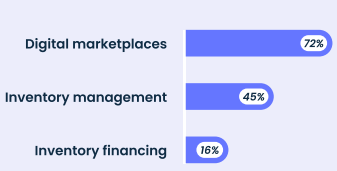
Growth and mature companies have greater diversity in customer categories than nascent and early-stage companies do. (n=348)



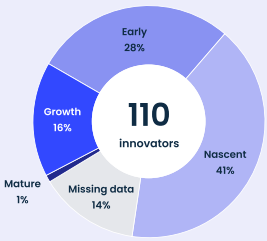
Spotlight: Order and Inventory Management

More than 100 innovators in the Order and Inventory Management category exist; most are headquartered on the continent and serve providers and governments. In spite of their prevalence, innovators in this category have raised only 9% of total funding over all time.

Most companies offer digital marketplaces for fulfilment, and 16% offer inventory financing.



With many innovators occupying this space, <20% are growth- and mature-stage companies



Innovators in this category primarily serve:

- Providers
- Governments
- Consumers
- Manufacturers

Innovators include companies such as:

VIEBEG Medical · DrugStoc · MedSource · GRINTA · Maisha Meds

$221M in all-time funding

39% of innovators in this category have raised external funding, accounting for 9% of the total funding reported in our research.

92%

Share of innovators headquartered in Africa

Innovators in this category appear primed for scale due to the number of partnerships with public purchasers. Fourteen innovators appear to have partnerships to serve governments – the most in any category in our research. Examples include Maisha Meds, which provides inventory management solutions to public health facilities across three Kenyan county governments, and mPharma, which works with Gabon's Office Pharmaceutique National to digitize national supply chain management processes for nationwide end-to-end inventory visibility and management.

Despite being an important tool for customer retention and acquisition, inventory financing solutions are the least offered solution in this category. Barriers to offering financing solutions include a lack of established credit systems and the attendant cost of managing credit. Innovators' pathways to offering financing can commonly include partnering with fintech lending startups seeking growth, and raising funding to build health-specific financing solutions. Helium Health, a Nigerian healthtech startup providing electronic medical record solutions, is taking the latter approach: it has raised $30 million to scale HeliumCredit, a financing solution for pharmacies and hospitals.[17]

Across broader tech ecosystems, the bullish investor interest in retail e-commerce operators distributing fast-moving consumer goods has waned over the past year, as some companies have shuttered operations or laid off staff amid a funding crunch.[18] The slowdown appears driven by the unsustainability of two key features common to these companies: asset-heavy models (including warehouses and delivery fleets) and discounts-based user acquisition strategies.

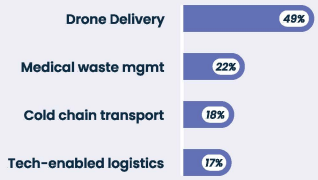
A similar slowdown for order and inventory management innovators in health supply chains appears unlikely. In contrast to their counterparts in retail e-commerce, order and inventory management innovators are not generally competing for market share by offering steep discounts, as they have not raised enough capital to pursue this strategy. While retail e-commerce innovators raised $423 million during 2021 and 2022, order and inventory management innovators identified in our research have raised $221 million in all-time funding.[19]

For order and inventory management innovators in health supply chains, the short-term implication of the bearish outlook on retail e-commerce operators is that the threat of market entry by better capitalized operators now appears minimal.

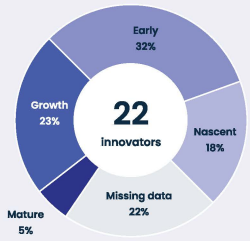
Spotlight: Transport, Warehousing, and Reverse Logistics

Twenty-two innovators in Transport, Warehousing, and Reverse Logistics operate across the continent, and medical drone delivery companies headquartered outside of Africa make up nearly half the companies in this category. Their operations have attracted funding to this area, which has captured 28% of all funding to healthcare supply chain innovations over time.

Drone delivery is the most commonly offered solution in this category



Nearly 30% of companies are in growth or mature stages



Innovators in this category primarily serve:

- Providers
- Governments
- Consumers
- Manufacturers

Innovators include companies such as:

paps, Zipline, WINGCOPTER, SWOOP AERO

$734M in all-time funding

64% of innovators in this category have raised external funding, with *Zipline* accounting for 74% of the category total. Innovators in this category have raised 28% of total funding reported in our research.

55%

Share of innovators headquartered in Africa

Large drone companies are testing or conducting medical delivery programs in at least 12 countries across the continent, as more governments leverage unmanned aerial vehicles for efficient delivery of health products to hard-to-reach communities.[20] These programs are typically commissioned by governments seeking to improve efficiency of medical deliveries to health facilities, particularly in hard-to-reach areas. Rwanda stands out with five medical drone delivery programs, the most across the continent. Zipline (headquartered in the USA) and Swoop Aero (headquartered in Australia) are the most dominant players in the space, with operations in four African countries each. Arone Delivery (headquartered in Nigeria) stands out as the only medical drone delivery operator headquartered on the continent. Ghana has also achieved significant scale in integrating Zipline's drone delivery with Ghana Health Service's programs, with outstanding service delivery numbers.[21]

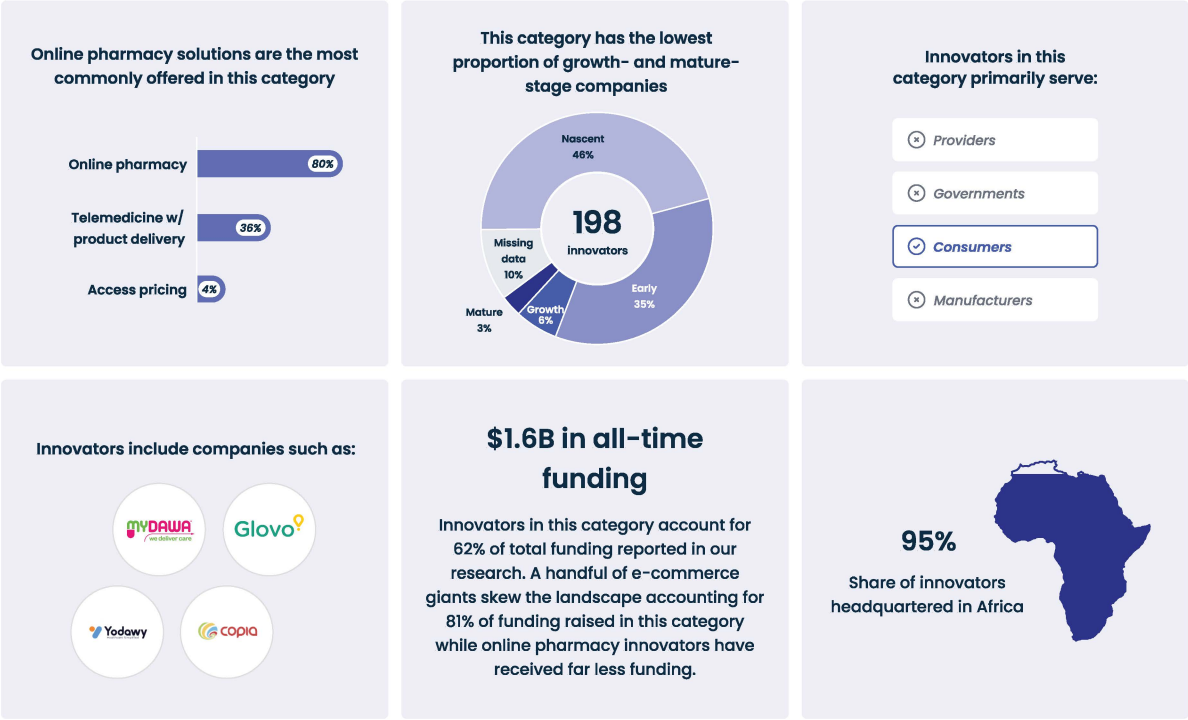
According to one industry expert, for sustainability in African public health settings, it will be necessary to review the optimization of drone logistics services so that they can be more affordable for governments.[22]

While medical drone delivery services can improve availability and accessibility of critical health products in rural areas, the costs of adoption can be high.[23] Establishing and following protocols that will prioritize products that are best suited for drone delivery (i.e., light weight, cold chain dependent, short shelf life, high cost, emergency need) will be critical to ensure drone delivery programs are cost-effective.

Traditional transport vehicles, including motorcycles and trucks, still play a key and cost-effective role in local health supply chains. A pragmatic approach could see governments, donors, and global health agencies integrate medical drone delivery into existing third-party logistics fleets and networks, where drone deliveries offer specific advantages, such as in emergency deliveries to hard- to-reach communities. Additionally, governments, donors, and global health agencies can also consider tech-enabled services to supercharge other aspects of their delivery fleets. Paps and Bophelo Mpilo stand out as examples of innovators using tech-enabled models to leverage traditional transport models to enhance delivery of health products. Paps, an on-demand motorcycle courier service, handles distribution for 70% of all pharmacies in Senegal.[24] Bophelo Mpilo, also an on-demand courier service works with South Africa's Department of Health to coordinate delivery of health products to patients' homes.

