Tracking UK Aid on the Blockchain
- Pilot -

Report on Sprint 1:

Stakeholder Mapping

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Executive Summary

Sprint 1 was the first step in testing the hypothesis for this Pilot, which is that “If we introduce distributed ledger technology to tracking UKAid payments through the delivery chain, then we will enhance transparency, increase the speed at which money flows to the end recipient, and reduce intermediary costs.”

In order to test this hypothesis, we carried out the design research necessary to provide a foundation for the Pilot. The research was based on interviews with around 50 different stakeholders, with stakeholder selection based on guidance from the DFID Steering Group.

A key stakeholder group was UN OCHA, who manage the Country Based Pooled Funds (CBPFs) that could provide the basis for the Simulation. OCHA were extremely cooperative, and we have mutually selected two Country Based Pooled Funds (CBPFs) to be the focus for the Pilot: Iraq and oPT.

The stakeholder interviews carried out for Sprint 1 in general confirmed that the aim of the Pilot is valid and supported by those stakeholders, and that Sprint 1 provides a basis for designing and approving Sprint 2. This report introduces the findings from Sprint 1, which are based on three experiments:

- Experiment 1 mapped stakeholder organisations in the delivery chain, internal stakeholders within those stakeholder organisations, and stakeholders external to the funding chain.
- Experiment 2 mapped stakeholder requirements through interviews; we grouped these into six thematic areas, and ranked and analysed each area to understand different stakeholder priorities.
- Experiment 3 mapped stakeholder workflows and systems, particularly in order to test whether this Pilot will be compatible with existing DFID systems, but also stakeholder workflows more broadly.

All three experiments were successful; further details are given in the Sprint Review which will accompany this report, and the findings are contained in this report. These findings will be built into the Simulation scenario, and strategies developed to address them.

This document concludes with a short note describing how the Sprint 1 findings can be built on in upcoming sprints, including how challenges and opportunities identified by stakeholders might be incorporated into the Simulation, and how the visualisations can be developed to communicate the eventual findings of the Pilot.

Introduction

What is the Aim of the Pilot?

The Pilot aims to test the central hypothesis that

"If we introduce distributed ledger technology to tracking UKAid payments through the delivery chain, then we will enhance transparency, increase the speed at which money flows to the end recipient, and reduce intermediary costs."

The Pilot will test this hypothesis by running a Simulation exercise on a platform based on distributed ledger technology, using historical data from a County Based Pooled Fund (CBPF) managed by the UN Office for Coordination of Humanitarian Affairs (OCHA).

The Simulation will be compared to a "business as usual" benchmark to test for improvements in key metrics identified by stakeholders, and to identify potential strategies for mitigating risks in the "business as usual" model. This analysis will then be presented for discussion at the end of the Pilot.

The DFID Steering Group and Disberse Project Team have formulated a number of additional key assumptions to guide the Pilot in answering four key questions:

1. Does it have a positive social impact?
2. Will key stakeholders engage with it?
3. Does the technology work?
4. Will this grow after the pilot?

The Pilot is organised as a series of Sprints. Each Sprint is developed by Disberse, the technical partner selected by DFID, but the Sprint design must be approved by the Steering Committee based on the results of the previous Sprint.

This report introduces the findings from Sprint 1. In general, stakeholder interviews confirmed that the aim of the Pilot is valid and supported by those stakeholders, and that Sprint 1 provides a basis for designing and approving Sprint 2.

How did Sprint 1 contribute to the Pilot?

Sprint 1 focused on conducting the design research necessary to provide a foundation for the Pilot, mapping and analysing the involved stakeholders and their requirements, workflows and systems in the course of four experiments. Each experiment aimed to test an underlying belief through specific tasks:

#	**Underlying belief**	**Specific task**
1	We believe that this technology will benefit a range of different stakeholders	Identify stakeholders
2	We believe that different stakeholders will have different requirements	Understand stakeholders
3	We believe that compatibility with existing Dfid systems and workflows is critical for future uptake	In-depth mapping of DFID
4	We believe that an output-oriented design process will address the three other beliefs, enable project stakeholders to address their concerns, and contribute to the design of future sprints	Engage key stakeholders

The findings from the first three experiments - including visualisations of the mapping exercises - are presented in this document.[1] In order to map stakeholder requirements and concerns, we carried out interviews with around 30 DFID and OCHA colleagues. In addition, we interviewed more than 10 IPs in Iraq and oPT, including UN organisations, INGOs and local organisations, and interviewed external stakeholders including IATI, ODI and other donors.

