Audit of Wambo.org

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Table of Contents

03 August 2022
Geneva, Switzerland

1. Executive Summary

1.1 Opinion

Wambo.org is a digital procurement platform launched in 2016 to provide grant implementers with access to competitive prices, increased transparency, and reliability in the supply of quality health products. The Global Fund has since enhanced online procurement and the entire Wambo.org ecosystem, and improved processes and controls for its Pooled Procurement Mechanism. This has facilitated the continuous procurement and delivery of products, including COVID-19 related products, to Global Fund supported countries, despite pandemic-related disruptions. Overall, we found Wambo.org easy to use, capable of managing transactions and approvals, and having a good mix of preventive and detective controls. Its product offering has diversified, and the number/volume of transactions and users has constantly increased.

The Global Fund's delegated procurement model produces only limited visibility on the manufacturing and the delivery of products to grant Principal Recipients. Even though visibility on order fulfilment and delivery has improved recently, the organization relies heavily on its Procurement Service Agents. Based on existing payment terms, service fees are paid without the Secretariat proactively checking whether 'on time and in full' deliveries are made.

Procurement processes and internal controls are influenced by the inherent limitations (e.g. functional and process gaps) of the procurement platform, which relies extensively on manual controls and custom workflows. Although these controls are largely effective, they are highly dependent on the staff performing them. While the cloud-based platform at the centre of Wambo is scalable, the expected increase in transaction volumes could affect control effectiveness and transaction efficiency of the wider Wambo ecosystem. Key application controls for platform set-up and transaction processing are **partially effective**, but the ecosystem's scalability to handle increased transaction volumes **needs significant improvement**, mainly due to its extensive reliance on manual controls.

IT controls to safeguard platform availability and security have improved over time and are **partially effective**. While platform enhancements have helped protect the Global Fund from IT security risks, some external users who access the platform without multi-factor authentication are at risk from 'phishing' attacks.

Wambo.org has had high availability and no significant downtime in recent years. From a business continuity perspective and in relation to platform availability, further alignment and communication needs to take place between Secretariat departments and Principal Recipient end-users.

1.2 Key Achievements and Good Practices

Diversified product offering, increase in users and transaction volumes
Since its launch in 2016, Wambo.org platform has been used to operationalize Pooled Procurement Mechanism (PPM) orders and to bring together buyers and suppliers of health products. The product offering through Wambo has diversified each year. As of December 2020, the number of users had increased to 1,900, from over 170 organizations in 80 countries.[1] The value of purchase orders through Wambo increased by 45%, from US$952 million in 2019 to US$1.37 billion in 2020. The COVID-19 pandemic has further driven the demand for placing orders through PPM. Wambo was built in an innovative way, integrating an off-the-shelf cloud-based procurement platform with Global Fund systems, and cross-adapting Global Fund and partners processes. Wambo's implementation was deemed "suitable" by an external assessment performed[2] in 2019.

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[1] From 1100 users in 93 organisations across 58 countries at the end of 2017
[2] Wambo Implementation Assessment (December 2019), performed by Ernst & Young, opined both on Wambo Fit for Purpose and Wambo Fit for Future

03 August 2022
Geneva, Switzerland

Wambo.org is easy to use, capable of managing transactions and approvals with a good mix of preventive and detective controls

Several Secretariat teams support Wambo transactions and the entire Wambo ecosystem.[3] Overall, end-user satisfaction is high; the platform is easy to use and can manage multiple transactions and approval flows. The Supply Operations department has put in place a mix of preventive and detective controls to track transaction exceptions.

IT controls are effective, platform availability is high and continuous enhancements are made

General IT and application controls are tested yearly by the External Auditor, covering key systems and integrations relevant for the Pooled Procurement Mechanism. In 2020 these controls were assessed as effective. This OIG audit reconfirms that IT controls are largely effective and have improved over time. The platform has very high availability and the Wambo ecosystem is continually enhanced to address evolving business requirements.

Good partner management and extensive PSA reporting mechanism in place

The Global Fund has a longstanding business relationship with its partners (including Procurement Service Agents and Suppliers) supporting the PPM. Beneficial multi-year framework agreements have been signed, a reporting mechanism on the agreed KPIs is in place, and partner performance is appraised yearly.

1.3 Key Issues and Risks

Significant workflow configurations have led to the need for excessive manual controls performed by staff

Extensive configuration of procurement flows and platform capabilities have influenced the design of internal controls. There is a heavy reliance on manual controls for generating/approving requisitions and electronic purchase orders, while negotiated prices in the framework agreements need to be manually approved for each transaction. Wambo controls require significant manual intervention, rendering their effectiveness dependent on maintaining a certain level of staffing with adequate experience in managing transactions. The expected rise in the number of transactions could affect control effectiveness, transaction efficiency and potential scalability of the Wambo ecosystem.

Limited visibility on order fulfilment by Procurement Service Agents

By delegating procurement to Procurement Service Agents (PSAs), the Global Fund has limited visibility on order fulfilment and thus places full reliance on PSAs and Principal Recipients (PRs). In line with the existing payment terms, the Secretariat does not check if the orders placed are fully delivered before paying for the service rendered. Automated reconciliation of Wambo orders with PSA orders, either when placing the order or on delivery, is not possible due to differences of product coding across systems. Due to complexity and time constraints, no manual reconciliation is performed, therefore the Secretariat relies on PSAs or their affiliates to confirm full delivery, to collect and archive all the needed documentation, and to report back.

With delivery addresses changed via e-mail between the PSAs/their affiliates and PRs, the risk of non-delivery is increased. PRs have reported instances where some ordered products were not delivered to the expected location, leading to grant implementation delays and/or additional costs. There are significant programmatic risks and reputational risks for the Pooled Procurement Mechanism if ordered products are not received in full, or are received with delays. Supply Operations intended to perform a PSA performance audit in 2020 in addition to their yearly evaluations, however this initiative has not progressed due to competing priorities in the context of the COVID pandemic.