Spotlight: Direct Distribution to Consumers

Nearly 200 innovators offering Direct Distribution to Consumer solutions are active across the continent, with most headquartered in Africa. While this category has captured $1.6 billion in external funding (representing 62% of all funding for African supply chain startups over time), most of this was captured by e-commerce giants who carry a very limited number of over-the-counter health products. Most online pharmacy innovators operate at smaller scale, with lower funding amounts.



Consistent with findings in previous years, innovators in this category operate under four main models: digital-first startups offering product delivery through online pharmacy and telemedicine paired models, single-outlet retail pharmacies with digital channels, chain retail pharmacies with digital channels, and e-commerce giants offering product delivery.

Lack of regulation remains a limitation with respect to the scale, safety, and impact of

online pharmacies – but progress to strengthen regulations is emerging across anglophone and francophone countries. Landscaping of online pharmacy regulations in 15 African countries revealed that regulations and policies that govern online distribution of medicines are largely nonexistent: only five of the 15 countries have approved and published either regulations (Ghana, Nigeria, and Rwanda) or guidelines (Kenya and South Africa).[25] New this year, three countries in francophone Africa (Senegal, Burkina Faso, and Benin) are also making progress by developing online pharmacy laws or reviewing existing pharmacy laws to include sections regarding operation of online pharmacies.

In May 2023, regulators from 12 African countries met to jointly identify and discuss opportunities for advancing online pharmacy regulations in their respective countries. Through a signed communiqué, attendees demonstrated their commitment to advancing the development, strengthening, and operationalization of online pharmacy laws, regulations, and guidelines for the purpose of improving access to essential health commodities. In addition, regulators pledged to collaborate with key stakeholders, including development partners and the private sector, to support and invest in the implementation of appropriate infrastructure and reinforce the operationalization of regulations. Identified opportunities to advance the development and implementation of online pharmacy regulations and guidelines included: extension of existing laws to cover online pharmacies, creation of a platform to facilitate ongoing joint learning between regulators and experts to advance regulatory texts and technologies, leveraging of technology to enhance monitoring and enforcement capabilities that can curb activities of illegal pharmacies, implementation of public awareness campaigns regarding safe online medication procurements, and establishment of mechanisms for independent consumer verification of online pharmacies. Addressing these regulatory gaps is crucial to support the scalability of digital-first online pharmacy innovators and to accelerate their potential to drive positive health outcomes.[26]

Retail pharmacy chains remain invested in exploring digital channels to create omni-channel customer experiences. This approach may be necessary to maintain market share among evolving, increasingly young, and digitally savvy customer bases across the continent. But despite strong brands and established supply chain processes for sourcing and distribution, balancing physical retail operations and digital operations may pose a challenge. One retail pharmacy chain in Nigeria noted it had paused its online pharmacy operations due to difficulties integrating its enterprise resource planning systems with its online store.

Given their large retail footprint, chain pharmacies still hold potential: in September 2022, mPharma acquired a majority stake in HealthPlus, incorporating 60+ additional pharmacy locations into its extensive Mutti pharmacy network.[27]

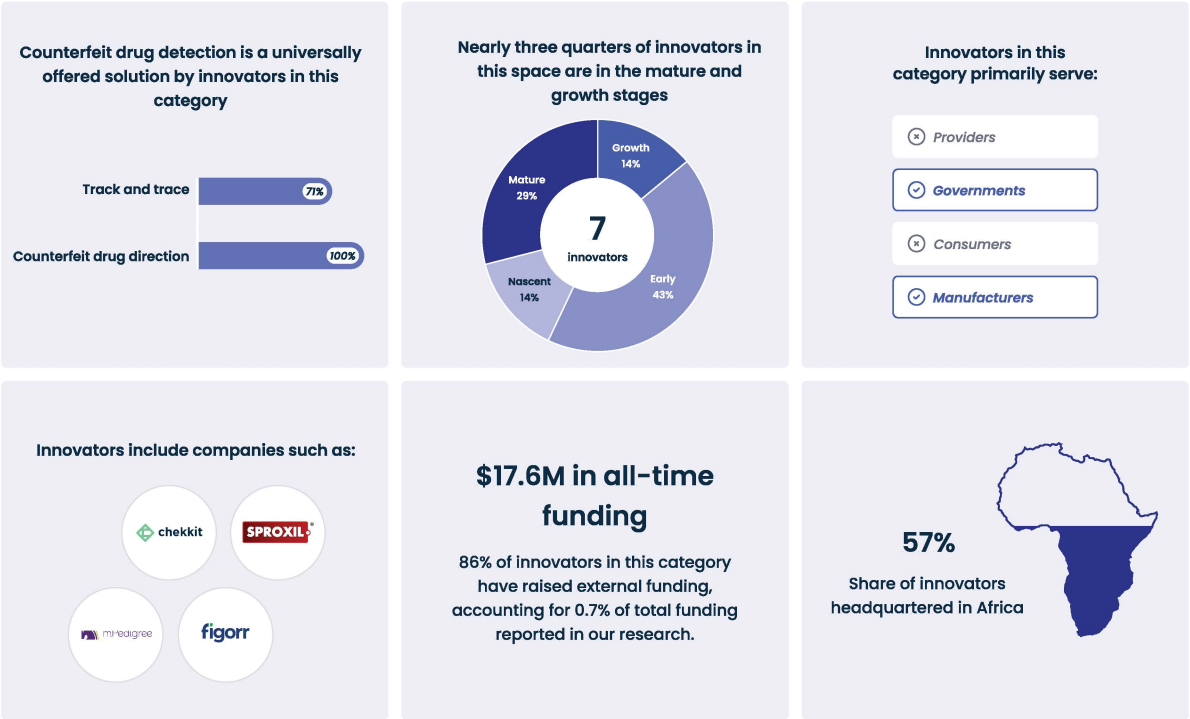
African e-commerce giants' involvement in health product distribution remains limited to a small number of wellness and over-the-counter health products. Given their vast operations across several verticals beyond health, e-commerce giants have raised significantly more than other innovators in this category, but their involvement in health product distribution remains small, likely due to regulatory barriers that impede entry into the e-pharmacy space, as well as challenges in sourcing and selling health products. Globally, e-commerce giants continue to explore strategies to deepen their health product-focused operations: in January 2023, Amazon announced RxPass, a $5

monthly subscription that includes any listed eligible prescription medications, as well as delivery.[28]

While African e-commerce giants typically focus on urban areas because of factors such as higher internet access, digital literacy, and purchasing power, Copia has long stood out for its peri-urban and rural-focused operations in Kenya. Copia's model allowed residents in rural communities to purchase items, including a limited number of over-the-counter health products, through a large network of agents in retail shops. Opportunities to partner with such organizations remain relatively underexplored.

Spotlight: Product Protection and Visibility

Fewer than 10 innovators are operating in Product Protection and Visibility across the continent. Several operate at large scale, serving multiple manufacturers and governments; a few entrants are gaining speed, rapidly achieving national and international scale-up powered by increased interest in traceability.



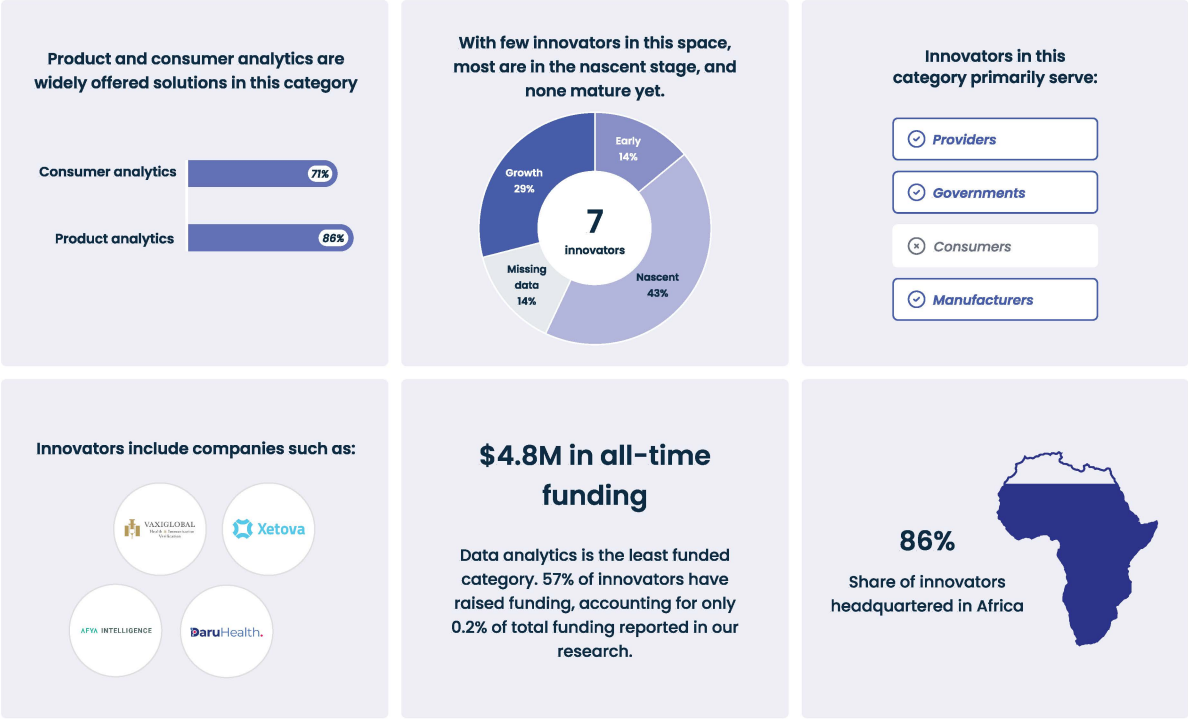
The relatively light activity in this category, where only seven innovators have been identified, is likely due to high barriers to entry. Companies operating in this space require robust technological capacities to deliver service offerings, and high-level business relationships with manufacturers and health systems managers to secure contracts. Despite being dominated by Sproxil, PharmaSecure, and mPedigree, three companies that account for 89% of funding in this category, global trends towards track and trace solutions may provide younger companies with opportunities for growth.