These interviews formed the basis of the fourth experiment, and this document is the culmination of that stakeholder engagement. The document concludes with a short note describing how the Sprint 1 findings can be built on in the upcoming sprints, including how the challenges and opportunities identified by stakeholders might be incorporated into the Simulation, and how the visualisations can be further developed to communicate the eventual findings of the Pilot.

[1] This report does not attribute specific concerns to specific stakeholders; it seeks to build a holistic “business as usual” model that does not rely on a single stakeholder perspective.

Experiment 1: Mapping the stakeholders

“We believe that this technology will benefit a range of different stakeholders.”

The Sprint started with an objective to map the stakeholders in a single delivery chain, from DFID via implementing partners through to beneficiaries. Initial discussions indicated that the OCHA-managed Country Based Pooled Funds (CBPFs) would provide an excellent real-world basis for the Simulation Exercise.

We therefore approached OCHA as a critical partner in identifying stakeholders, capturing benchmarks, and designing the Simulation scenario. OCHA engaged at a high level, and during the Sprint offered two Country Based Pooled Funds (CBPFs) to be the focus for the Pilot: Iraq and oPT.

With OCHA’s support, the mapping produced a multi-dimensional view of the delivery chain. Three perspectives are presented here: the first illustrates different stakeholder organisations in the delivery chain; the second shows internal stakeholders within those stakeholder organisations; and the third highlights stakeholders external to the funding chain.

Delivery chain stakeholders

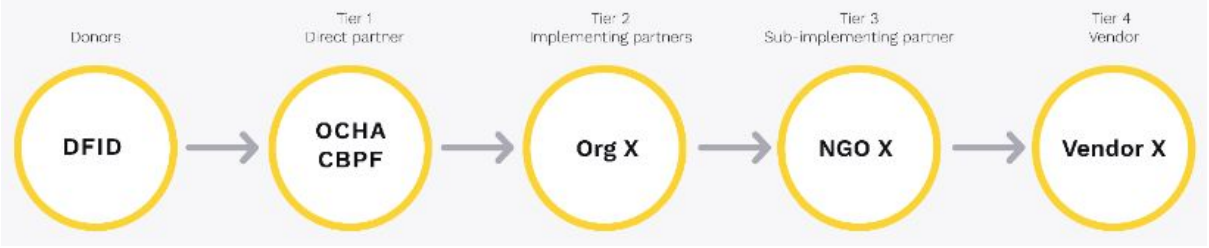

Figure 1: The basic delivery chain

Figure 1 shows the basic stakeholders involved in the delivery chain.

Funds are committed by DFID to specific CBPFs, and transferred from DFID (London) to OCHA (New York). From OCHA funds are then transferred to contracted Implementing Partners (IPs) in-country or elsewhere depending on the organisation; these Tier 2 organisations can be UN agencies, international or local NGOs.

It is not uncommon that these IPs in turn have sub-implementing partners (Tier 3), tasked with executing aspects of project implementation. At the far end of the chain there are also local vendors (Tier 4), subcontracted to provide or deliver aid material (and in some cases services).

