How Innovative Financing Models Can Support the Scaling of Supply Chain Innovations

By John Simon and Allie Dichiara

Introduction: Global Health Supply Chain Challenges

Substantial progress has been made toward achieving Sustainable Development Goal (SDG) 3: Health and Well-Being for All. However, progress is plateauing as global health development funding decelerates, and much of the remaining gaps are among the hardest to address, especially for the most vulnerable and hardest-to-reach communities. A key element to reigniting progress toward SDG 3 is significantly improving the effectiveness of the current fragmented health commodity supply chain, through which billions in spending—approximately $6 billion in donor funds in 2015 and $50 billion in overall spending in 2017—flow each year to low- and lower-middle-income countries (LMICs). Fortunately, there is a growing number of innovative supply chain solutions available across sub-Saharan Africa that could have the potential to dramatically improve the underperforming status quo.

“In many ways, we may have reached the natural limit of our previous global health model. . . . What is left in terms of coverage [gaps] are some of the hardest countries . . . the poorest and most vulnerable, and also some of the hardest to reach people within countries.”

–Peter Salama, World Health Organization

Supply chain systems in sub-Saharan Africa often suffer from fragmentation, perform poorly on critical performance parameters, and insufficiently collect and use data to inform decisionmaking and enforce quality standards. Parallel supply chains create a waterfall of middlemen, incentivizing each entity to try
and preserve its piece of the pie, rather than working to maximize efficiency across the whole system. The current system’s inefficiencies contribute to long-lasting stockouts and hundreds of millions of dollars in drug expiries and wastage. This leads to treatment failures, undetected drug resistance, and higher mortality rates, including an estimated 100,000 deaths per year in Africa due to counterfeit drugs. At the same time, global health donors—which contribute more than half of health commodity spending in LMICs—continue to pay for individual links in the supply chain, leading to redundancy and wasted resources. Recognizing these shortcomings, donors are increasingly transitioning ownership to LMIC governments, especially those in sub-Saharan Africa, where it is more important than ever to achieve significant improvements in quality, transparency, and cost-effectiveness. Also of importance is to ensure locally owned, sustainable supply chain models going forward.

**ILLUSTRATIVE BASELINE DATA**

- In **Ghana**, audits revealed 30+ day stockouts of key commodities at 70 percent of facilities in 2020, and only 30 percent of orders were delivered in full in 2019.
- In **Nigeria**, reported availability of some basic drugs was as low as 11–25 percent in 2020. Among facilities with data, mean monthly vaccine wastage rates were 18–35 percent in 2017.
- In Kenya, **Kenya Medical Supplies Authority** (KEMSA) lost drugs valued at KES 352 million ($3.47 million) due to expiry or damage in 2017 alone.

**Lessons from the Covid-19 Pandemic**

The Covid-19 pandemic has laid bare the consequences of weak global health supply chains and makes the argument for transformation even more pressing. Without a fundamental change to the existing system, high stockouts, low on-time delivery rates, counterfeits, expiries, and other supply chain challenges will remain pernicious and persistent, leaving patients without the quality essential commodities they need when they need them. Covid-19 vaccine coverage in Africa is currently only 16 percent, and without adequate supply chains to distribute Covid-19 vaccines, African countries have been forced to return or destroy millions of vaccine doses, with one million destroyed in Nigeria alone.¹ These challenges create a vicious cycle with compounding effects: the inability to distribute Covid-19 vaccines allows the pandemic to continue unabated, preventing other critical health commodities from being delivered and leading to a surge in outbreaks of preventable diseases. Africa experienced a 400 percent increase in measles in early 2022; 24 countries recorded outbreaks of polio last year (four times more than in 2020); and 13 countries reported new outbreaks of yellow fever.

**Supply Chain Innovations Face Challenges in Reaching Scale**

In response to these inefficiencies, there has been a rise in supply chain innovators that have developed proven, data-driven technologies to significantly improve the performance of African supply chain systems. To further understand their impact and the challenges they face, the authors conducted interviews with 11 of them: DrugStoc, Field Intelligence, Kasha, Lifebank, MedSource, mPedigree, Parsyl, ShelfLife, Sproxil, Zenysis, and Zipline.²

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1. It is important to note that supply chains to distribute Covid-19 vaccines are only one part of the challenge, with vaccine hesitancy playing a role as well.
2. Interviews were conducted during February and March 2022.
The interviews revealed that while these innovators have successfully implemented solutions to improve distinct aspects of supply chain performance—including delivery, medicine quality, and pooled procurement—they face common challenges in accessing necessary capital at each stage, including start-up, early-stage growth, and particularly scale-up. The lack of predictability in cash flows makes it difficult for innovators to access the capital they need to scale and achieve widespread impact. One innovator noted, for example, “It becomes too difficult to fit the procurement mold of these donor programs. You are too big to be subcontracted and too small to be contracted on your own.” Another innovator explained that “traditional grants, tailored to NGOs [non-governmental organizations], are very difficult to manage for us. They can even harm companies when trying to get investments in the future.” An additional service provider echoed that “procurement processes and unpredictable markets make it difficult to scale to additional countries, even if the governments prefer a certain innovator over legacy options.”

“We need to make sure that money is getting out the door to organizations that are best positioned to do the work. Overly complex contracting is a barrier that’s often cited that really keeps local innovative organizations from working with USAID.”