Nigeria is shaping up to be a crucial market for product protection and visibility innovators offering track and trace solutions; its National Agency for Food and Drug Administration and Control (NAFDAC) is expected to mandate the implementation of end-to-end serialization and traceability for pharmaceutical products by 2024.[29]

While growth- and mature-stage companies appear dominant, Figorr, previously known as Gricd, and Chekkit (both of Nigeria) stand out as promising early-stage companies in the category. Since launching in 2017, Figorr has rapidly grown its track and trace solution that enables customers to track and verify locations and temperatures of sensitive health products. Figorr expanded rapidly amid the pandemic, tracking COVID-19 vaccines for Nigeria's National Primary Healthcare Development Agency, and extended its operations to South Africa and Kenya.[30] NAFDAC announced Chekkit as the first approved GS1/NAFDAC traceability solutions provider in Nigeria, positioning it for growth in Africa's largest country amid an impending market shift.[31]

Spotlight: Data Analytics

Fewer than 10 innovators are focused primarily on Data Analytics for healthcare supply chains. Most innovators in this category are headquartered on the continent, at the nascent stage, and have raised very few funds.



While still emerging as a mainstream category in health supply chains, data analytics– focused innovators have the potential to impact data-driven forecasting and demand planning at scale, particularly among governments. With public supply chains historically hobbled by inefficiencies resulting in reduced accessibility and availability of health products, data-driven approaches can reverse long-standing norms.

Despite their potential, innovators in this category appear underfunded, with Xetova accounting for 94% of all-time funding in this category. Xetova provides the Kenya Medical Supplies Authority with data-backed insights on nationwide consumption and distribution trends.[32]

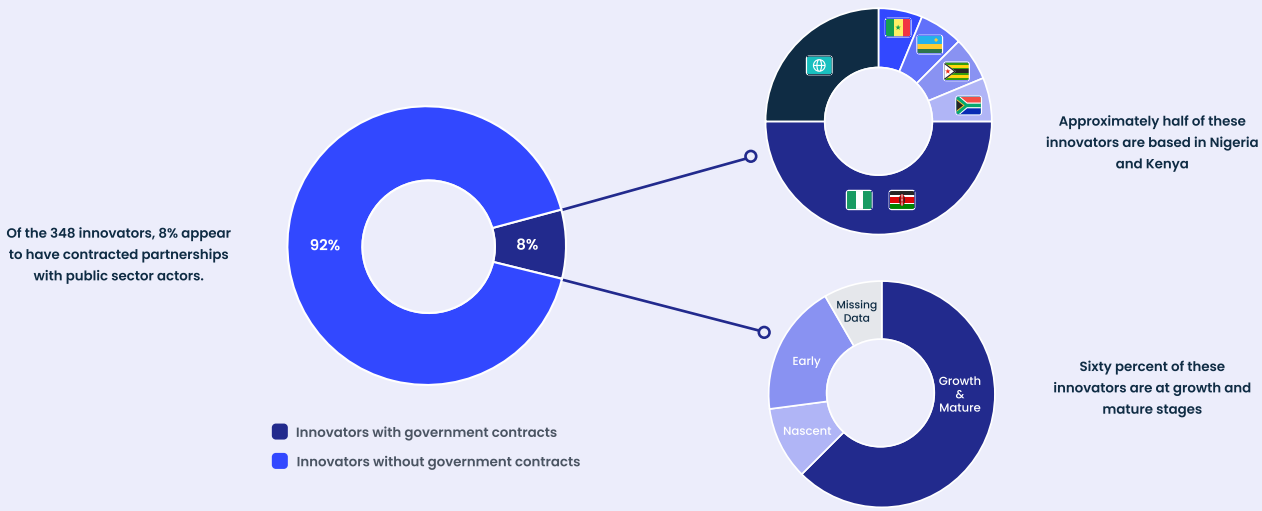
5

Across all categories, nearly 50 partnerships appear to have been established to provide governments with tech-enabled supply chain solutions.

Findings show African governments working with 28 health supply chain innovators on nearly 50 past and present partnerships, leveraging their tech-enabled solutions to resolve long-term challenges around the availability, accessibility, and quality of health products in public health supply chains.[33] As innovators pursue long-term scale and impact, such partnerships are pivotal.

50% of the companies serving governments are in the order and inventory management category, and a quarter of companies serving governments are in transport, warehousing, and reverse logistics category.

Most innovators serving government partners are at the growth and mature stages, and are based in Nigeria or Kenya.



Fourteen identified innovators provide governments with inventory purchasing (through digital marketplaces) and inventory management (through software tools) solutions to ensure efficiency and minimize waste. Seven identified innovators facilitate transport, warehousing, and reverse logistics to ensure efficient distribution of health products to public health facilities, ensuring availability of medicines, particularly in hard-to-reach communities, through medical drone delivery operators.

Of these identified companies, 60% are at growth and mature stages, correlating with expectations that more mature companies can meet the demand from public purchasers. Outliers at early (Figorr) and nascent (VaxiGlobal) stages also stand out as young companies already serving public sector actors. Half of these identified innovators are based in Kenya and Nigeria, with the rest based in Ghana, Zimbabwe, Rwanda, and South Africa, as well as outside Africa.

We identified 28 health supply chain innovators that appear to be serving governments across ecosystems through nearly 50 past and present partnerships

Innovator	Partnership Location(s)	No. of partnerships	Government Partner(s)	Partnership Level	Supply Chain Category
Agoa Waste	Nigeria	1	Oyo State Government	Sub-national	Transport, warehousing, and reverse logistics
Avy	Botswana	1	Ministry of Health and Wellness, Botswana	National	Transport, warehousing, and reverse logistics
Bophelo Mpilo	South Africa	1	National Department of Health, South Africa	National	Transport, warehousing, and reverse logistics
Chekkit	Nigeria	1	NAFDAC	National	Product protection and visibility
DrugStoc	Nigeria	1	Bayelsa State Government	Sub-national	Order and inventory management
eHealth Africa	Nigeria	3	Sokoto and Kaduna State Governments; NPHCDA, Nigeria	Sub-national	Order and inventory management
Elephant	Kenya, Nigeria	5	Nairobi, Kisumu and Homa Bay County Governments in Kenya; Federal Capital Territory and Kaduna State Government in Nigeria	Sub-national	Order and inventory management
Field Inc	Nigeria	1	Federal Government of Nigeria	National	Order and inventory management
Figorr	Nigeria	1	NPHCDA	National	Product protection and visibility
Health-E-Net	Kenya	2	Migori and Kajiado County Governments	Sub-national	Order and inventory management
inSupply	Kenya, Tanzania	2	National Governments of Kenya and Tanzania	National	Order and inventory management
Kapsule	Rwanda	1	Ministry of Health, Rwanda	Sub-national	Order and inventory management
Kasha	Rwanda	1	Ministry of Health, Rwanda	National	Direct distribution to consumer
LifeBank	Nigeria	1	Yobe State Government	Sub-national	Order and inventory management
Maisha Meds	Kenya	3	Kisumu, Makueni, and Siaya County Governments	Sub-national	Order and inventory management
Medsaf	Nigeria	1	Nasarawa State Government	Sub-national	Order and inventory management
mPharma	Gabon	1	Office Pharmaceutique National, Gabon	National	Order and inventory management
mPedigree	Nigeria	1	NAFDAC	National	Product protection and visibility
Pharma Secure	Sudan	1	Sudanese National Government	National	Product protection and visibility
Right ePharmacy	South Africa	3	National Department of Health, Mpumalanga and Free State Department of Health, South Africa	National and Sub-national	Direct distribution to consumer
RxAll	Nigeria	1	NAFDAC	National	Product protection and visibility
Savannah Informatics	Kenya	2	Nairobi and Kajiado County Governments	Sub-national	Direct distribution to consumer
Skicc Tech	Zimbabwe	1	National Government, Zimbabwe	National	Order and inventory management
VaxiGlobal	Zimbabwe	1	Ministry of Health, Zimbabwe	National	Data analytics
Viebeg	Rwanda	1	Rwanda Medical Supply Limited	National	Order and inventory management
Wingcopter	Malawi	1	Ministry of Health, Malawi	National	Transport, warehousing, and reverse logistics
Xetova	Kenya	3	Ministry of Health in Kenya, Ethiopia, and Botswana	National	Data analytics
Zipline	Rwanda, Ghana, Nigeria, Kenya	6	Ministry of Health in Ghana and Rwanda; Kaduna, Cross River and Bayelsa State Governments in Nigeria; Kisumu County Government in Kenya	National and Sub-national	Transport, warehousing, and reverse logistics

Ultimately only 8% of all innovators have governmental partnerships. However, engagements with key stakeholders suggest there is growing interest on the part of government agencies and public purchasers regarding working with health supply chain innovators. With a few prominent partnerships underway, innovators and government officials predict further adoption of tech-enabled supply chain solutions. In Nigeria, five sub-national governments have signed supply chain partnerships with innovators over the past 18 months alone.

