Innovations in Health Product Distribution in Sub-Saharan Africa

Market update | September 2019 | ***Overview***

IMPACT FOR HEALTH

This presentation accompanies an in-depth report.

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The project was led by Cynthia Eldridge and Mara Hansen Staples, at Impact for Health.

Primary data collection was undertaken by Kariane St-Denis (Impact for Health), Tracey Brett (Independent), Nkata Chuku, Funke Falade, Uba Otuonye, Collins Jaguga, Richmond Guamah (Health Systems Consult Ltd).

Thank you to…

The Bill & Melinda Gates Foundation's Supply Chain team, who supported this work and offered invaluable guidance and thought partnership.

The numerous companies, thought leaders, investors and donors whose work and insights informed the analysis.

Image courtesy of DrugStoc

Data reflected in this presentation were collected over two rounds on innovations in Nigeria, Ghana, Kenya and S Africa

Internet search and snowballing surfaced companies in Kenya, Nigeria, Ghana and S Africa (limited scope) working on innovations in health product distribution. *Specific additions were made outside the geographic scope constraints, and to look in a limited fashion at innovations in device and product transport*.

2018

N = 58

10 companies excluded on the basis of alignment to scope:
- Primarily incumbent distributors, not innovators (Surgipharm, Laborex, Sai Pharmaceuticals, Imperial)
- Using some innovating methods but core business is service delivery (BIMA, Jinlet Pharmacy, Halton's Pharmacy, Dovey Pharmacy, Med World Pharmacy, BookADoc)

N = 48

12 companies excluded due to:
- Lack of response to request for interview (Doctor4Africa, Counter Fighters, mDaktari, PharmacyDirect Kenya, Siha Digital Health, AddPharma, Infotech Dot Net Systems Ltd, SavDoktar)
- Refusal to participate (ePharmacy)
- Business had recently shut down (Pharmnet, SwiftMedicals, eMedrep)

N = 36

6 companies excluded due to lack of alignment with scope after interview was completed
- Using new methods as a very small part of business model (Uthabiti, Talamus Health, Rx 3.0, Mobimed)
- Innovation is focused on simple product delivery (Malibu Pharmacy, The Medical Concierge Group)

N = 30

30 companies included in 2018 analysis

2019

N = 28

- 2 shifted business models and are excluded (NUMI, Wella Health)
- Note: There were 9 companies that were not updated in 2019 (LiviaDawa App, MedBay, GoPharma, RxAll, GenRx, Right ePharmacy, Living Goods, FindMyDrug, Dawapap). The report reflects the most recent data available.

Limitations: Data are collected from company leadership and verified with each informant to ensure their accuracy. ***Inputs were not externally validated.***

KEY TAKE AWAYS | There are 3 types of innovations in product distribution emerging. Innovations in Distribution to Providers and in Product Information point towards opportunities to re-imagine service delivery.

	1	2	3
	Distribution to Providers *Improving distribution to hospitals, clinics, pharmacies & drug shops through technology-enabled services*	**Distribution to Consumers** *Enabling distribution and dispensation to the consumer*	**Product Information** *Offering consumers, manufacturers & governments information on product location, price, authenticity, use, adherence, more*
Key findings	Larger number of start-ups in this space Companies reporting growth	Some promising start-ups in this space Growth is less clear	Start ups and established companies exist Nascent growth in the breadth of service offerings
Insight	Technology-enabled distribution to providers is likely to grow	The potential for e-commerce direct-to-consumer services to improve coverage of priority health products is not yet clear, but could be bolstered through investment and partnerships with insurers, donors and governments. In the interim, hybrid online/offline models may present the most promise.	Traditional categories of information are blending as product-focused companies begin to expand offerings

1 Overview of the landscape

What are the problems?