Need to address residual phishing risks and to align/communicate expectations for platform availability and downtime

In the context of the pandemic and mandatory working from home, cyber-risks have increased significantly worldwide. While continuous security and business enhancements have thus far safeguarded the organization from an increased materialization of IT security risks, a small subset of the 2,100 Wambo users are at heightened risk from 'phishing' attacks, as some of these users access the platform without multi-factor authentication.

While Wambo.org has had high availability and no significant downtime in recent years, expectations on platform availability (maximum tolerable downtime) vary between different Secretariat functions; these need to be aligned and communicated among them, and with country end-users.

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[3] Wambo "ecosystem" refers to all the integrated systems, manual and automated that are used in the Pooled Procurement Mechanism (PPM) for the acquisition and supply of health products from suppliers to grant implementers. The "platform" refers to the specific procure to pay (P2P) cloud-based application system used in the PPM process. The "platform" is the core of the Wambo "ecosystem"

03 August 2022
Geneva, Switzerland

During the audit planning phase, the Supply Operations department self-identified some of these issues and initiated actions to address them.

1.4   Objectives, Ratings and Scope

The audit's overall objective was to assess the design and effectiveness of Wambo internal controls for pooled procurements. This audit looked at key application controls and general IT controls which included associated processes, risks and controls related to contingency planning, vendor and support management, platform architecture, availability, and security. For platform scalability, the audit assessed the design effectiveness and efficiency of integrated systems and process (manual and automated) of the entire Wambo ecosystem to handle increased transaction volumes.

The scope also included the design of order fulfilment and delivery, a process that is delegated by the Global Fund to Procurement Service Agents. The audit aimed to leverage the work performed by the External Auditors in relation to the Wambo platform.

Objective	Rating	Scope
Key application controls for platform set-up and transaction processing	**Partially effective**	**Audit period:** January 2019 to December 2020 **Scope exclusion:** The audit did not aim to opine on the Wambo.org business model (assumptions and savings), the team supporting the platform (structure, operating lines), platform ownership, nor the Accelerated Order Mechanism (discontinued in 2020).
IT general controls to safeguard platform availability and security	**Partially effective**	
Platform[4] scalability to handle increased transaction volumes	**Needs significant improvement**	

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[4] Ibid. 3

03 August 2022
Geneva, Switzerland

2. Background and Context

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2.1 Overall context

The procurement and supply of health products is fundamental to the performance of Global Fund-supported programs in the fight against the three diseases. US$2 billion of grant funds each year go towards procuring key medicines and health products, 60% of this through the Pooled Procurement Mechanism (PPM).
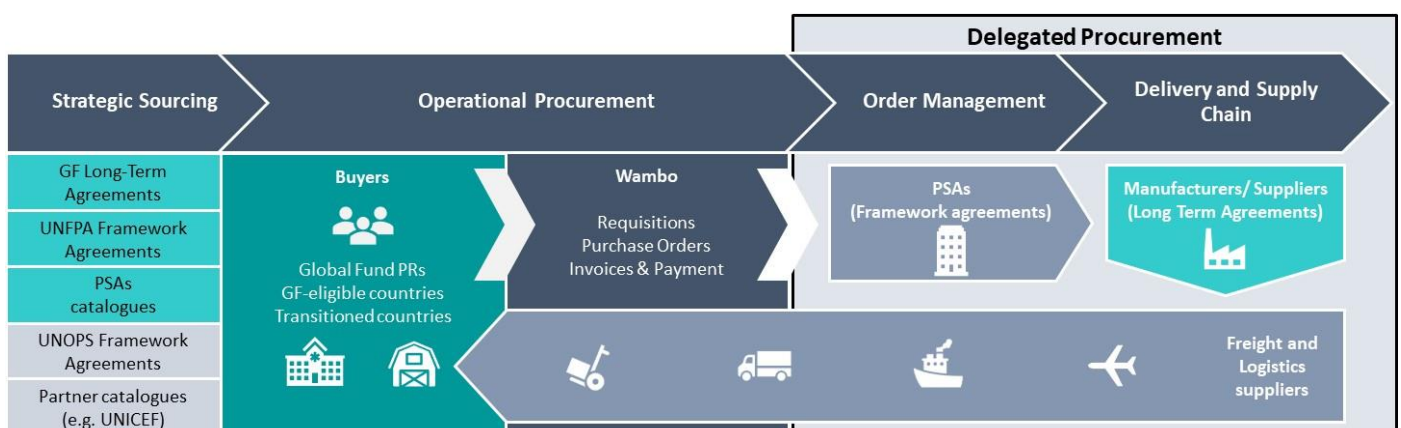
The Global Fund aims[5] to strengthen in-country procurement and supply chain management systems. National implementing partners have the option to procure medicines and health products either via the PPM, by contracting a Procurement Service Agent (PSA) to purchase on their behalf, or through their own mechanisms – see Figure 1.