Some of this progress has been driven by policy: Nigeria's Ministry of Health mandated state governments to centralize procurement and distribution of essential medicines to local public health facilities, by creating and funding central drug distribution agencies. With policies in place, key stakeholders such as the Africa Resource Center for Excellence in Supply Chain Management have played strategic roles in facilitating partnership discussions through its Private Sector Membership Platform. Since 2020, the Platform has brokered contracts worth an estimated $6.5 million between governments and pharmaceutical companies.[34]

> **There is a groundswell of interest in terms of working with the private sector for health supply chain systems in Nigeria.**
>
> - Director of a state government medicines distribution agency

Despite their potential promise, challenges around scaling these partnerships remain evident. Government agencies report ongoing challenges, ranging from inadequate funding to the culture clash of slow, bureaucratic government processes with innovators' fast-paced approaches. Innovators report their own challenges, ranging from delayed payments to low digital literacy rates and slow adoption among staff at public sector agencies.

Funding remains a challenge

"Governments adopting digitally enabled solutions to better manage inventory is on the up, **the only barrier holding us back** in terms of engaging more widely on this **is making sure we have line of sight on some funding** that would support this engagement with a greater number of countries."

- Executive, East Africa-based supply chain start-up

Focus on efficiency is not consistent

"The private sector is all about time and efficiency, while the public sector is a bit slow so you have to manage that kind of transition. People in government normally do not have efficiency as part of the system so **one of the challenges we have is that resistance to change.**"

- Director, West African government health agency

Governments have varying levels of digital literacy

"You have people [in government] that are not computer literate but are leading departments, cannot be fired, cannot be moved, you pretty much have to go through an application process."

- Executive, East Africa-based supply chain start-up

As partnerships become more common, innovative financing solutions to support innovators will become necessary. **Governments are typically encumbered by lack of funding and statuary limits on disbursing funds to contractors.** Hence, trade finance and working capital solutions empowering innovators to execute on partnerships and deliver public health impact will prove pivotal to de-risking partnerships and accelerating innovators' ability to scale.

The paucity of trade finance is highlighted by one example in Nigeria: in need of supplies, a state drug distribution agency placed a $240,000 order for health products with a tech-enabled digital marketplace innovator. However, with the innovator unable to extend trade credit to fulfill the order, the state government was forced to reduce its order by 80%. The reduction affected orders for key products including surgical supplies, consumables, and medication.

Little progress appears to have been made in generating rigorous evidence of impact. Innovators report struggling to measure the impact of their work with governments and suggest that the measurement of impact in government partnerships would best be made using largely qualitative means, particularly for partnerships still within the first year of implementation. As partnership tenures progress, innovators will likely collect historical operational data relevant to measuring impact.

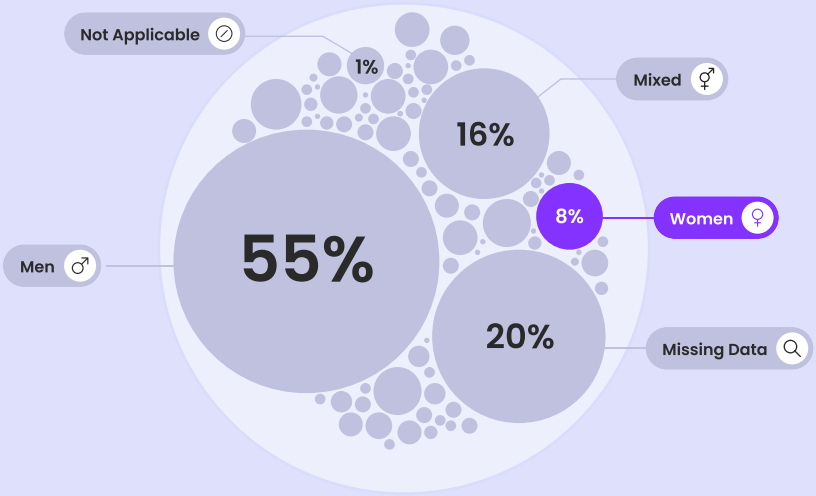
This represents an opportunity for donors to fund implementation research that will generate evidence of impact for ongoing partnerships. Crucially, with research showing a minimal number of partnerships between global health agencies and innovators, evidence of significant effectiveness will enable global health agencies to identify high-impact opportunities and design strategies to engage. This is a vital effort, as purchasing from large donors and donor-funded agencies is critical for innovators to achieve scale.

⚥ Case study on women founders: Women-led businesses in African health supply chains are inhibited by long-running funding and gender bias barriers

Few companies founded solely by women exist; most of these companies are based in Nigeria and South Africa. Exclusionary funding trends see women more reliant on grants and debt, presenting stakeholders with opportunities to act to advance equity.

Per our review of available data, the ecosystem of health supply chain innovators is dominated by men; only 8% of companies were founded solely by women, compared to 55% founded by men. Mixed-gender founding teams (comprising men and women founders) accounted for 16% of all innovators.[35]

Ecosystems are dominated by companies founded by men, with only 8% of companies founded solely by women. (n=348)



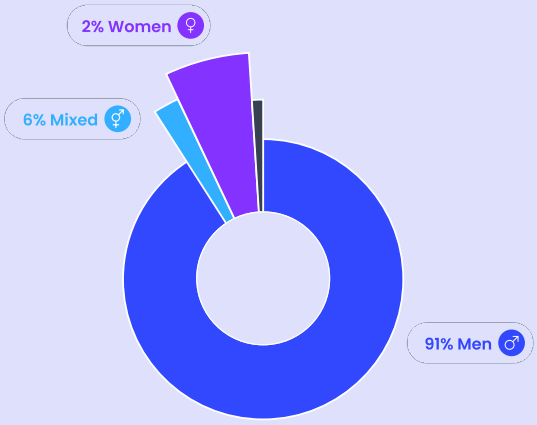
With respect to location of headquarters, **76% (n=22) of companies founded solely by women are in Nigeria and South Africa.** The concentration in Nigeria is unsurprising, given that Nigeria is known to have a high percentage of women entrepreneurs; some reports indicate that women in Nigeria have achieved gender parity in early-stage entrepreneurial activity.[36] However, that may not be the case in Nigeria's tech sector as a whole: one study found that women constitute only 15% of startup co-founders.[37,38] In Kenya, by comparison, women represent 25% of all startup co-founders, with the caveat that this includes many "white foreign expatriates" launching startups.[39] Strikingly, activity of women founders is minimal across Northern Africa, with only one solely women-founded company identified.

In terms of growth stage, 83% of solely women-founded companies are at nascent or early stages. Kasha, MedPau, Medsaf, and Maisha Meds stand out as the only women-led companies operating at the growth stage. Notably, no companies solely founded by women have reached the mature stage.

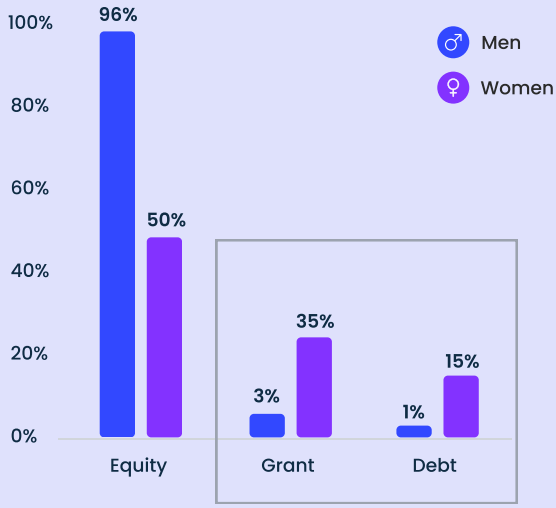
Historical exclusionary trends remain evident across the ecosystem: **only 2% of reported all-time external funding went to companies founded solely by women, compared to the 91% of funding received by companies founded by men.** Mixed-gender founders raised 6% of all-time funding. The exclusionary funding trends remain evidently in place with more recent data: women-founded companies raised only 2% of the funding that went to African health supply chain startups in 2022.