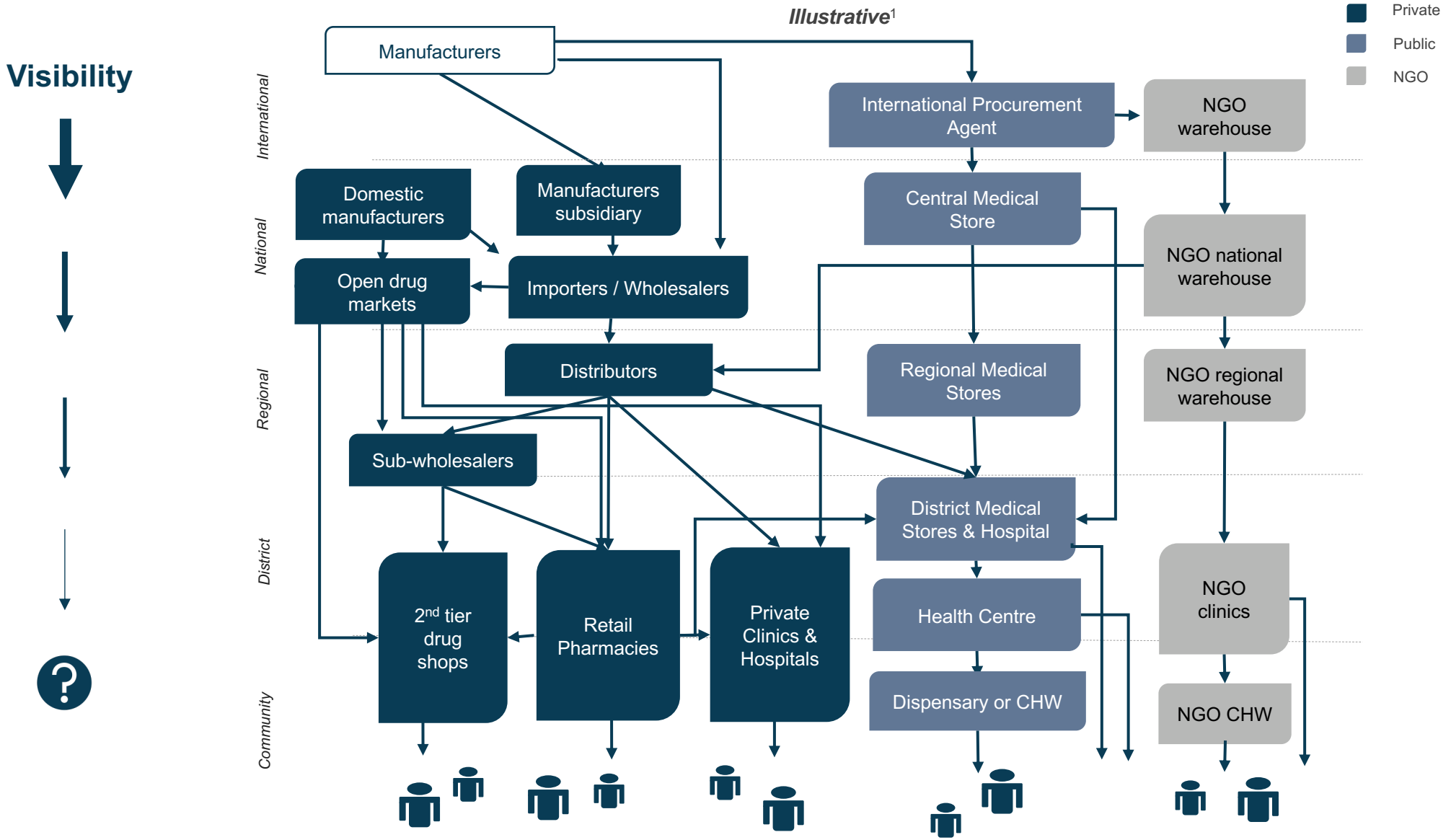
What affects do the problems have on health system actors?

How are the problems being addressed by innovators?

What is the scale of operations?

Are innovators externally supported?

WHAT ARE THE PROBLEMS? | Health products in many emerging markets move through multiple layers of distribution and intersecting distribution channels. This can lead to price markups, limited availability, threats to product and dispensing quality, and lack of end-to-end visibility.



1. Framework is the authors adaptation based on Yadav P (2015) Health Product Supply Chains in Developing Countries: Diagnosis of the Root Causes of Underperformance and an Agenda for Reform, Health Systems & Reform, 1:2, 142-154, DOI: 10.4161/23288604.2014.968005

WHAT ARE THE PROBLEMS? | Distribution challenges impact consumers, providers and payers in many ways

Consumers

E.g. mother

- Many consumers seek products in the private sector but have challenges finding the right products near them at the right price, and high quality
- More

Providers

E.g. pharmacy owner

- High transaction costs for restocking and price fluctuations threaten product availability
- Unable to verify quality of products
- Low profitability, lack of working capital and credit
- More

Payers

National and Global

E.g. MoH and donors

FEDERAL MINISTRY OF HEALTH

USAID

UNFPA

- Governments find it difficult to reimburse providers and verify transactions due to a high level of fragmentation of private providers
- Donors find it difficult to ensure supply-side subsidies reach the poor
- More

What's new? Commercial solutions are now emerging to solve some of these challenges. Some innovators have business models that reduce costs and generate value for payers, suggesting further opportunities for scale.

Generally, innovators are offering 3 types of technology-enabled solutions to critical distribution challenges

1

Distribution to Providers

Improving distribution to hospitals, clinics, pharmacies & drug shops through technology-enabled services