Figure 1. Pooled Procurement Mechanism versus other procurement mechanisms (source: Supply Operations department)
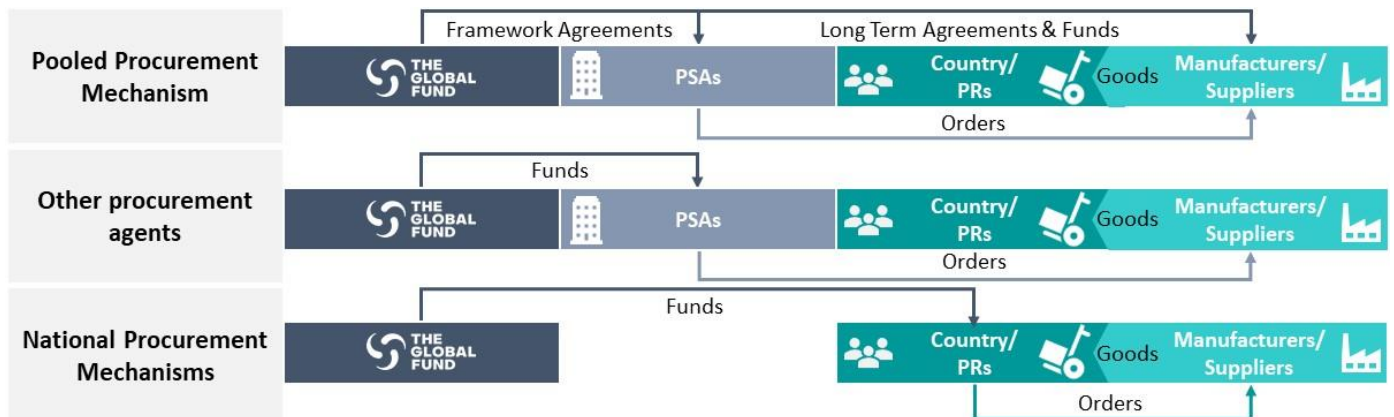
Since 2016, Wambo has been the digital procurement platform of the PPM, bringing together buyers and suppliers of health products – see Figure 2. The electronic platform is an evolution of the Voluntary Pooled Procurement (VPP) mechanism, launched by the Global Fund in 2009. PPM-negotiated terms and prices are made available to Global Fund-supported countries for purchases from grant funds. The platform gives buyers and suppliers more visibility on procurement processes and aims to improve the availability of products, provide better prices, and reduce costs. Since its launch, the product offering through Wambo.org has constantly increased, with new product categories and catalogues added yearly[6].

Figure 2. Supply Operations value chain (source: Supply Operations department)

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[5] The Global Fund Strategy 2017-2022 includes strengthening global and in-country procurement and supply chain systems. This is one of the operational objectives to enable the Global Fund to deliver the objective of building resilient and sustainable systems for health.
[6] LLINs, ACTs and ARVs since 2016, Viral Load, EID, lab/ diagnostic supplies, medical equipment, and non-core pharmaceuticals since 2017, vehicles and IT equipment since 2018. COVID-19 related products (diagnostics, personal protective equipment, and oxygen) were made available in 2020. TB treatments and diagnostics are not procured by Global Fund implementers through Wambo, as these have been procured since 2001 through the Global Drug Facility/ StopTB mechanism.

03 August 2022
Geneva, Switzerland

In 2020, the value of purchase orders through Wambo was US$1.37 billion, 45% up on 2019 – see Figure 3 below. Q1 2021 procurements totalled US$0.63 billion and the final 2021 amount is expected to be double that of 2020. The number of Principal Recipients and countries onboarded has constantly increased. In 2020, 26 new organizations from 11 countries were onboarded to Wambo, which now reaches over 170 organizations in 80 countries.

In May 2017, the Board allowed a limited number of procurements to be placed by Global Fund Principal Recipients using non-Global Fund resources. A pilot to use Wambo.org for domestic-financed orders began in 2018. In November 2019, the pilot was expanded to governments/non-government development organizations in Global Fund-eligible and transitioned countries, with a cap on purchase orders of US$50 million. In July 2020, the pilot was further expanded to include COVID-19 products in Wambo.org for procurement by PRs. By 2020, the value of domestic-financed purchase orders had reached US$18 million, or 1.3% of the total value of Wambo orders – see Figure 3.

Figure 3. Evolution of the value/number of Wambo purchase orders (source: OIG analysis and estimations for 2021)

The Global Fund Board instructed the Secretariat to undertake consultations early in 2020 to establish the future parameters of the pilot and report bi-annually on its progress. The Technical Evaluation Reference Group was asked to perform an independent evaluation of the pilot in 2021, before any scale-up or future strategy for its advancement.

At the centre of Wambo.org is a Procure-to-Pay (P2P) cloud platform[7], which is integrated[8] with the main Global Fund transactional systems and which together facilitate Wambo procurement transactions – see Figure 4. The P2P platform is used in other industries to manage indirect procurements (high volume/ low value purchase orders), distinct from Global Fund use (low volume/ high value purchase orders) for grant-funded health products.

Figure 4. Wambo ecosystem (source: Supply Operations department)

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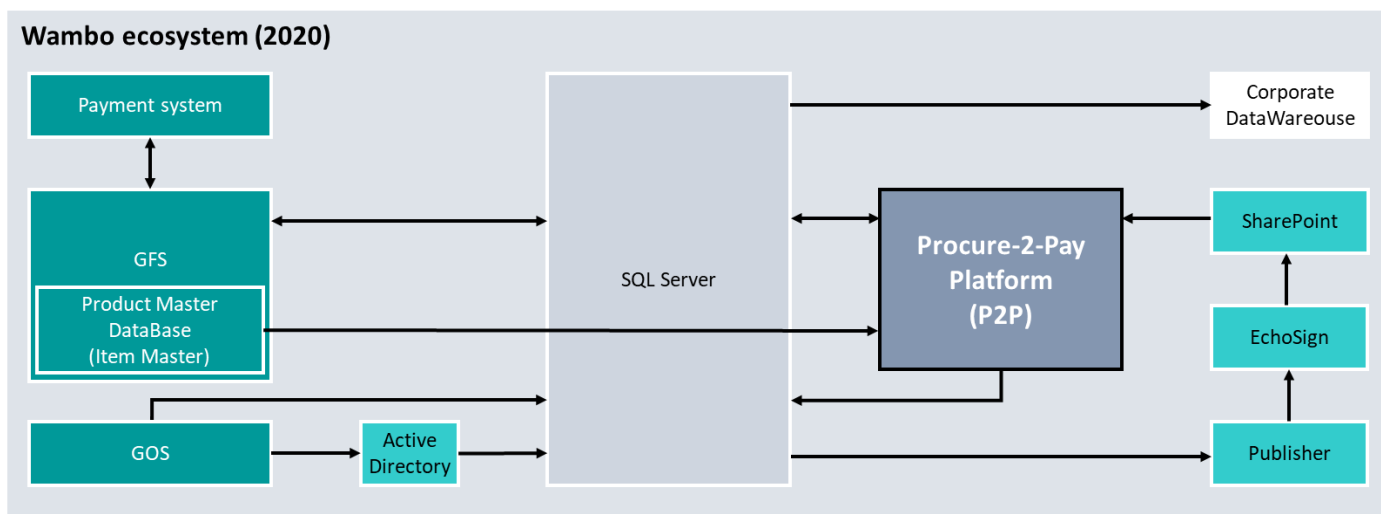
[7] Procure-to-pay (P2P) suite refers to integrated solutions with automated workflows to request, procure, receive, and pay for goods and services across an enterprise (Gartner definition)
[8] The P2P platform is integrated with several GF systems: Global Fund Finance System (GFS), Product Master Database, Grant Operating System (GOS), Active Directory, SharePoint, EchoSign, Publisher