Amid the lack of funding, women also appear to be more reliant on grant and debt funding. **More than one third (35%) of funding raised by women-founded companies consists of grants, compared to 3% for companies solely founded by men. Similarly, 15% of funding received by women-founded companies is debt funding, compared to 1% for men.**

Women-founded companies have raised only 2% of all-time funding for health supply chain innovators (n=142)



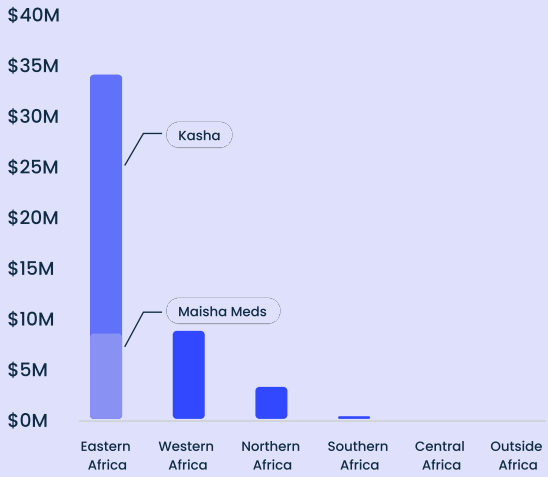
Women-founded companies have a higher reliance on grants and debt compared to men-founded companies



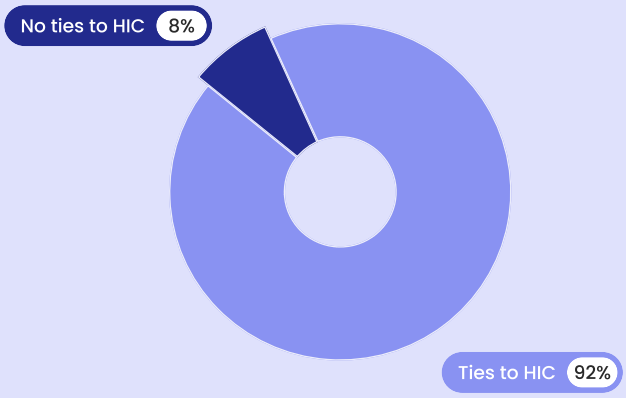
Most of the limited funding available to companies founded solely by women went to East African innovators, despite the fact that Nigeria and South Africa account for 76% of innovators. Notably, Kasha and Maisha Meds (both in Kenya) have raised the most funding, and drive East Africa's dominance in the funding landscape.

Ties to high-income countries also appear to be an important asset in raising funding: 92% of funding was raised by women with high-income country ties, whether via nationality, education, or work experience.

Driven by Kasha and Maisha Meds, women founders in East Africa received the most funding



Among women founders, funding is heavily dependent on ties to high-income countries.



> **Women founders in health supply chain ecosystems face barriers ranging from unequal access to funding and opportunities, to gender bias, to being perceived as higher-risk investments than men are**

To learn more, Salient Advisory held a focus group discussion with six women: four chief executive officers from Nigeria, Gabon, and Cameroon, and two ecosystem leaders. They related their experiences concerning existing barriers as well as their perspectives on how the ecosystem can evolve to better meet the needs of women founders.

> **It is not about fixing the women. This is the old-school gender equality approach. In reality, the systems and structures are not working.** - Innovator

Unequal access to funding

As data reveal, women founders' access to funding, and access to equity investments in particular, is uneven, resulting in an increased reliance on grants and debt. "**The problem is that there is a fundamental inequality in the access to funding by women**. It is nothing about what we as women are doing wrong," one innovator reported. **Compounding the access problem, even though women raise less money, they also spend much more time working to raise those funds.** As another innovator said, "We have been [fund]raising since 2021, and now it's 2023. If you look at the time–value of money, and the depreciation we've experienced in that time, it's a lot."

> **There is a lot of lip service to promoting funding for women entrepreneurs in this space, but it looks like we're just going backwards.** - Innovator

Restricted access to opportunities

Women often face limited access to important business networks, as well as exclusion from male-dominated collaborative spaces.[40] This can make it difficult for women to identify and successfully pitch to funders, particularly as introductions among venture capital investors tend to be relationship-driven.[41] Women are also underrepresented as leaders and as successful innovators, which further limits their visibility and impact in the field. In addition, when mentorship is provided, it may fail to address essential aspects of women's leadership and innovation. "We tend to mentor women to be more diligent in reporting, but we are not asking them to break their silos, break their barriers, be more audacious, and be more forthcoming with what they need," one innovator said.

Higher perceptions of risk

There may be a higher perception of risk associated with investing in women founders, as well as higher expectations for success due to social and cultural norms. Focus group participants felt that **women are often made to feel as though they are "on trial."** "When men are assessed, they are asked about the business opportunity. **However, when women are assessed, it is about them proving that they will not fail.** They are asked how they would mitigate risks in their businesses," said one innovator.

One negative effect of this perception of riskiness is that it deters women founders from being bolder in their asks during funding rounds, resulting in smaller ticket sizes. "As women, we tend to be more timid in our ask. We do not need to be perfect before we can access bigger ticket sizes; **male counterparts who are doing equal levels of volume or revenue traction are asking for much more,"** said one innovator.

> **Often, the selection processes are dominated by men, which may result in a negative bias, even if it is unconscious, towards women-led businesses which are considered riskier or to have less potential for growth than projects led by men.**
>
> - Innovator

A lack of supportive policies and regulations

Gender bias can, of course, also impact how encouraging the regulatory and policy environments are for women innovators. Examples of problems arising from cultural predispositions that were raised by focus group members included: limited policies on gender equality and inclusion, challenges accessing the market, a lack of communication concerning opportunities available to women entrepreneurs, and a lack of representation on venture capital selection committees.

One CEO also observed that there was no cohesive procurement pathway: "We received funding from the Gates Foundation to demonstrate proof of concept of how telehealth can help the delivery of primary healthcare services in remote, rural hard-to-reach areas. After the successful conclusion of that project, and for about three years now, we are still in communication with the state government to take up this service and scale the state insurance scheme and the national health insurance scheme. We have yet to get there."

> **Shifting approaches to funding and intentionally championing women are crucial paths to reversing gender disparities across local ecosystems.**

Funding disparities inhibit women founders' chances of success. Reversing this will require stakeholders to be intentional about limiting or eliminating gender bias, such as by designing funding mechanisms that aim to support women's entrepreneurship, and increasing the number of women on funding-related decision-making committees.

Opportunities also exist to institute processes that can ensure consistent engagement of women founders. One example shared by an innovator is that donors can work to ensure that public procurement practices specifically include women-led businesses.

> **"A donor working with a state government to demonstrate a proof of concept could set a mandate for the state or advocate for a percentage of all follow-on funding from the state to be allocated to women-led businesses. The same kind of requirement could be made of large global health agencies like Gavi, The Global Fund, and UNFPA, and so on."**
>
> - Innovator

Beyond funding, advocating for women at the highest levels is also vital. Champions play a key role in effecting access for women in partnership discussions, facilitating hands-on interactions beyond surface-level introductions, creating linkages with important stakeholders, and spotlighting women founders on high-visibility platforms.

Champions can also facilitate intentionally curated mentorship programs to empower women, through the provision of essential training, technical support, and capacity building. These crucial programs can also provide platforms for women to discuss and document failures and successes, leveraging each other's experience to advance their knowledge base as entrepreneurs.

> **Women innovators need champions they can engage with at critical decision-making stages of the investment/funding process.** - Innovator

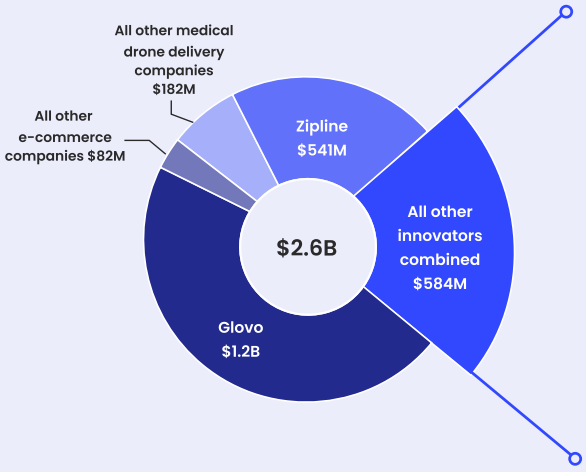
While there is clearly much more to be done to ensure that women innovators can actively participate as equals in digital health innovation ecosystems, shifting the funding landscape and intentionally championing their advancement would be substantial keys to creating this change.