2

Distribution to Consumers

Enabling distribution and dispensation to the consumer

3

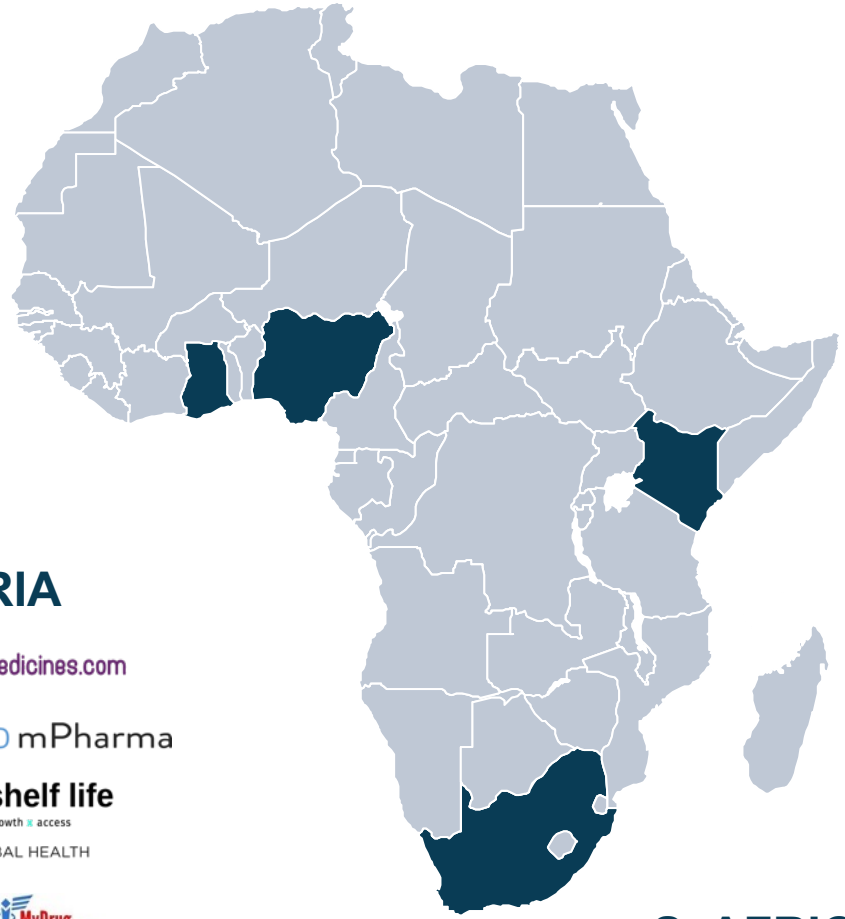
Product Information

Offering consumers, manufacturers & governments information on product location, price, authenticity, use, adherence, more

Research identified 28 innovators in product distribution emerging across the African continent and beyond

GHANA

SPROXIL
MedRx
mPharma
mPedigree
Bringing Quality to Life
GLOBAL HEALTH
med bay
RxAll



KENYA

Healthy Entrepreneurs
DAWAPAP
LivingGoods
Kasha
SPROXIL
Maisha Meds
AFYA PAP
MedSource
GLOBAL HEALTH
MYDAWA
shelf life
growth x access
mPedigree
Bringing Quality to Life

NIGERIA

MEDSAF
my-medicines.com
GenRx
RxAll
mPharma
DrugStoc
shelf life
growth x access
mPedigree
Bringing Quality to Life
GLOBAL HEALTH
SPROXIL
Find MyDrug
PharmaSecure®