03 August 2022
Geneva, Switzerland

The Global Fund's Pooled Procurement Mechanism is designed to achieve economies of scale by using aggregated procurements in a delegated model, with the order and fulfilment of procurements entirely delegated to Procurement Service Agents. Framework agreements between the Global Fund and the PSAs regulate the interaction between the parties. Procurement needs such as user onboarding, product and price updates, and payment, which cannot be addressed through the delegated procurement model, are managed by configurations and enhancements performed outside Wambo.org in other Global Fund systems.

A Wambo Implementation Assessment[9] in 2019 highlighted that the selected P2P is suitable compared to other similar platforms, but recommended improvements in the areas of supply chain collaboration/visualization, financial tracking, reconciliation, and reporting. The same report recommended actions to translate the initial Global Fund vision for the Pooled Procurement Mechanism/Wambo platform into key requirements for an electronic end-to-end P2P suite - encompassing reduced maintenance effort and lead time, increased supply chain visibility, improved financial tracking functionalities, increased automation, and preventive quality control mechanisms.

The Wambo ecosystem and the pooled procurements managed by the platform are supported by a mix of Secretariat teams[10], each having different roles in the pooled procurements lifecycle. The Secretariat conducts biannual Wambo satisfaction surveys with all PRs having placed orders in the last six months. Overall, user satisfaction is high and has constantly improved over time. In 2020 surveys, more than 90% of respondents were satisfied or very satisfied with the ease/transparency of the platform and the overall support received. Among opportunities for improvement are the time needed to complete orders, visibility on order delivery, and the time needed to receive ordered products.

2.2 Previous OIG work

In recent years, the OIG has performed two audits in relation to Wambo, with the scope of each driven by the context at the time of review. In 2016, the OIG performed a limited-scope review of the procurement processes for Global Fund Secretariat management of the project. In 2017, the OIG reviewed the implementation status of the Wambo platform, and progress towards reaching its initial business case goals.[11]

2.3 Other assurance providers' work

This OIG audit aimed to leverage the work performed by the Global Fund's External Auditors in relation to the Wambo platform. The External Auditor tests yearly the design, implementation, and operating effectiveness of controls over grant-related processes. This includes Wambo controls, whether manual controls, application controls (ITACs) or IT General Controls (ITGCs).

The External Auditor raised several Wambo control issues in 2017 (e.g. insufficient control framework around grants/ PPM operations, lack of segregation of duties in the Purchase Order change process, lack of quantity tolerance restrictions for user-created invoices). These issues had been either fully or partially resolved one year later.

As part of the 2020 External Auditor review, Wambo's ITGCs, ITACs and interfaces with the Global Fund Finance System (GFS) were assessed as "effective". Only one Wambo-related performance improvement observation was raised (Discrepancies between Wambo and GFS for COVID-19 orders); this had been partially addressed by early 2021. Any previous findings (e.g. ineffective Wambo user removal in 2018) were no longer an issue by the end of 2020.

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[9] Internal reports on Wambo Implementation Assessment from December 2019, performed by Ernst & Young, provided an assessment on whether Wambo was both *Fit for Purpose* and *Fit for the Future*

[10] Supply Operations teams and staff across Grant Management Division, Finance and Information Technology are involved in PPM procurements via Wambo

[11] Review of the processes to implement Wambo, 2016 (GF-OIG-16-016 – June 2016) and Audit of Wambo.org (GF-OIG-17-021 - November 2017)

3. Findings

3.1 Extensive workflow configurations combined with platform limitations impact transaction efficiency and Wambo's potential scalability

Extensive configuration of procurement flows and inherent platform capabilities increase the need for multiple manual controls and additional staff involvement, impacting transaction efficiency and potential scalability.

The platform allows for several configurations (e.g. approval chains, transaction flows, user roles) that are driven by the Global Fund model and each Principal Recipient's (PR) context. A dedicated Supply Operations team manages Wambo platform operations such as user on-boarding/support, business process controls, and enhancements, whereas the overall platform configuration is managed by IT and their suppliers. Requisitions are usually initiated by PR staff, before being managed by teams within Supply Operations, complemented by other Secretariat staff.[12] Requisition details are validated by PRs before an order is placed with Procurement Service Agents (PSA) and suppliers.

Supply Operations has improved some internal controls gaps, enhancing the control framework for platform transactions and providing more clarity around user roles and responsibilities. There is a mix of preventive and recently established detective controls[13] for each transaction initiated in the platform. The Risk Department has also extended its second line exception reporting to Supply Operations, including for key risks pertaining to pooled procurements.[14]

Challenges in managing transaction approvals
While there is a defined minimum number of accounts for accessing Wambo and approving transactions, the actual number of users is often greater. Some PRs have up to 28 different users and 8 different approvers, creating long approval workflows. Multiple, complex, transaction workflows exist, depending on order type, product category and funding source. Over 1,700[15] custom approval chains have been configured in Wambo since 2016, which need to be updated manually when users change roles or leave the organization. User access reviews are performed manually: semi-annually for Secretariat staff and annually for PR/PSA staff. Challenges in manually maintaining custom approval chains and multiple transaction workflows, coupled with the inherent system and process limitations, result in:

- *Manual adjustments of preconfigured transaction workflows to compensate for long approval chains:* Transaction workflows can be manually adjusted to skip or add approvers by raising and approving Wambo-related tickets to the IT support team. In 2019 and 2020 there were at least 49 instances of requests to bypass approvers, and 16 requests to add new approvers. Manual workflow adjustments are usually requested when approvers are unavailable, no longer required, or there is a need to correct an erroneous action. A revised baseline for approval chains and a more efficient process for onboarding/ updating users would reduce the need to manually bypass approvers. Manual adjustments alter the audit trail and deviate from the expected approval flow, posing challenges in tracking the sequence of events and changes made.