6

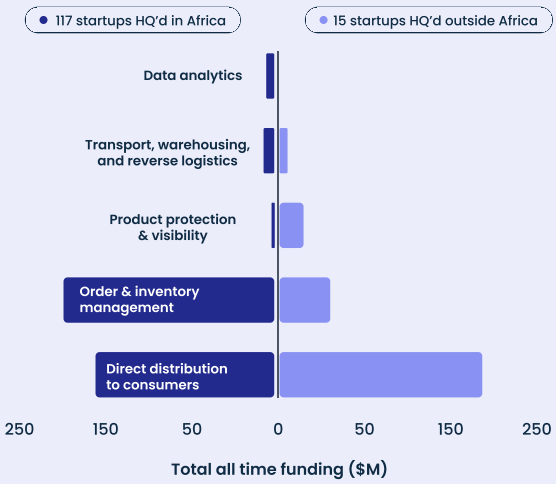
Innovators have raised $2.6 billion over time; however, funding is heavily skewed by e-commerce giants and drone operators. When e-commerce giants and drone operators are excluded from the calculations, innovators are shown to have raised $584 million.

A total of 41% (n=142) of innovators featured in our research have raised external funding since their founding. **Of the total funding received, 77% went to a small number of US- and Europe-based e-commerce giants and medical drone delivery companies.**[42] Glovo, the Spain-headquartered e-commerce giant with operations in Kenya, Nigeria, Côte d'Ivoire, Ghana, Morocco, and Uganda, accounts for 46% of total funding, while US medical drone delivery company Zipline, which operates in Rwanda, Ghana, Nigeria, and Kenya, accounts for 21%.[43]

E-commerce giants and medical drone delivery companies have captured 77% of the $2.6B in external funding raised over all time (n=142)



Excluding e-commerce giants and medical drone delivery companies, all other innovators have raised $584M since their founding across 5 categories. (n=132)

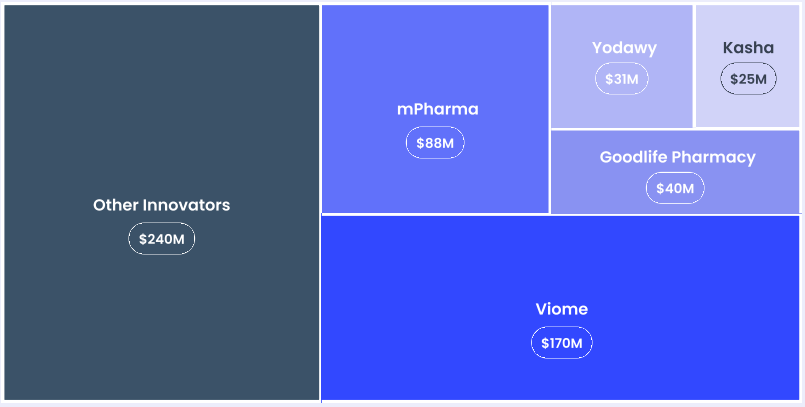


Companies HQ'd in Africa are raising funds for Order & Inventory Management, but lagging behind in most other categories.

Beyond the dominant e-commerce giants and medical drone companies, health supply chain innovators have raised $584 million, which is 23% of total funding. Disaggregated by companies headquartered in and outside Africa, disparities appear obvious. While there are only 15 innovators in this pool headquartered outside the continent and 117 headquartered on the continent, the companies headquartered in Africa are raising more funds for the Order & Inventory Management category, but are lagging in other categories, indicating the significant investment pull that the small number of companies headquartered outside the continent have.

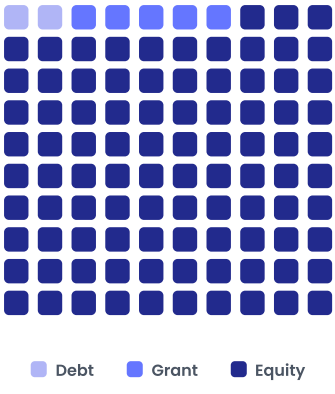
Funding concentration trends also appear among innovators, excluding e-commerce giants and medical drone companies: 59% of the $584 million they have raised is concentrated in only five innovators.

Only five innovators account for 59% of funding raised by innovators (when e-commerce giants and drone companies are excluded). (n=132)



Equity investment accounts for 93% of external funding raised by innovators, highlighting their commercial viability and investor confidence.

Innovators have received thirteen times more equity investments than grants or debt financing. (n=142)



Despite evident investor confidence, African health supply chain innovators are likely to see reduced equity funding in 2023 amid a global slump in venture capital funding, which declined by 35% in 2022.[44]

In a post-pandemic reaction, after investors had backed African healthtech solutions with investments to fill critical public health gaps exposed by COVID-19, investment momentum appears to have slowed. The Salient Advisory funding database shows that healthtech innovators across the continent raised $170 million in 2022, a 57% decline from the $392 million raised in 2021.[45, 46] Early signs across broader African tech ecosystems suggest that the slump may be sustained: All African tech startups raised $649 million in Q1 2023, a 57% year-on-year decline.[47]

The pan-African initiative, Investing in Innovation, is driving funding activity in health supply chain ecosystems, standing out as the funding source executing the most deals over all time with 31 supply chain companies funded to date. Funded by a global

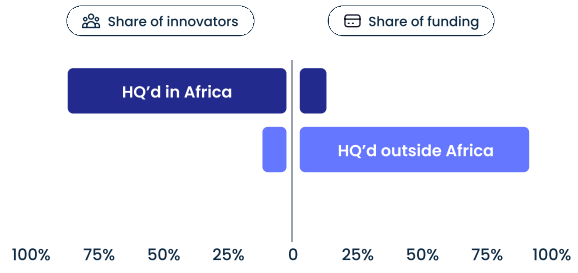
coalition including Bill and Melinda Gates Foundation, MSD, AmerisourceBergen, Microsoft and Chemonics, the program facilitates risk-tolerant funding and market access to promising health supply chain innovators across the continent. It should be noted that this data is based on the number of deals the investors participated in, rather than the amount of funding invested. Historically, equity and debt investors typically offer higher amounts in deals than institutions offering grants. Plug and Play Ventures is the most active source of equity funding. While debt remains a rare funding source, French development finance institution Proparco and Nigeria's Zenith Bank are jointly the most active sources of debt funding. Transform Health Fund, a newly launched $50 million Africa-focused fund, by a coalition of global health agencies has a heavy emphasis on supply chain investments and is set to become a key source of funding in coming years.[48]

Investing in Innovation stands out as the funding source involved in the most deals backing health supply chain innovators. (n=142)

Funding Type	Funding Source	No. of Deals
Grant	Investing in Innovation*	31
Grant	Bill and Melinda Gates Foundation	11
Grant	Google Black Founders Fund	9
Equity	Plug and Play Ventures	6
Equity	Launch Africa	5
Equity	VestedWorld	4
Equity	Lofty Inc Capital Management	4
Debt	Proparco	2
Debt	Zenith Bank	2

**Investing in Innovation is sponsored by the Bill and Melinda Gates Foundation, MSD, AmerisourceBergen, Microsoft and Chemonics*

Innovators headquartered outside Africa have raised 83% of the total funding, despite accounting for only 16% of the pool of innovators (n=142)



There are significant disparities in funding going to innovators headquartered within Africa relative to innovators outside Africa. Of the 142 innovators that have raised external funding, 84% (n=119) are headquartered on the continent; however, they have received 17% ($438 million) of all funding, a disproportional amount. As noted previously, funding data are heavily skewed by e-commerce giants and drone companies headquartered outside Africa.

Recommendations for Global Health Actors

There is a robust pan-African ecosystem of tech-enabled innovators who offer significant supply chain solutions. Stakeholders have a range of opportunities to effectively engage and systematically accelerate the scale and impact of these innovators, engender stronger local supply chains, and also advance gender equity.

Governments are leading the way in partnering with innovators, but these partnerships require support.

- **Partnerships need to be de-risked through the use of innovative trade financing solutions.** Innovators need trade financing solutions that will enable them to deliver on large orders from government clients and other major purchasers. Currently, the lack of these financing solutions significantly limits innovators' ability to fulfill large orders and serve major clients. By providing trade financing solutions directly to innovators, partnerships can be de-risked, ensuring short- to medium-term sustainability of these partnerships as innovators validate their potential for impact.
- **Innovation support programs are likely required, for innovators and for public purchasers.** With innovators generally lacking experience in working with public sector actors, and public sector actors typically unfamiliar with innovators' solutions and fast-paced approaches, two-way capacity building and learning programs can bridge crucial gaps. Venturing beyond surface-level introductions, these programs can provide both sides with increased clarity on pathways to sustained partnerships, as well as provide specific support to governments with regard to structuring performance-based contracts and pilot programs.

Global health agencies and donors have significant opportunities to become more actively involved in fostering local innovation in supply chains by:

- **Investing in measuring the impact of ongoing government-led partnerships.** As data show, governments partnerships are on the rise. Funding of implementation research to generate evidence of the impact of these partnerships will position donors and global health agencies to embark on this path as well, and purchase supply chain services from local innovators if and when the outcomes and costs offer significant advantages over current systems.
- **Adjusting purchasing processes to engage with promising innovators.** As innovators scale and demonstrate impact, donors and global health agencies must adapt procurement mechanisms to enable purchasing of supply chain services from leading local innovators. In markets where external donor financing plays a dominant role in the purchase of supply chain services, leading innovators simply cannot reach impact at scale without donor patronage.
- **Continuing to leverage grants to create more equitable innovation ecosystems.** Funding data show that women founders remain largely excluded from equity financing. Targeted grant programs are critical to building inclusive ecosystems, bridging existing funding gaps, and achieving equity across ecosystems.