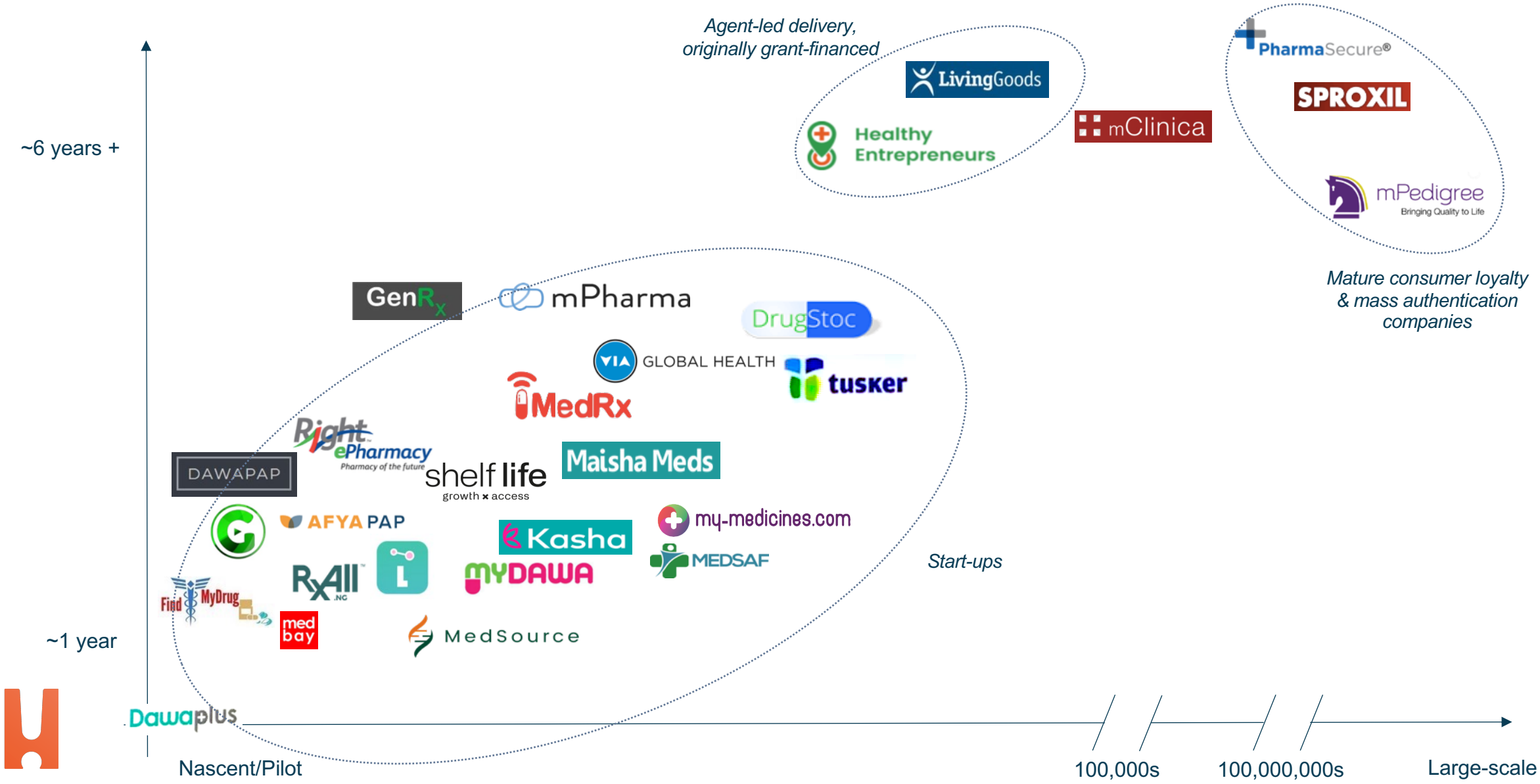
S. AFRICA

GLOBAL HEALTH
Right ePharmacy
Pharmacy of the future

OTHER

mClinica
PharmaSecure®
Dawaplus
tusker

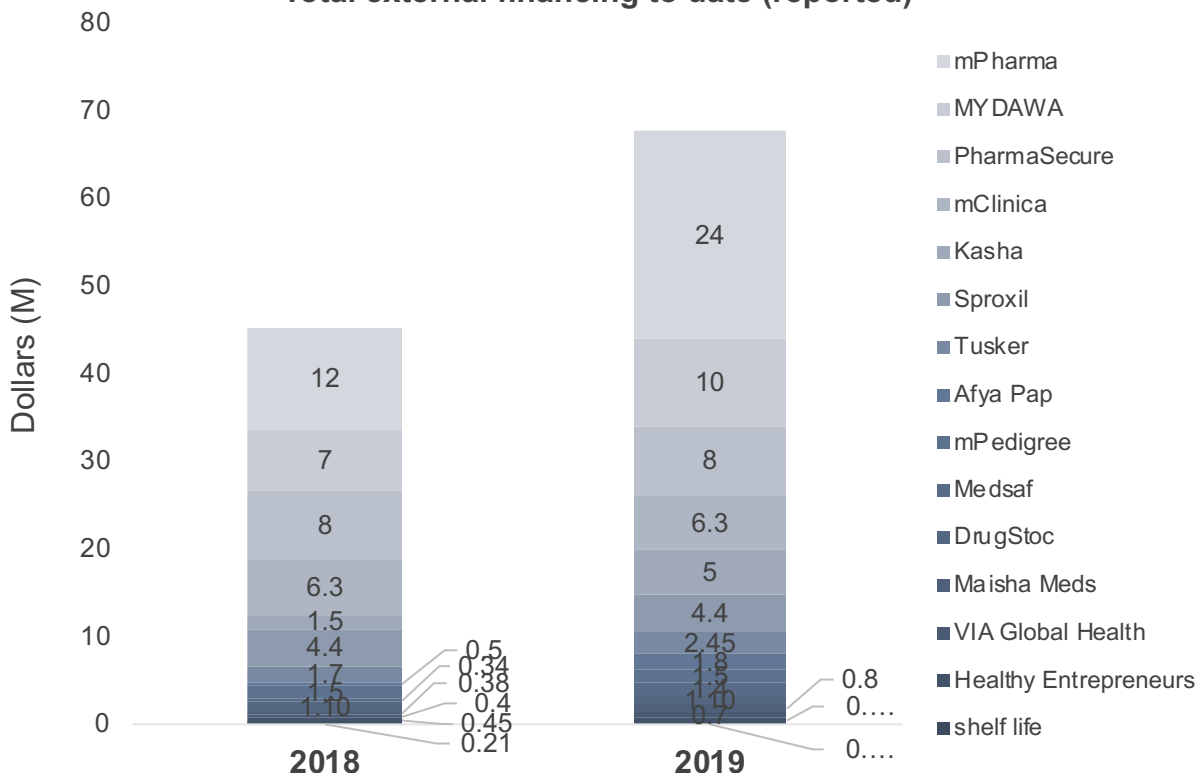
With some exceptions, most of these innovators are new and *very small*



More than $20M in new financing was reported in the last 10 months, concentrated among a few companies. Momentum appears to be growing with limited grant financing.

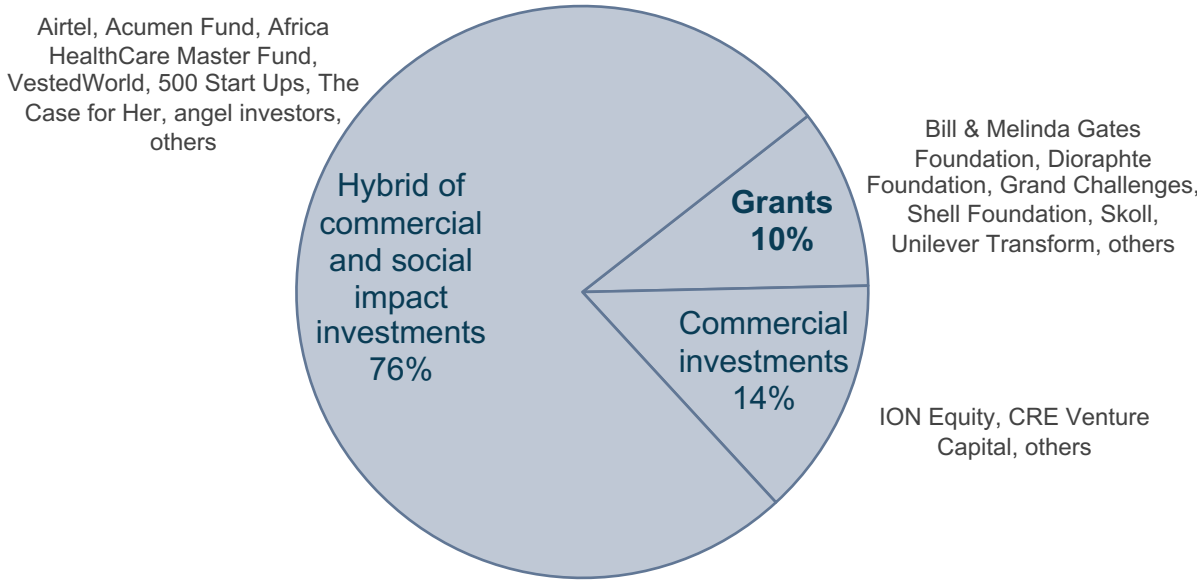
>$20M in new financing reported is concentrated in a few companies (mPharma, Kasha, MYDAWA).