- *Limited due diligence on PR approvers, especially for PRs not recognizing electronic approvals:* due to country-specific legislation, PRs that do not recognize electronic approval are required to sign the Price Quotation attached to the Purchase Requisition, then scan and upload it onto Wambo.org as evidence of approval. 48% of Wambo orders between 2019 and 2020 were manually approved by PRs. There is limited verification of the authenticity of the authorized PR signatory during Wambo on-boarding, and a risk that orders may not be approved by authorized PR staff and contested later.

- *Materiality of Purchase Order (PO) changes is driven purely by order value:* Only material PO changes require PR approval. A "material" order change is defined as a cost increase of at least US$10,000 or 5% of its total value, with no consideration of other changes which may be material in nature (e.g. delivery dates or quantity reductions) and which could have programmatic impact.

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[12] Strategic Sourcing and PR Services teams in Supply Operations and the Program Officers/ Fund Portfolio Manager, Health Product Specialists, Finance Specialists
[13] In Q1 2021 several detective controls for key Wambo transaction exceptions were initiated – 6 monthly controls and 4 quarterly controls
[14] In Q1 2021 the exception reporting to Risk Department covered 3 risks
[15] According to the Wambo Implementation Assessment dated 12 December 2019, there were 1704 custom approval chains configured in Wambo.

03 August 2022
Geneva, Switzerland

A heavy reliance on manual controls for product requisitions is affecting efficiency

Access rights to initiate requisitions are limited to relevant PR and Global Fund staff, and are either "read-only" or "full-edit". The platform does not support access/edit limitations at the field level, or for different user groups. It does however allow for critical fields such as the manufacturer/supplier, product name or shipping address to be modified. Supply Operations staff are required to manually check the data integrity for each transaction during requisition approval. These manual checks are highly dependent on the experience and vigilance of the staff involved.

System limitations to access rights at field-level, and reliance on manual controls, are affecting control efficiency and are a contributing factor to long requisition lead times. Between 2019 and 2020, 60% of purchase requisitions had a lead time of over 30 days.[16] The expected rise in the number of requisitions (see Figure 3, p7) could affect the effectiveness of the manual controls or further increase approval lead times. To handle increased transaction volumes driven by the procurement of COVID-19 products, the Supply Operations department plans to recruit 10 additional staff, a 22% increase in headcount.

Control design gaps in updating product prices only partially compensated by transaction-level manual controls

Most Wambo products and their purchase prices are managed in the Product Master database (see Fig. 4). Currently, products and prices can be updated in the database without second person review or approval. The Secretariat recently rolled out the Product Data Hub, a system replacing the current database and which enhances controls for product and price updates.

When a requisition is initiated, the product and its negotiated price are automatically imported from the Product Master database. Due to system design, the requisition can be amended without any further approval. Additional controls (e.g. price ceilings or variance tolerances per type of product) to safeguard against changes in the platform are presently not activated. Instead, Supply Operations teams rely on manual controls, such as change validation and price approval meetings for each requisition, offline price monitoring, and volume allocation tracking using Excel files.

Price discounts agreed with suppliers are based on several factors, including transaction volumes, cumulative order thresholds and early placing of orders. Suppliers have specific terms and conditions (e.g. retroactive application of volume discounts) which need to be managed and tracked manually. Despite the significant number of manual checks and approvals, there are no detective controls to highlight the number and value of approved POs, with different unit prices compared to the negotiated prices agreed in the Long-Term Agreements with manufacturers/suppliers. The effectiveness of manual controls at transaction level to monitor prices/volume allocation thresholds could be impaired by the increased number of transactions expected from 2021 onwards.

Domestic-financed orders require considerable manual input and tracking

Non-Grant financed orders follow a similar process to Global Fund-financed orders. The main difference is the requirement for the financing government/organization to make in-full prepayments to PSAs before orders can be allocated to suppliers/manufacturers. The current process was designed for a limited number of domestic funded procurements and is highly dependent on manual inquiries/tracking by Supply Operations staff: Global Fund staff need to manually follow up on the prepayments made to PSAs for orders to progress. Similarly, a manual confirmation that all invoices and credit notes were paid and approved needs to take place before the purchase order is closed. As of February 2021, only 99 cumulative non-grant financed purchase orders[17] had been managed in Wambo (see Fig. 3). Further growth in the volume would increase the need for manual controls by Supply Operations staff.

Proposed Management Action 1:
The Secretariat will define and determine an appropriate internal control framework for procurements in Wambo.org to address control gaps and inefficiencies. The framework will cover the following: ▪ Mapping out the roles and responsibilities of different internal and external users ▪ Updating Wambo process maps ▪ Data and reporting (dashboard, exception reporting and other detective controls) The framework will inform process and controls adjustments/ redesigns, in anticipation of increased transaction volumes.
OWNER: Head, Supply Operations Department
DUE DATE: 31/12/2022

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[16] Lead time between requisition initiation and ePO approval: 32% between 30-59 days, 13% between 60-89 days, 8% between 90-120 days and 8% over 120 days;
[17] Wambo.org pilot update to the Global Fund Board in February 2021

03 August 2022
Geneva, Switzerland

3.2 Limited visibility on PSA order fulfilment without independent Secretariat assurance on product deliveries, resulting in program implementation delays

End-to-end visibility on procurements is dependent on Procurement Service Agents, while order fulfilment relies on Principal Recipients flagging issues, without independent assurance from the Secretariat on product delivery.