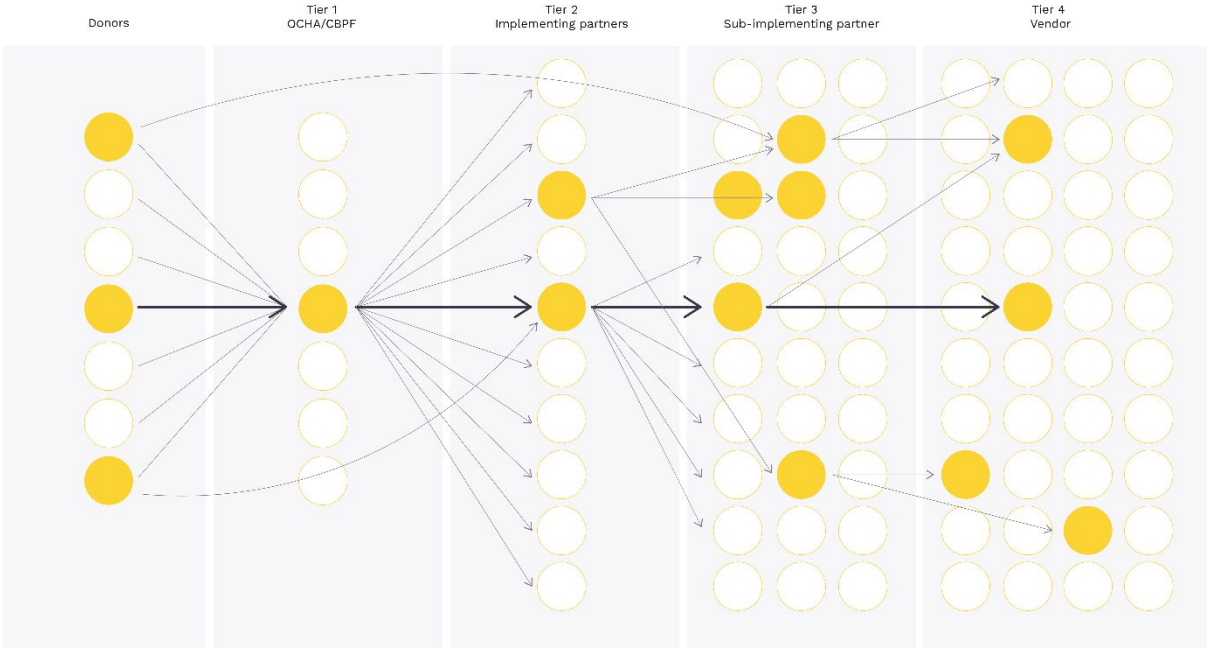

Figure 2: The complexity of a full delivery chain

Figure 1 is greatly simplified, since each level of the chain comprises a larger number of actors, and so Figure 2 visualises how:

- A range of international donors fund the CBPFs;
- CBPFs are in multiple locations - there are currently 18 globally, with a variety of management arrangements;
- Each CBPF works with a number of Tier 1 IP - for example the Iraq CBPF funded 53 different IPs in 2018;
- Tier 1 IPs may work with sub-IPs and vendors, making each delivery chain a multi-branched system.