Featured Companies

3elagi
3X4 Genetics
50 Lomi
Aconite Medical
Add Pharma
Afia Group/Afia Pharma
Afro Health Connect
Afya Intelligence
Agoa Waste Management
AHBS
Aimcare Health
Alex Dent
Ali's Health
All Things Breastfeeding
Allergy Test
Alpha Medication Pharmacy
Altys Group (ForaCare Africa)
AngePharma
Apothecary
Applinic
Appy Saúde
Apteka Pharmasoft
AQA Medical
Arone Delivery
Aster Care
Aviro Health
Avy
Azanza Health
Belshifa
Bena Care
BetaLife
Beyond Hospital Supplies
Biowin Pharma
Bisa Health
Blink Pharma
Bonamour
Bophelo Mpilo Courier and Logistics
Bordicare
BusyMed
ByeGwaai
CDE Online
CHC Gloves
Chebu Pharma
Chefaa
Chekker Health
Chekkit
Choroida
Clafiya
clinicPesa
Right ePharmacy
ComPharm Pharmacy Software Solutions
Congo Medika
Contro
Copia
Corporate Health Ghana
Country Medical and Pharmacy
CribMD
Cure Bionics
Damu Sasa
Daru Health
Dawa Mkononi
Dawapay
Deaftronics
DeepEcho
Delivery Pharmacy
DentaCarts
Dentist Cave
Desertcart
Diabetes Cloud
Dial A Med
DiaspoCare
DigiPharm
DirectMeds
Dis-Chem
Distripha
DJ Medquip
Dlightsom Pharmacy
DMRC
Doc On Alert
Doctor 4 Africa
Doctor on Call
DoorStep Medical Doctors
DotPharma
doxx
Dr Mint
Dr Sett
DRO Health
Dromedic
Drug-IT Solutions
Druglane Pharmacy Management
DrugNet
DrugStoc
Drugstore
DwayaOfficine
e-BloodBank
Ecare
EHA Clinics
eHealth Africa (LoMIS)
Ehealth Kenya
eIntelliHealth
Ekose-Rx
Elephant
Elqasrel3ainy.com
ePharmacy Kenya
Equimed Supplies
Erith Health
Ethio Pharmalink
Ethitech
EveryMedical
Ezzycare
Famasi Africa
FemConnect
FeverSafe
Field Inc
Figorr
Frank Health Center
Géant Médical
Germandrones
GeroCare
Get My Pill
Getwell Innovation Pharmacy
Gleeworld
Glovo

Goldcure
Goodlife Pharmacy
Grinta
HarakaMeds
Health Online
Health System Technologies
HealthDart
Health-E-Net
HealthKer
HealthNeutron
HealthPlus
Healthtracka
Healthy Entrepreneurs
Hewale
Himore Medical
HJ Pharma
HnG Online Pharmacy (Health and Glow)
HubCare Health
Hudibia
i'SUPPLY
iCon Systems
Iddera
Impilo Yami
Infiuss
inSupply
IV Springs
Iyeza Health
J Blood Match
JSK Healthcare
Jubeth Pharmacy
Jumia
Jungopharm
Just Medical
Kanozon
Kapa Care
Kapsule
Kasha
KongaHealth
Konsolto
Koolboks
Lafiya Telehealth
Lena Pharmacy
LifeBank
LifeBlood
Lifestores Healthcare
Livia Health
Lymph Africa
Magaani App
Magna Worldwide
Maisha Meds
Malbo Pharmacy
Mara-Scientific
MboaLab Biotech
mDoc
MedBay
Medevice (MAScIR)
MedExprez
Medfonts
Medhhanet
Medical Solutions
Medica Mall
Medic Dispatch Africa
Medics2You
Medifoxx
Medihub
Medikea
Medimall
MediPro
Medirite
Medirite Healthcare
MediSpark
Meditect
Medixab
MedPack
MedPau
MedPharma
MedPlus Pharmacy
MedRx
Medsaf
Medsearch Zambia
MedSource
MedsToGo
Medstore
MedX International
MegaMedx
Meslentilles
Mobi Med
Mobihealth
MobileLab
mPedigree
mPharma
My Doctor
MyBig Pharmacy
MyCare-SA
MYDAWA
myMedicines
myPaddi
Negus Med
Nello
Nett Pharmacy
New Heights Pharmaceuticals
NextWing
Nivi
Norland Shopzone
Ntchina
OBM Pharmacy
Ohealth
Omninela Medical
One Health Network
OneHealth
OwnUrHealth
Oxycline Pharmacy
Paps
Pearl Medical
Pelebox
Petra Software
Pharm.com.ng
Pharma Dream
PharmaCentre
Pharmacima
Pharmacy CI
PharmacyDirect Kenya
Pharmacymarts
PharmacyNet
PharmaDigitale
PharmaNews
Pharmaplus
Pharmarun
PharmaSecure

PharmaSen
PharmaServ
PharmDiv
Pharmezi
PharmilyKe
PharmPlug
Phoenix-Wings
Pijets
PillSquad
Ponea Health
Portal Pharmacy
Primacare Pharmacy
Quantum-Systems
RealPPE Marketplace
RecoMed
Redbank
Reddam Pharmacy
Remed-e
Remedial Health
Render Health
Respir-Sud
REVO
Richcom Solutions
RigiTech
Rocket Health
Rojetah
Rubikcare
RxAll
SA Doctors
SafeMed Medical Wholesalers
SAFRA
SASAdoctor
Savannah Informatics
SEINOVA
Senes pharmacy
Signalytic
Skicc Tech
Sobrus
Solar Freeze
SonoCare
Sproxil
Streamline Health Tech
Summer Health
SwiftPractice EMR
Swoop Aero
Tacitapp
Talamus Health
TaliVision
Tanel Health
Tareqapp
Teb Misr
TeleCare Solutions
TF Pharmacy
The Pathology Network
The Virtual Clinic
Thoclor Labs
TIBU Health
Timbaktuu
TopazPharma
TOPE SANTE
Tremendoc
Tripleaim Software
TrueSpec-Africa
TunPharma
Twende Technologies
Uthabiti
Valorigo
Vanguard Pharmacy
Vanix
VaxiGlobal
Vayu
VIA Global Health Shop
Victory Drugs
Viebeg
Vigor Health
Viome
Vittas International
Waspito
WasteBazaar
WASTiNNOVA
Waxtron Medical
Weyak
Wellahealth
Welo Health
WHISPA
Wingcopter
Xetova
Yebi Health
Yodawy
Youmeda
Zack Pharma
Zencey
Zinacare
Zipline
Zoie Health
Zuri Health

Bibliography

1 *Millar, Abi. "The Rise of Fake Medicines in Africa." Pharmaceutical Technology, January 2020, https://www.pharmaceutical- technology.com/features/counterfeit-drugs-africa/.*

2 *Investing in Innovation is sponsored by the Bill and Melinda Gates Foundation, MSD, AmerisourceBergen, Microsoft and Chemonics. The program provides risk-tolerant funding and access to market support to promising health supply chain innovators across the continent.*

3 *Framework adapted from Yadav, P., "Health Product Supply Chains in Developing Countries: Diagnosis of the Root Causes of Underperformance and an Agenda for Reform." Health Systems & Reform, vol. 1, no. 2, 2015, pp. 142–154, https://doi.org/10.4161/23288604.2014.968005.*

4 *Stam, Erik, and Andrew van de Ven. "Entrepreneurial Ecosystem Elements." Small Business Economics, vol. 56, no. 2, 2021, pp. 809–832, https://doi.org/10.1007/s11187-019-00270-6.*

5 *Borozan, Djula, et al. "Do Stringent Environmental and Business Regulations, and Uncertainty Matter for Foreign Direct Investment Inflows? Evidence from G7 and BRICS Economies." Economic Research-Ekonomska Istraživanja, vol. 36, no. 2, 2023, DOI: 10.1080/1331677X.2022.2142638.*

6 *Augustine, Abraham. "Copia Shuts Down Ugandan Operations." TechCabal, 29 April 2023, https://techcabal.com/2023/04/19/copia-leavesuganda/.*

7 *Access pricing solutions facilitate consumers' ability to purchase and access products more affordably through micro-insurance, instalment payments, and reimbursement programs.*

8 *Adepoju, Paul. "Africa's COVID-19 Health Technologies' Watershed Moment." The Lancet, vol. 2, no. 7, July 2020, https://doi.org/10.1016/S2589-7500(20)30146-1.*

9 *Mandil, Ahmed, et al. "Mapping of Health Innovations in Response to the COVID-19 Pandemic in Eastern Mediterranean and Selected Arab Countries." Eastern Mediterranean Health Journal, vol. 28, no. 2, 2022, pp. 130–143, https://doi.org/10.26719/emhj.22.028.*