Total external financing to date (reported)



The financing appears to come largely from commercial and social impact investors, not grants.

Sources of external financing, as of 2019 (reported)



For consideration: given growth is being powered by revenue, self-financing and social/commercial investment, what should be the role of grant financing?

The 14 companies who declared the amounts and sources of external financing received to date in both 2018 and 2019 were included in these charts. In addition to declared financing, mPharma also received an undisclosed amount of grant and loan financing; Sproxil received an undisclosed amount of grant financing; and mPedigree received an undisclosed amount of personal/outside investment. In the second chart, investors were categorized as "commercial" or "social" per the IRIS+ Core Characteristics of Impact Investing (Intentionality, Use evidence and impact data in investment design, Manage impact performance, Contribute to the growth of the industry).

2 Category deep dives and innovation highlights

Distribution to providers

Distribution to consumers

Innovations in product information

INNOVATIONS IN DISTRIBUTION TO PROVIDERS | Improve distribution to hospitals, clinics, pharmacies and drug shops through technology-enabled services

Services fall into 4 categories ***with most companies offering services in multiple areas****....*

1 **Stock financing & ownership** Providing credit, pay-as-you-dispense financing, brokering payments

2 **Inventory management** Provision of digital inventory management services

3 **Marketplace & fulfillment** Digital marketplaces to connect providers to suppliers

4 **Group purchasing** Aggregation of orders across disparate providers for volume-based discounts

Key impacts

Companies in this category appear to

- ✓ increase availability of health products
- ✓ reduce the cost and variability in cost of health products
- ✓ reduce transaction costs required to stock and resupply
- ✓ improve rural reach (especially companies like Maisha Meds)

- Unclear the extent to which cost savings are passed on to consumers
- Quality assurance appears limited

Recent growth

Companies appear to be growing, though value and volume of products moved is not known. Only one company exited the space (NUMI).

New external financing is highly concentrated among a few companies.

Potential impact on global health programs: High. Technology-enabled distribution to providers is likely to grow. This is an area where the public health community might engage to strengthen scale and impact.

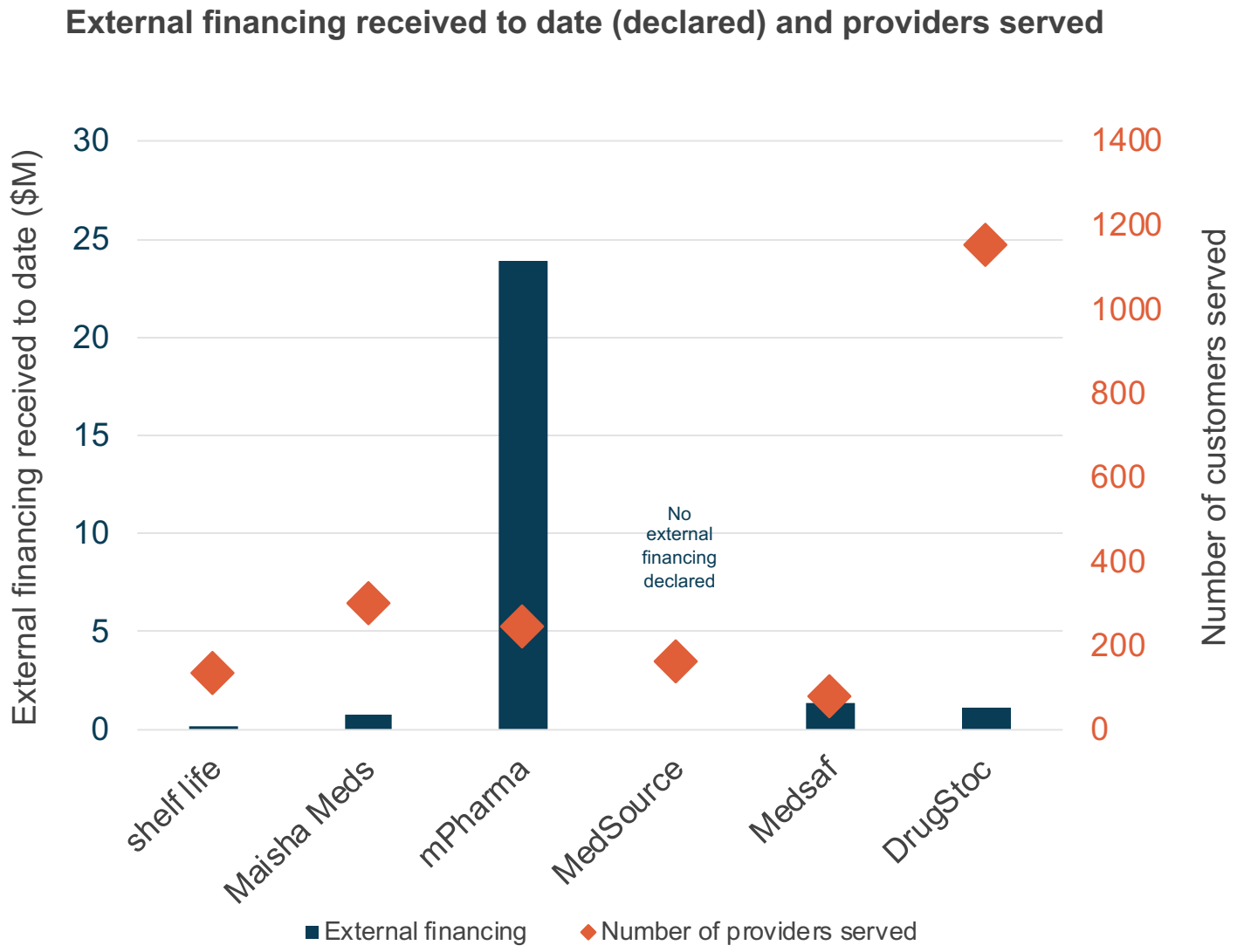
INNOVATIONS IN DISTRIBUTION TO PROVIDERS | External financing is concentrated in a few companies. The amount of external financing received does not appear correlated with customers served.