Strong procurement and supply chain management processes and systems are key to ensuring the right products are delivered at the right time and to the right location. Individual PSA reporting requirements to Supply Operations are set out in the respective framework agreements. PSAs are required to report to the Secretariat on several KPIs[18] either weekly, monthly, quarterly, or semi-annually. These reports are used for transaction management and for operational meetings and quarterly/annual business reviews of PSAs by Supply Operations. According to the PSA framework agreements, the Global Fund has the right to perform audits of PSAs and their affiliates.

The Secretariat receives limited assurance on product delivery

Under the delegated procurement model, PSAs are responsible for managing on the Global Fund's behalf the delivery of products from suppliers to PRs. The products invoiced by the suppliers are paid[19] for by the Global Fund after the shipment is confirmed and once the ordered products are out for delivery. To pay for product and logistic costs, the Secretariat uses a simple two-way match (i.e. matching the purchase order with the invoice) instead of a three-way match (purchase order, goods receipt note, and invoice). Logistics costs invoiced by the PSAs or by the logistics service providers are paid by the Global Fund after PSAs confirm delivery – see Figure 5.

Figure 5. Delegated procurement (source: Supply Operations department)
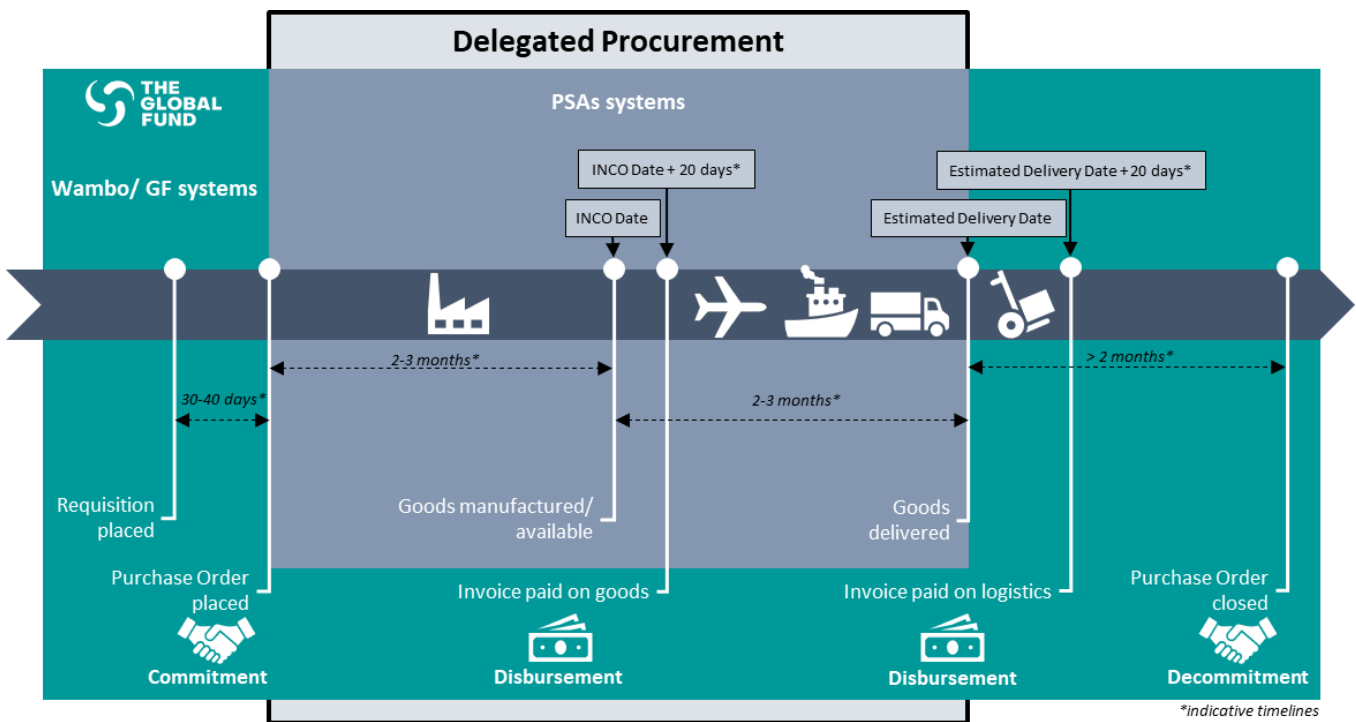
Currently, Supply Operations does not check if the orders placed are fully delivered (i.e. if the service was fully rendered) before paying PSA fees or logistic costs.[20] The Secretariat relies entirely on PSAs and on their affiliates to confirm full delivery, and to collect and archive all needed documentation (e.g. signed good receipt notes, customs clearance forms). The Secretariat also relies on PRs to escalate either to Supply Operations or to Country Teams if a purchase order has any issues.[21] Supply Operations resolve these issues on a case-by-case basis, without aggregating and analyzing them for performance management purposes.

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[18] On time in full deliveries, PQ/PO turnaround time, Freight lead-time and costs, Claims and incidents, Invoicing duration
[19] Logistics costs are roughly 10% of the products cost, PSA fees are between 1.5% and 5% from the total price of the health product.
[20] Logistics arrangements are suggested by PSAs/ their affiliates, the proposed costs are verified by Supply Operations staff based on their prior experience, as no third-party confirmation or data analytics on past orders is available (e.g. average delivery costs by sea from a specific port in Asia to a specific port in Africa)
[21] Examples of issues: order was delayed, order has quality issues, order is incurring additional costs, order was not delivered in full at the agreed location.

03 August 2022
Geneva, Switzerland

Products are typically delivered to the addresses listed by each PR when onboarding Wambo (e.g. Central Medical Stores, Regional Warehouses). Ordered products can also be delivered in a staggered fashion or to different addresses (e.g. malaria bed nets for mass campaigns can be delivered directly to regions/districts). In these cases, delivery details are managed via e-mail between the PSAs/their affiliates and the Principal Recipients. This offline system has led to instances of products not being delivered to the expected location, of implementation delays (e.g. bed nets to Mozambique in 2020) or incurring additional demurrage costs (e.g. bed nets to Democratic Republic of Congo in 2020).