–Senator Cory Booker testimony during the USAID Budget Hearings, May 2022

Unfortunately, the challenges identified by the innovators are systemic. The current global health supply chain system is, by design, optimized for stability and risk mitigation. Innovations are viewed as riskier than status quo solutions, and new organizations rarely fit the typical donor procurement mold, which is geared toward massive contracting mechanisms that only the largest organizations are able to bid on and absorb. This structure ultimately leads to billions of donor dollars continuing to flow through the same set of contractors and service providers year after year, despite a track record of subpar performance and slowing incremental health gains. For example, in fiscal year 2017, 60 percent of funding from the U.S. Agency for International Development (USAID) went to just 25 firms; additionally, in 2012–2017, just six suppliers for the United Kingdom’s Foreign, Commonwealth, and Development Office accounted for 45 percent of total contract value. The interviews with innovators reaffirmed that without access to the necessary revenue for operating at scale, innovators often get stuck in the “valley of death,” a stage in which no party is investing the minimum level for the innovation to survive, and are unable to take hold in African countries and drive meaningful impact, despite superior performance. This is a loss for the innovators, but an even more serious blow to Africans, who lose out on greater access to service and economic development that could be spurred by this innovation.

Governments Are Already Seeking Out Partnerships with Supply Chain Innovators

Governments increasingly see the public health benefits of working with technology-driven supply chain innovators and are proactively reaching out to partner with them. Governments, however, can only do so much today, as the majority of supply chain financing and decisionmaking is still in the hands of the major donors. Providing these supply chain innovations with sustainable paths to scale will reignite progress toward SDG 3 and transform health access among the hardest-to-reach populations. Governments adopting these innovations will realize the benefits of integrated, cost-effective, dynamic, and data-driven health supply chains and will serve as examples of how local ownership can lead in LMICs. Ultimately, a gradual transition of decisionmaking, ownership, and financing to governments will allow donors to effectively transition more of the financial burden of LMIC health systems to the countries themselves.
THE SAME TRANSFORMATION WITNESSED IN FINTECH CAN BE ACHIEVED IN GLOBAL HEALTH

The rapid transformation in financial inclusion through fintech is a powerful example of how quickly a system can improve when an innovative organization can rely on predictable revenue streams that allow it to scale. In the case of fintech, critical early investment from donors and equally critical market conditions allowed start-ups and innovators to compete for market share and scale based on their performance. Increased investment in the fintech sector in Africa fueled step-change gains: as fintech investment grew from $31 million in 2016 to over $330 million across Africa in August 2021, financial inclusion increased from 26 percent in 2006 to 83 percent in 2020. The opportunity for the best-performing innovators to scale and create widespread impact can and must be mirrored in global health.

The Introduction of a New Contracting Paradigm That Allows Innovation to Take Hold in Global Health

In light of these developments, donors are currently exploring the possibility of a pay-for-performance (P4P) facility that would enable this transition. The P4P facility would make payments to innovative service providers for achieving measurably and exceptionally high performance on the most critical supply chain metrics, including on-time delivery, expiry reduction, counterfeit elimination, fulfillment rates, and other metrics. The facility would align incentives across donors, governments, and service providers and provide innovators with predictable and consistent cash flows to grow their businesses and reach system-wide scale and impact.

How the Pay-for-Performance Facility Would Work

Governments currently contract innovators for their services and pay as much as they are able to in the context of existing budget constraints. However, these government payments are not enough to utilize innovators’ services at the optimal capacity and realize economies of scale. To make full use of the capacity available and get critical medical commodities to the right places at the right times, donors would pay predetermined amounts for service providers achieving exceptionally high performance across key supply chain metrics, such as those mentioned above. These performance payments would allow innovators to deliver services and commodities to millions more patients or facilities—enabling them to achieve economies of scale, thereby reducing costs—and allow governments to gradually increase the scope of their contracts (as they receive more services for the same amount of money).

FEEDBACK FROM INTERVIEWS WITH INNOVATORS

Throughout the interviews conducted with innovators, innovators showed strong support for the P4P facility as it was described:

- Innovators noted the great value of having access to a vehicle that creates an overarching mechanism to “institutionalize innovation” and provides clear milestones for innovators to meet, then allowing them to scale.

- Innovators explained that they already collect significant amounts of real-time data on where products are in the supply chain, what their quality is, and who is receiving them. There is an excellent opportunity to use this data both to ensure accountability and transparency for funds spent and to unlock performance payments without adding an extra administrative burden to the innovators.
Innovators stated that governments have high demand for these innovations, but they only represent a fraction of the commodity volume that occurs in their jurisdictions. Governments consistently tell innovators that they want a mechanism that allows them to pick the best performing service providers to serve the entire supply chain.

When interviewers explained that donors would only pay if predetermined exceptional performance targets are met, innovators noted that they are willing and able to absorb this risk, as they are aware of the performance they can achieve and they can commit to these results. They concluded that if the innovators can easily absorb the risk, progress could be made much faster.

There are numerous advantages to this model. First, it enables health facilities and their patients to have access to quality commodities where they need them and when they need them, as the highest-performing innovators will be entrusted with ensuring these critical commodities get to their ultimate destination when they need to be there. Second, it empowers governments to contract more efficient and effective supply chain service providers, as it offers the opportunity to assess providers based on performance and aligns external donor funding with those assessments. Third, this mechanism enables innovative service providers to invest in scaling up their business models—up to the point where they can operate viable business models at scale—because it offers them clear, predictable sources of revenue if they can deliver high performance. It also incentivizes current supply chain service providers to innovate and improve quality, efficiency, and accountability, without disrupting their current business models, as it will provide the potential to access performance payments if they can enhance their results. Finally, this mechanism addresses the risk aversion inherent in the system, as donors will only pay if predetermined exceptional performance is met. It allows donors to support the scaling up of locally driven innovations in a low-risk, non-disruptive, and highly efficient way.

To put such a model in place, the private sector, governments, and donors need to come together and leverage their combined health commodity purchasing power to align payments with performance. Doing so will enable a sustainable, high-performing global health supply chain, expanding access to innovations that allow life-saving medicine to reach millions of patients and catalyzing a shift to results-driven care in Africa.

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