Providers include hospitals, clinics, pharmacies, drug shops.

DrugStoc remains the largest company distributing to providers on the continent, as measured by the number of providers served.

This analysis does not capture the value and volume of products each company is delivering to its customers. This is an important metric for understanding scale.

mPharma has received the bulk of the financing of companies in this category. They recently purchased a retail pharmacy chain in Kenya, which creates direct relationships with consumers.



INNOVATIONS IN DISTRIBUTION TO CONSUMERS | Enabling distribution and dispensation to the consumer

LivingGoods · Healthy Entrepreneurs · my-medicines.com · Kasha · AFYA PAP · MYDAWA · Right ePharmacy Pharmacy of the future · DAWAPAP · Dawaplus

Services fall into 5 categories....

1. **Agent-led delivery models** Bring products to people through low-level health workers
2. **Digitally-enabled D2C distribution** Allow digital ordering & delivery
3. **Smart ATMs & lockers** Automate dispensing, sometimes paired with telepharmacy
4. **Reverse price auctions** Use technology to enable easy price comparisons
5. **Retail partnerships** Tech-enabled care leverages existing facilities and providers

Key impacts

All appear to
- ✓ increase availability of health products
- ✓ reduce customer transaction costs and
- ✓ in most cases reduce the costs of the actual products

Commercial, e-commerce D2C distribution models are emerging to serve: 1) Urban consumers who care about convenience for wellness products (MYDAWA, DawaPap) and 2) Rural consumers who need regular access to high-cost, hard-to-source products for chronic diseases (Afya Pap, MYDAWA). Rural expansion is through hybrid models that link online/offline delivery models.

Recent growth

Very difficult to quantify growth. The number of transactions completed for the delivery of *health products* (versus wellness) appears low.

In the last 10 months, Kasha, Afya Pap, MYDAWA received $7.8M new external financing.

Early stage partnerships with donors, pooled purchasers and governments are underway. MYDAWA and LiviaDawa have established relationships with private insurers, Kasha delivers HIVST in partnership with the Gov. of Rwanda and MYDAWA delivers contraceptives to adolescents in Nairobi funded by CIFF.

Potential impact on global health programs: **Impact of e-commerce D2C models on priority health products is not yet clear.** Growth is difficult to quantify, but could be bolstered through investment and partnerships with insurers, donors and governments. In the interim, hybrid online/offline models may present the most promise.

INNOVATIONS IN THE USE OF PRODUCT INFORMATION | Offering consumers, manufacturers & governments information on product location, price, authenticity, use, adherence and more

Services fall into 4 categories....

1. **Commodity locators** Offer consumers information on the location, price of products
2. **Product quality scanners** Information on chemical makeup of products
3. **Consumer info & engagement** Authenticate products and provide information
4. **Track and trace** Allow for increased visibility in product movement

Key impacts

Low perceived impact for commodity locators. Impact of the companies offering product quality scanners was not evaluated.

Unlike many innovators profiled, **'mass authenticators'** such as Sproxil, mPedigree and PharmaSecure are not start-ups; they were launched ~10 years ago. They originally created smart labels for medications that could be placed or printed on the product boxes at the manufacturer. Companies now authenticate for a wide range of industries including agri-inputs, cosmetics, FMCG and more and **collectively have authenticated over 5 billion transactions with over 100M users.** They generate a high perceived impact on consumer information, quality of dispensation, quality of products, rural reach. There is potential for this to improve the availability of health products. Today, two new types of services are offered by mass authentication companies: **1) Consumer information & engagement**, and **2) Track and trace.**

Recent growth

Mass authenticators operate on a large scale already.

However, many are working to expand the scope of their services. They're in beta mode expanding consumer engagement and experimenting to enable end-to-end track and trace

Potential impact on global health programs: High. Traditional categories of information are blending as product-focused companies begin to expand offerings. Engage to understand where data on product distribution - linked to consumer data, dispensing advice, services, and payments - can close the data loop.

CONSUMER INFORMATION & ENGAGEMENT | Mass authentication is a tool for establishing a digital relationship with consumers, traditionally through marketing campaigns, that now serves as the foundation for other services

The digital connection can be used to understand consumer demographics & product purchases, to nudge use & adherence, and to provide quality standardized advice on product use.