The PR staff who order products are usually not present to confirm goods receipt. There is only a limited period in which PRs can escalate issues with products ordered or received.[22] With the volume of procurements administered through Wambo expected to increase further in 2021, there are significant potential risks to product delivery, program implementation and reputational risks for the Global Fund and for Principal Recipients if the products ordered are not received in full, are received with delays, or incur additional costs from grant funds.

Despite this reliance on PSAs and their affiliates for product delivery and reporting, the Secretariat has not independently audited the records of PSAs or their affiliates to verify reporting accuracy, obtain early warnings on potential issues, and enhance service quality. The Supply Operations department intended to perform such an audit in 2020, but this has not progressed due to competing priorities in the context of the COVID-19 pandemic. Previous OIG audits[23] have identified gaps in supplier management. While there has been significant improvement in supplier performance management, some gaps persist.

Reconciliation and visibility challenges around PSA orders

After a Wambo purchase order is approved, an order confirmation notification is sent to PSAs and PRs. Using information from Wambo and complemented by information from suppliers/manufacturers and logistics service providers, the PSA issues their own purchase order in their IT system.

The Secretariat cannot automatically reconcile if the products requested of PSAs are the same (in terms of product type and quantity) as those in the PSA's order. No manual reconciliation between Wambo orders and PSA orders is performed by Supply Operations due to complexity and time constraints. One Wambo order can be converted to multiple PSA orders. Product names can be different in the two systems (e.g. generic names in Wambo, trade names in PSA systems), or there could be different units of measurement, making it difficult for either Supply Operations or PR staff to compare what was ordered with what is received. The Secretariat has recently rolled out the Product Data Hub, a system to enhance the coding of products across systems; a by-product will be supporting the reconciliation of Wambo orders with PSA orders.

The manufacturing and delivery process for most PPM orders takes between 3-6 months, depending on the urgency of the order placed, product availability, and logistics arrangements. PRs and Country Teams can use *track and trace* tools from each PSA[24] to manually monitor the progress for each order. However, this option is time-consuming if there are multiple orders, or if there are staggered deliveries to be tracked at the same time.

In 2020, Supply Operations started collecting PSA reports[25] in Wambo. Together with the Global Fund IT Department, they are exploring making this data available to a wide number of stakeholders, whereby PSAs and partner organizations in the PPM will upload data weekly, which will be quality checked.

Proposed Management Action 2:
The Secretariat will undertake regular independent verifications of PSA records to assess: • the accuracy of PSAs reported information • the information used to confirm product deliveries with the PRs The verifications will help determine the action plans to improve PSA processes and will inform the need for potential updates to the procurement process and IT enhancements.
OWNER: Head, Supply Operations Department
DUE DATE: 31/12/2022

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[22] Supply Operations have revised in 2020 their purchase order closure process in Wambo, by replacing PRs manual confirmation of goods receipt with an automated PR silent approval (14 days after the final "zero invoice" received from the PSA/ supplier) that closes the purchase order

[23] For example, the OIG Follow up audit on procurement processes (GF-OIG-18-018 – September 2018) identified issues relating to supplier contracting and performance management.

[24] The links to track and trace tools are available on the Global Fund's website

[25] These reports include the status of each order using Advanced Shipment Notices.

03 August 2022
Geneva, Switzerland

3.3 Stronger IT controls are needed to address IT security risks. Platform availability and downtime expectations need to be aligned and communicated.

While IT controls for the Wambo platform have been strengthened in recent years, further improvements are needed to address residual IT security risks. Expectations for platform availability need to be further agreed and communicated to Wambo end-users.

As part of the 2020 External Audit, IT general controls (ITGC), interfaces and IT application controls (ITAC) for Wambo were reported as effective. IT controls related to Wambo procurements were similarly assessed as effective. This OIG audit has placed reliance on the extensive work performed by the External Auditor. Additional work was performed from an IT functional, technical and security posture and by assessing Global Fund assurance over suppliers via supplier System and Organization Controls reports and Supplier Audit Questionnaires.

In recent years, the P2P cloud platform has had consistent high availability and no significant downtime. The cloud platform enables fast scalability and quick disaster recovery. The continuous enhancements made by the IT department to Wambo before and during the pandemic have safeguarded the organization from an increased materialization of IT security risks.[26] At the same time, several business enhancements have been delivered,[27] helping the Global Fund to play an active role in the COVID-19 response.[28]

Address residual IT security risks for key external users

The Global Fund uses an enterprise Identity and Access Management[29] (IAM) solution to control access to both on-premises and cloud applications. Integration with the P2P platform means that users connecting to Wambo are authenticated using the enterprise solution, either through single-factor authentication (SFA) or multi-factor authentication[30] (MFA). MFA helps to partially mitigate phishing risk and unauthorised access to enterprise systems. The IT department is currently testing detective controls to identify and monitor login credentials that were exposed.

The Wambo ecosystem currently has over 2,100 users, split between external users (PR and PSA staff) and internal users (Secretariat staff). In 2020, all Secretariat staff, including those accessing the Wambo platform, were enrolled to MFA, significantly reducing IT security risks. For PR staff (over three-quarters of the users), authentication was migrated to the enterprise IAM cloud solution and all PRs have received phishing training from the Secretariat, partially mitigating risks. However, a small subset of external users still connect using platform credentials and thus have an elevated exposure to phishing. To further mitigate IT security risks, key external users (e.g. those with electronic approval rights in Wambo) need to use MFA (i.e. similar to Global Fund Board members) or an equivalent solution. However, the Global Fund's principle of country ownership means that the Secretariat has only limited influence on PRs' IT security measures.

Wambo availability and downtime expectations need to be communicated across the Secretariat and to end-users

The IT Department has begun developing an IT Business Continuity Management System, expected to be completed in Q4 2021. Business impact analyses have been drafted for key Secretariat processes, including for Supply Operations processes and systems and implicitly for Wambo. Key availability indicators are designed to indicate how long a system can be suspended before the level of impact is deemed unacceptable.