10 *Hajro, Nejra, Klemens Hjartar, Paul Jenkins, and Benjamim Vieira. "What's Next for Digital Consumers." McKinsey Digital, 23 May 2021, https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/whats-next-for-digital-consumers#/.*

11 *Torrence, Rebecca. "From Elemy to Cerebral, Here's Every Digital-Health Startup That's Cut Workers So Far This Year." Business Insider, 20 December 2022, https://www.businessinsider.com/digital-health-startups-lay-off-employees-2022-6.*

12 *Torrence, Rebecca, "Once-Hot Pharmacy Start-Up Medly is Officially Shutting Down." Business Insider, 8 February 2023. https://www.businessinsider.com/medly-is-shutting-down-after-pharmacy-startup-declared-bankruptcy-2023-2.*

13 *Salient Advisory tracks annual funding activity and data across African health ecosystems.*

14 *CB Insights. "State of Digital Health: Global 2022 Recap." CB Insights, 2022, https://www.cbinsights.com/reports/CB-Insights_Digital-Health-Report-2022.pdf.*

15 *Growth-stage classifications were based on an independent framework designed by Salient Advisory, examining factors such as operational history, geographical scale, funding, product-market–fit, and merger and acquisition plays.*

16 *The term "health system managers" refers to governments and the development partners supporting them in the administration and oversight of public health systems, in functions related to supply chain management, health financing, and human resource management, as defined by the World Health Organization's classification of digital health interventions. We specify "governments" in this Report as they are the central actors in public health systems.*

17 *Kene-Okafor, Tage. "Helium Health Gets $30M, Backed by AXA IM Alts and 23andMe's Anne Wojcicki." TechCrunch, 5 June 2023, https://techcrunch.com/2023/06/05/helium-health-gets-30m-backed-by-axa-im-and-23andmes-anne-wojcicki/.*

18 *Dosunmu, Damilare. "Once Darlings of Investors, Africa's B2B E-Commerce Startups Are Struggling to Survive." Rest of World, 8 May 2023, https://restofworld.org/2023/africa-b2b-ecommerce-shutdowns-layoffs/.*

19 *Giulani, Dario. "B2B Commerce Landscape in Africa." Briter Bridges, 26 September 2022, https://briterbridges.com/stories/2022/9/25/b2b-commerce-landscape-in-africa.*

20 *"Medical Drone Delivery Database," UAV for Payload Delivery Working Group. http://www.updwg.org/md3/.*

21 *Crumley, Bruce. "Zipline's Ghana anniversary primes converging drone delivery expansion in Africa and US." DroneDJ, 6 June 2023. https://dronedj.com/2023/06/06/ziplines-ghana-anniversary-primes-converging-drone-delivery-expansion-in-africa-and-us/.*

22 *Olivier Defawe, Ph.D.,the Drones for Health solution lead at Village Reach, and founder/facilitator, UAV for Payload Delivery Working Group, shared this during an email exchange on December 12,2022*

23 *"Minister urges healthcare workers to control drone delivery of medical supplies." 20 April 2023, Ghana Business News. https://www.ghanabusinessnews.com/2023/04/20/minister-urges-healthcare-workers-to-control-drone-delivery-of-medical-supplies/.*

24 *Kene-Okafor, Tage. "Senegalese Logistics and Delivery Company PAPS Raises $4.5M Led by 4DX Ventures and Orange." TechCrunch, January 19, 2022. https://techcrunch.com/2022/01/19/senegalese-logistics-and-delivery-company-paps-raises-4-5m-led- by-4dx-ventures-and-orange/.*

25 *29 Advancing Access to EssenGal Health Products Via Online Pharmacies in Africa: Regulatory Landscaping Report. Salient Advisory, August 2023, forthcoming.*

26 *The refinement and prioritization of these opportunities with respect to regulators is ongoing, and will be shared by Salient Advisory as part of a public-facing report to be released in the autumn of 2023.*

[27] *"mPharma acquires majority stake in HealthPlus." mPharma, September 2022, https://mpharma.com/2022/09/14/mpharma-acquires-majority-stake-in-healthplus/.*

[28] *Weatherbed, Jess. "Amazon Launches a $5 Monthly Subscription for Unlimited Prescription Medications." The Verge, 24 January 2023, https://www.theverge.com/2023/1/24/23568919/amazon-rxpass-medical-subscription-prescription-healthcare-service.*

[29] *NAFDAC Director General's Office. "Guidance on Master Data Attributes Required for Implementation of Traceability for Pharmaceutical Products in Nigeria." National Agency for Food and Drug Administration and Control, 20 April 2022, https:// www.nafdac.gov.ng/wp-content/uploads/Files/Resources/Traceability/Control-Copy-Guidance-on-Master-Data-Attributes-for- Pharmaceutical-Products-DGO-GDL-001-00-1.pdf.*

[30] *Odueso, Timi. "How Nigeria is using Gricd's tech to save 4.2 million vaccines from wastage." TechCabal, December 9, 2021. https://techcabal.com/2021/12/09/nigeria-partners-with-gricd-to-save-vaccines/.*

[31] *27 "Chekkit Secures Additional Funding to Scale Its Blockchain-Powered Drug Safety and Tracking Technology." Chekkit, April 2023, Press release. https://chekkitapp.com/blog/chekkit-secures-additional-funding/.*

[32] *Njanja, Annie. "Kenya's Xetova Exploring Market Data Gaps in Africa to Boost Trade Insights Access," TechCrunch, 13 January 2023, https://techcrunch.com/2023/01/13/xetova-exploring-market-data-gaps-in-africa-to-boost-trade-insight-access/.*

[33] *These are defined as identified innovators that appear contracted directly by government agencies or donors and donor-funded agencies to serve government agencies.*

[34] *It is unclear how much of the $6.5 million went to health supply chain innovators featured in our research.*

[35] *Salient was unable to collect data on founders for 20% of all companies. One percent of companies were founded by parent organizations and did not have individual founders and were recorded as "Not applicable."*

[36] *"Mastercard Index of Women Entrepreneurs (MIWE) 2019." MasterCard.com, https://www.mastercard.com/news/media/yxfpewni/mastercard-index-of-women-entrepreneurs-2019.pdf. Accessed 5 May 2023.*

[37] *McCormick, Meghan. "Study Finds That There Are More Expat Founders in Kenya Than Female Founders." Forbes, 21 October 2019, https://www.forbes.com/sites/meghanmccormick/2019/10/21/study-finds-that-there-are-more-expat-founders-in-kenya-than-female-founders/?sh=5e03cf1f3730.*

[38] *Porfido, Danielle and Zoe Marks. "Policy Brief: Women and the Digital Economy in Africa." Harvard University Centre for African Studies, Women and the Changing Face of Entrepreneurship in Africa Two-Day Virtual Conference, 1-2 October 2020, https:// africa.harvard.edu/files/african-studies/files/women_entrepreneurship_in_africa_policy_brief_-_digital_economy_final.pdf.*

[39] *McCormick, Meghan. "Study Finds That There Are More Expat Founders in Kenya Than Female Founders." Forbes, 21 October 2019, https://www.forbes.com/sites/meghanmccormick/2019/10/21/study-finds-that-there-are-more-expat-founders-in-kenya-than-female-founders/?sh=5e03cf1f3730*

[40] *"Innovations in Digitizing Distribution of Health Products – Current Trends in Nigeria, Ghana, Kenya and Uganda: Market Intelligence Report," Salient Advisory, June 2022.*

[41] *appsafrica. "The Underserved Market in Venture Capital: Women," appsAfrica.com, 13 May 2018, https://www.appsafrica.com/the-underserved-market-in-venture-capital-women/.*

[42] *E-commerce giants typically offer a range of product verticals including, but not limited to, the area of health. Those that distribute over-the-counter medications fall within this project's scope and are included.*

[43] *Zipline raised an additional $300 million after our data collection and analysis processes were completed; it has now raised a total of $841 million.*

[44] *Teare, Gené. "Global Funding Slide in 2022 Sets Stage for Another Tough Year." Crunchbase News, 5 January 2023, https://news.crunchbase.com/venture/global-vc-funding-slide-q4-2022/.*

[45] *Salient Advisory tracked funding for African healthtech innovators through 2022.*

[46] *Giulani, Dario. "Africa Investment Report 2021 by Briter Bridges." Briter Bridges, https://briterbridges.com/africainvestmentreport2021.*

[47] *Jackson, Tom. "African Tech Startup Funding DramaGcally Declines in Q1 2023." Disrupt Africa, 3 April 2023, disrupt-africa.com/2023/04/03/african-tech-startup-funding-dramaGcally-declines-in-q1-2023.*

[48] *"Health Finance Coalition Announces First Close of AfricInvest Managed Transform Health Fund." Health Finance Coalition, 7 June 2023, https://healthfinancecoalition.org/health-finance-coalition-announces-first-close-of-africinvest-managed-transform-health-fund/.*

SALIENT

Visit our website for the latest insights on African health tech technology innovators

https://healthtech.salientadvisory.com/