1

Data: Data on where products are authenticated can be purchased for visibility.

2

Targeted information: Diverse product information can be aggregated to empower consumer.

Ex: When a medication is scanned, the mPedigree app conducts a structured search on the product and **aggregates information from public databases**.

3

Nudges: Nudges can be sent to improve adherence or follow-up.

Ex: PharmaSecure offers voice & SMS follow-up after consumers authenticate their product. **Use with TB patients showed impressive increases in adherence.**

4

Augmented reality: Augmented Reality, or AR, can be used to standardize quality dispensing.

Ex: **Smart View** is Sproxil's newest technology, allowing users to scan drugs from their mobile phones to receive **information on drug dosage, side effects and precautions.**

SPROXIL®

For consideration: could digital communications help standardize the quality of dispensing advice at scale, at lower costs? What is the value of linking digital health information to products?

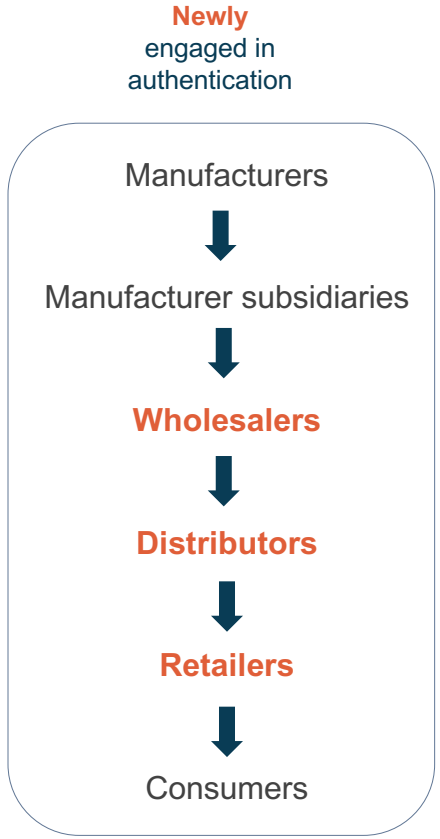
INCENT TRACK AND TRACE | Incentives for authenticating smart labels have traditionally been targeted to consumers via marketing campaigns. Now, mass authenticators have begun incenting wholesalers, distributors & retailers to authenticate products, to experiment with fuller track and trace

REGULATING track-and-trace is the most common approach to ensuring products are serialized to enable better visibility, which has been taken in the US and EU and may be pursued in Africa

INCENTING track-and-trace is a new approach being tested by Sproxil and PharmaSecure

Incentives for product authentication along the supply chain are traditionally weak, and end-to-end visibility is not feasible

Sproxil and PharmaSecure experimenting with incenting wholesalers, distributors and retailers to authenticate product, to enable more complete picture of product movement and deliver on 'track and trace,' *pairing this with connection to the consumer*.



For consideration: when is incenting actors in the value chain to provide data a cost-effective way to enable increased visibility? What is the value of linking these data to consumer data?

3 Opportunities for health delivery programs

A portfolio approach to company support

Engaging as an industry facilitator

Quality assurance as a potential risk

Opportunities to scale asset-light technologies that could change how health care is delivered are *intrinsically appealing*

Most innovators will *not deliver immediate impact at scale*

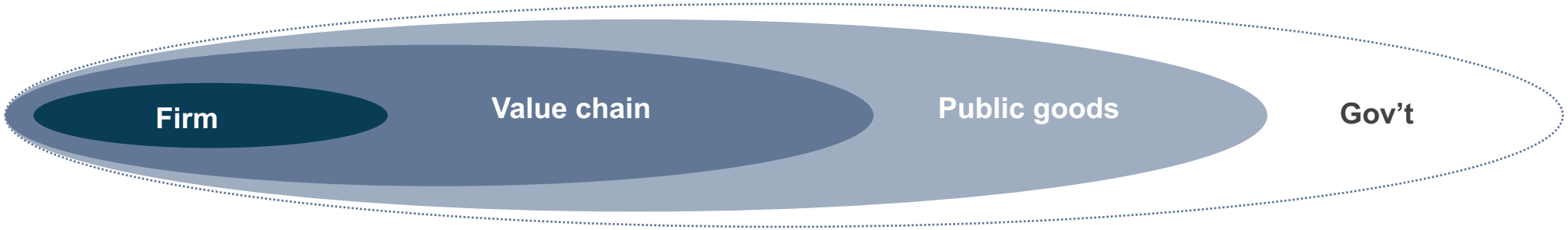
Some innovations will fail - *partners must be willing to experiment*

PORTFOLIO APPROACH | Innovations in Distribution to Providers and in Product Information point towards opportunities to re-imagine service delivery. Existing small grants can be managed as a portfolio to drive scale and build new visions for the future delivery of products and information.