The key indicators on availability and downtime from the platform supplier[31] show better results than the Service Level Agreement (SLA) indicators. While this is encouraging, Secretariat stakeholders' availability expectations have evolved (i.e. maximum tolerable downtime of four hours) from those initially defined internally[32] or agreed in the supplier SLA. Further alignment and communication between Secretariat functions (IT, Supply Operations, Grant Management,

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[26] Encryption upgrades, rolling-out Multi-Factor Authentication to all GF staff, enrolling most Principal Recipient users to GF's Active Directory, other cyber-security monitoring activities launched in 2021

[27] Requisition & PO changes, automated PO closure, Rapid Supply Mechanism, PSAs data collection and dashboarding

[28] Onboarding of new partners for Personal Protective Equipment and Diagnostics, of COVID-related products in Wambo, specific tracking of COVID-19 orders

[29] Policies and technologies to ensure the right users (in an enterprise) have the appropriate access to IT resources

[30] SFA: a password matched to a username. MFA: uses the same password/ username combination, plus additional information that only the user would know

[31] The global uptime of the P2P platform in 2020 and 2021 was 99.97% or above

[32] Supplier Recovery Time/Point Objectives (1 hour) and Maximum Tolerable Downtime (24 hours) vs Secretariat's Maximum Tolerable Downtime (2 weeks)

03 August 2022
Geneva, Switzerland

Finance) and end-users (Principal Recipients) needs to take place; this would allow all users to understand and agree on availability expectations in the event of platform downtime (e.g. outages due to infrastructure configuration changes) and inform the need for any workarounds (e.g. manual processes to follow in case of platform unavailability).

Delayed platform upgrades and sub-optimal upgrade documentation received from the supplier

The P2P platform at the centre of Wambo is a "software as a service"[33] (SaaS) platform, as are other Global Fund systems. While cloud platforms have clear advantages,[34] they also have certain inherent disadvantages. For example, customization by the supplier is extremely limited. Customers' specific needs might not be addressed, other than through the configuration possibilities embedded in the platform. Also, the supplier manages most elements of the cloud platform, making users dependent on the supplier for upgrades to the system and for documentation.

The P2P platform is used differently by the Global Fund (low volume/high value of purchase orders) compared to most other organizations. Driven by the specific needs of the Global Fund model, the platform was configured to manage multiple transactions and approval flows. As noted previously, since 2016 over 1,700 custom approval chains have been configured and over 20 custom user roles created.

The platform was not upgraded to the latest available version, even though supplier releases happen three times per year.[35] Maintenance and security upgrades could potentially be delayed due to the IT department's need to check all updates before implementing; this is because Global Fund-specific configurations are not regression tested[36] by the supplier after upgrades are made. Only standard user-roles are tested by the supplier; custom roles need to be tested and reconfigured by the IT department, incurring additional time and costs. The available upgrade documentation is sub-optimal and not comprehensive enough for the Global Fund's needs. To mitigate the risk of key platform elements not functioning after an upgrade, the Secretariat evaluates the benefits (e.g. new features and functionalities) against the risks, impacts and/or additional costs (e.g. integration, regression testing) before deciding to upgrade.

Proposed Management Action 3:
Further strengthen IT risk management by: • implementing a multi-factor-authentication or similar solution to relevant external users • communicating platform availability and downtime expectations agreed in the supplier SLA with the wider Secretariat teams and the end-users (e.g. PRs, PSAs) • enhancing the process of reviewing and testing platform releases to ensure upgrades • continuing to monitor release documentation issues with the supplier
OWNER: CIO, Information Technology Department
DUE DATE: 31/12/2022

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[33] SaaS is an IT software licensing model in which the software is licensed on a subscription basis and is centrally hosted (usually in a cloud)
[34] Accessibility, Scalability, Data storage, Cost effectiveness, Increased security
[35] The P2P platform is running a December 2020 version, despite three functionality upgrades/ releases being made since then (in January, April, August 2021).
[36] Regression testing is defined as functional and non-functional tests to ensure that previously developed and tested software still performs after an upgrade

Annex A: Audit rating classification and methodology

Effective	**No issues or few minor issues noted**. Internal controls, governance and risk management processes are adequately designed, consistently well implemented, and effective to provide reasonable assurance that the objectives will be met.
Partially Effective	**Moderate issues noted**. Internal controls, governance and risk management practices are adequately designed, generally well implemented, but one or a limited number of issues were identified that may present a moderate risk to the achievement of the objectives.
Needs significant improvement	**One or few significant issues noted**. Internal controls, governance and risk management practices have some weaknesses in design or operating effectiveness such that, until they are addressed, there is not yet reasonable assurance that the objectives are likely to be met.
Ineffective	**Multiple significant and/or (a) material issue(s) noted.** Internal controls, governance and risk management processes are not adequately designed and/or are not generally effective. The nature of these issues is such that the achievement of objectives is seriously compromised**.**

OIG audits are in accordance with the Global Institute of Internal Auditors' definition of internal auditing, international standards for the professional practice of internal auditing and code of ethics. These standards help ensure the quality and professionalism of the OIG's work. The principles and details of the OIG's audit approach are described in its Charter, Audit Manual, Code of Conduct, and specific terms of reference for each engagement. These documents help safeguard the independence of the OIG's auditors and the integrity of its work.

The scope of OIG audits may be specific or broad, depending on the context, and covers risk management, governance, and internal controls. Audits test and evaluate supervisory and control systems to determine whether risk is managed appropriately. Detailed testing is used to provide specific assessments of these different areas. Other sources of evidence, such as the work of other auditors/assurance providers, are also used to support the conclusions.

OIG audits typically involve an examination of programs, operations, management systems and procedures of bodies and institutions that manage Global Fund funds, to assess whether they are achieving economy, efficiency, and effectiveness in the use of those resources. They may include a review of inputs (financial, human, material, organizational or regulatory means needed for the implementation of the program), outputs (deliverables of the program), results (immediate effects of the program on beneficiaries) and impacts (long-term changes in society that are attributable to Global Fund support).

Audits cover a wide range of topics with a particular focus on issues related to the impact of Global Fund investments, procurement, and supply chain management, change management, and key financial and fiduciary controls.