Internal stakeholders

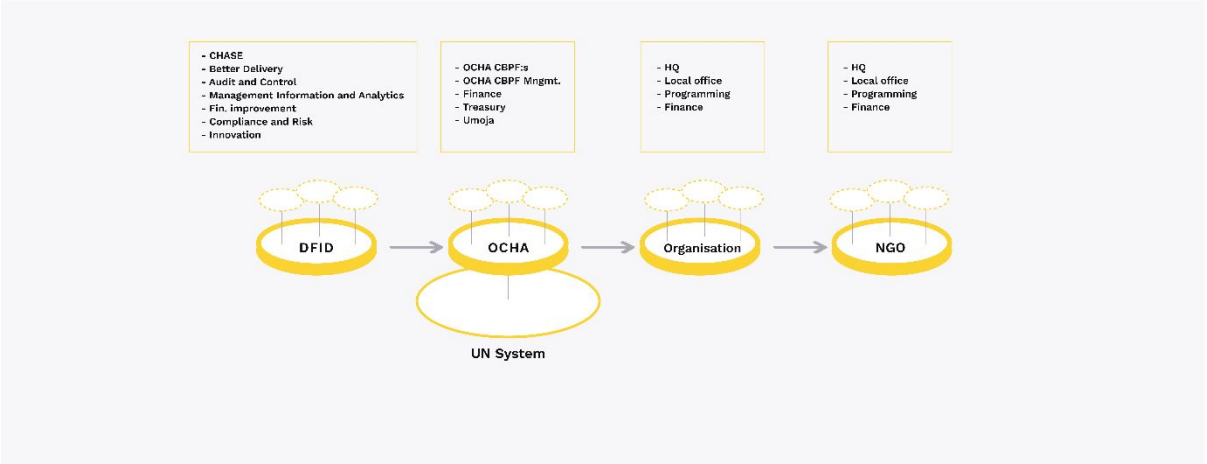

Figure 3: Internal stakeholders

Figure 3 illustrates that there is a range of stakeholders internal to DFID, OCHA and other relevant actors (in response to feedback received on the initial sprint design from the Steering Group). There may be other stakeholders that we were not able to identify, but the subsequent results of Experiment 2 emphasised the importance of this mapping, since internal stakeholders have different requirements and concerns, and failing to include these perspectives would have been a significant gap in the design research.

External stakeholders

Figure 4: External stakeholders

Figure 4 shows the types of stakeholders external to the delivery chain, but who have an interest in some aspect of that delivery chain. There are a variety of such stakeholders, each with a focus on different parts of the chain. The scope of our mapping has excluded in-depth analysis and engagement with all external stakeholders. Instead, they have simply been identified in interviews with delivery chain stakeholders, with one exception:

The DFID Steering Group highlighted that IATI is of critical importance among external stakeholders, which was confirmed by many DFID and OCHA colleagues interviewed. The stakeholder interview with IATI revealed that this Pilot could usefully explore a gap in existing aid tracking, since IATI has been set up to track activities rather than transactions. Following this interview, the project team will ensure that the Pilot supports IATI requirements, and we have subsequently built this into two proposed Experiments in Sprint 2.

Experiment 2: Mapping requirements

“We believe that different stakeholders will have different requirements”

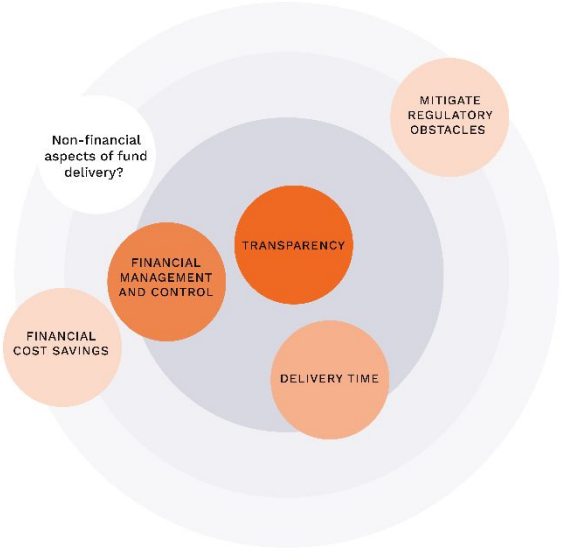

Figure 5: Concentric Ranking of relative importance of thematic areas

The mapping captured a wide range of concerns, which we group into six thematic areas. Figure 5 ranks the relative importance of themes - indicated by proximity to the centre of the diagram - with transparency emerging as key requirement. Figure 6 illustrates the different emphasis placed by different stakeholders; DFID and OCHA valued transparency for audit and control, while IPs valued improved financial management. The rest of this section addresses each theme separately.