	1	2	3
	Distribution to Providers	**Distribution to Consumers**	**Product Information**
	Improving distribution to hospitals, clinics, pharmacies & drug shops through technology-enabled services	*Enabling distribution and dispensation to the consumer*	*Offering consumers, manufacturers & governments information on product location, price, authenticity, use, adherence, more*
Insight	Technology-enabled distribution to providers is likely to grow	Adoption of e-commerce direct-to-consumer services for priority health products may be slow	Traditional categories of information are blending as product-focused companies begin expanding offerings
Opportunity	Engage further to strengthen scale & impact	Watch and see. Promise may lie in hybrid online/offline models.	Engage to understand where data on product distribution - linked to consumer data, dispensing advice, services, and payments - can close the loop

INDUSTRY FACILITATION | In addition to providing small grants directly to a portfolio of companies, acting as an industry facilitator could accelerate disruptive innovation

Areas of intervention in industry facilitation [1]



	Firm	Value chain	Public goods	Gov't
Role of industry facilitator	• Invest in individual firms to strengthen business model, leadership, technical skills, increase capital	• Create suitable labor/inputs • Strengthen sourcing channels • Strengthen demand • Strengthen financing for consumers, distributors, manufacturers • Support those who offer services to the innovators	• Create consumer, producer or channel awareness of new market-based solutions • Create market information and industry knowhow • Create effective standards, e.g. for quality • Build hard infrastructure	• Enabling laws, regulations and procedures are enacted • Limit inhibitory taxes and subsidies • Mitigate adverse intervention by politicians or officials
Opportunities for the **public health community to facilitate growth in the industry**	• **Invest through small grants or contracts fund**, perhaps jointly managed with donors or industry • **Engage innovators in contracts**, to buy services and better understand the business and opportunities	• Continue to support strengthening demand and suppliers	• Continue to **create awareness of new market-based solutions** to help enable scale • Create effective standards for **quality assurance** and cost-effective mechanisms to **enact them** • Explore **technology infrastructure to enable partnerships with larger payers** (e.g. invoicing, claims verification)	• **Assess legal, tax and political situations that may inhibit scale** • Other?

1) Koh, Harvey et al. Beyond the Pioneer: Getting inclusive industries to scale. India: FSG, 2014.

INDUSTRY FACILITATION | The level of quality assurance in focus countries varies, and innovators are not going above-and-beyond the status quo

Most innovators still depend on national certifications of suppliers or products, in addition to softer analyses such as supplier reputation. Over the past 10 months, market pressures for digital innovators to systematically assure quality of products does *not* appear to have increased.

Standard process used by innovators for quality assurance depend on supplier reputation and adherence to national standards

Identify suppliers

Innovator companies identify suppliers who can range from key agents to wholesalers to retail pharmacies

Vet suppliers

Most innovators vet quality by asking:

- ✓ Is the supplier or product registered/licensed nationally?
- ✓ Is the reputation of the supplier strong?

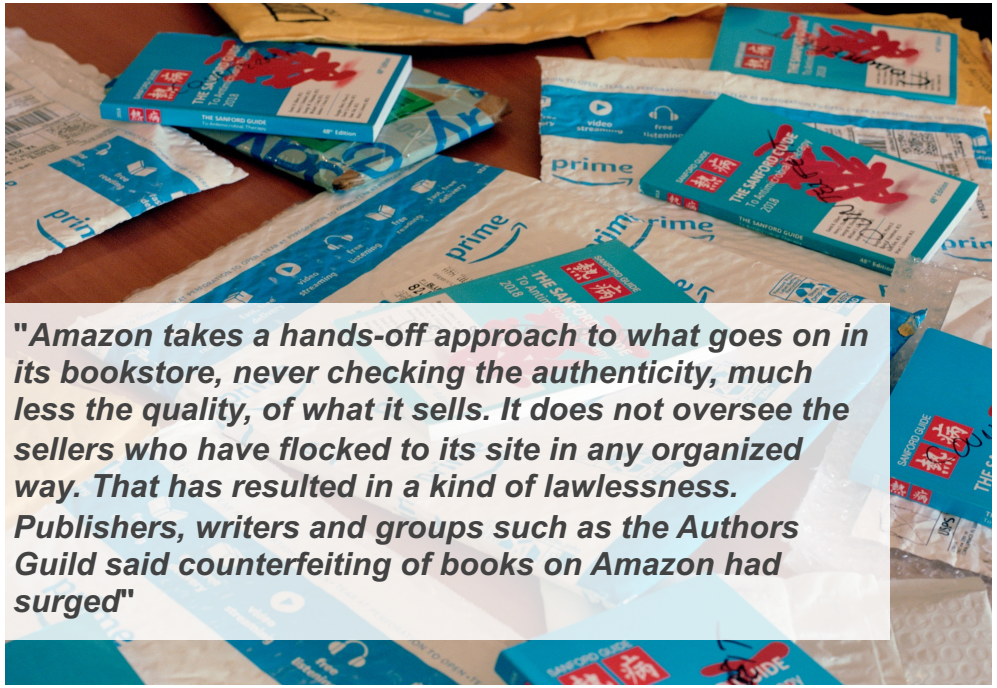
Some use a standard quality assurance check-list

Distribute

Those that pass vetting process are incorporated.

Very few innovators take other precautions such as batch testing, independent verification, track and trace, more.

Scale of other digital platforms without attention to quality has been challenging



https://www.nytimes.com/2019/06/23/technology/amazon-domination-bookstore-books.html

For consideration: how can we ensure that innovators remain responsible actors within the pharmaceutical system with respect to AMR, quality assurance and more?

4 Discussion

If we believe tech interventions can change how products are distributed to providers how might we invest catalytically to ensure the industry develops to serve public health purposes?

How do you see the conceptually disparate sources and uses of data on products, consumers and services merging as we move forward? What opportunities might you see for information on product distribution to ‘close the loop’?

How can we ensure protection of patient data and privacy, especially in contexts where human rights are tenuously enshrined?