

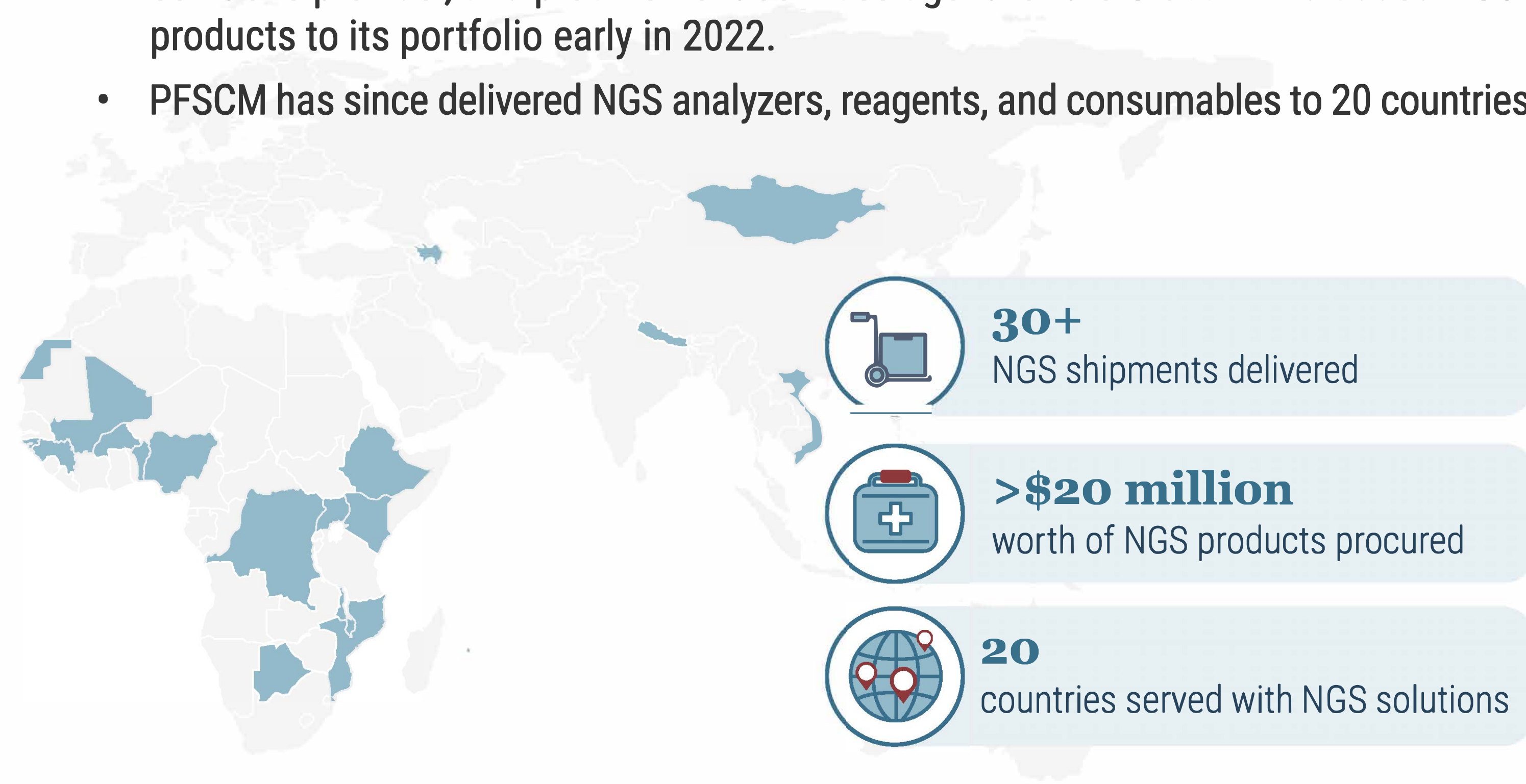
# NGS Implementation Challenges and Opportunities

## The Partnership for Supply Chain Management

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### Background

- Next Generation Sequencing (NGS)—a high-throughput methodology that provides an effective, unbiased and sensitive way to identify new virus strains—is gaining steady momentum as countries continue strengthening their genomic surveillance capabilities, including genotypic HIV drug resistance testing.<sup>1</sup>
- By August 2022, 31 out of 55 Member States of the African Union had infrastructure and capacity. A development driven by the Africa Pathogen Genomics Initiative.<sup>2</sup>
- The Partnership for Supply Chain Management (PFSCM), a nonprofit supply chain solutions provider, and procurement services agent for the Global Fund added NGS products to its portfolio early in 2022.
- PFSCM has since delivered NGS analyzers, reagents, and consumables to 20 countries.



### Procurement & supply chain considerations

Despite the variety of technologies, methods, workflows, and protocols, there are important factors that clients must consider for a successful NGS implementation; these are:

- The required throughput or amount of samples being processed in a certain amount of time (equipment options).
- The existing infrastructure to comply with installation requirements (site-readiness, space, electricity, etc.).
- The intended use of the equipment (Research Use Only).
- The present and future applications/needs.
- The options for data management and connectivity (storing and sharing data).
- Budget and total cost of ownership.
- Training and installation services.
- Warranties, maintenance, in-country support, and after-sales service.
- Supply chain management and distribution of cold chain and short-shelf life reagents.

Scan the QR code to learn how supply chain risks can be managed for the successful implementation of NGS. ▶



### NGS implementation challenges

- 1 Limited funding to have more countries include NGS in their portfolio.
- 2 Lack of standardization of workflow per manufacturer.
- 3 High cost of procurement of equipment and maintenance of sequencing platforms is still very high.
- 4 Availability of highly trained laboratorians to set and run NGS laboratories.
- 5 Insufficient/limited after-sales technical support and limited regional representation of distributors.
- 6 Complexity of shipping, high value equipment: site readiness, waivers, handling, and short shelf life reagents.

### NGS implementation opportunities

- 1 Undertaking capacity building projects and offering countries education to help them make sound procurement, delivery and supply chain decisions to mitigate risks.
- 2 Standardizing workflows to reduce the number of items needed and thus also costs.
- 3 Demand planning can be optimized through organized forecasting, and the operating model for NGS can be improved to continue exploring emerging markets to increase competition and reduce costs.
- 4 Reagent rental and equipment placement model to be considered as more countries start implementing NGS.
- 5 Leveraging on the existing infrastructure for epidemiological surveillance of other pathogens.

### Streamlining the NGS workflow



### The way forward

#### Bringing down costs

Explore further equipment placement and reagent rental solutions to be able to bring down costs therefore creating affordability to more countries.

#### Wider implementation

With more development on the sequencing platforms, there is great opportunity to transform the technology to improve on the epidemiological sequencing of other viruses that often mutate and cause global pandemics.

It will be beneficial for implementing partners and funders to continue negotiating with the manufacturers for cost and encourage reagent rental and equipment lease plans so as to get more testing labs on board.

#### Roadmap for equipment procurement

Checklists for site readiness, understanding equipment options and cost of ownership, planning for human resources, training, installation, warranties, maintenance, and after-sales service.