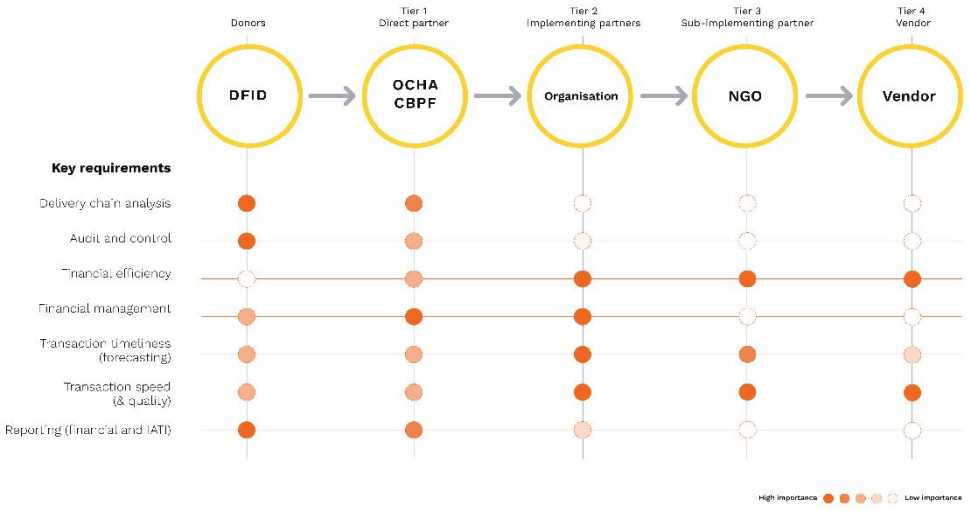

Figure 6: Emphasis Chart for stakeholder requirements

How could the service affect transparency?

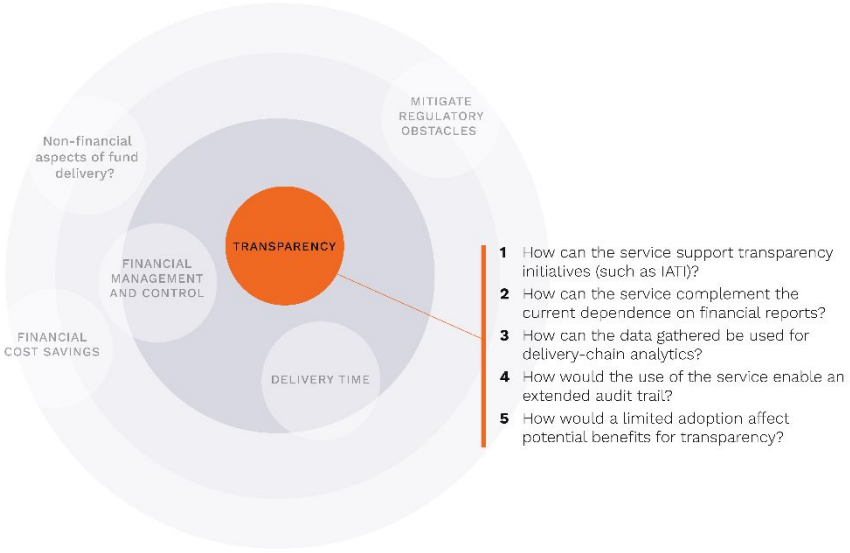

Figure 7: Key questions for Transparency theme

Summary of current situation: The lack of real-time transaction level data has a negative impact on both external transparency and internal tracking (control, auditing, delivery chain analytics, etc.).

Financial reporting data is mainly shared a) in aggregate and b) only intermittently (i.e. in monthly, quarterly or annual financial reports). This reporting is aggregated upwards in the chain, limiting the level of insight into delivery chain dynamics. Transaction level data is not shared between stakeholders in any systematic way, leading to limited transparency regarding key metrics, such as when transactions are executed, what the transaction costs are, details on delays and bottlenecks, and so on. This lack of transaction level data in combination with dependence on post facto financial reports makes in-depth analysis out-of date by definition.

How stakeholder requirements and concerns can be addressed in future sprints

- Understanding the potential for improved transparency is a key objective for the entire Pilot, and this is clearly reflected in the proposed Sprint 2.
- The first two experiments in Sprint 2 will gather financial data from the chosen delivery chains (Experiment 1) and then compare these with a transparency baseline developed by comparing with IATI (Experiment 2).

- The second two experiments in Sprint 2 will address stakeholder concerns regarding data use (Experiment 3) and potential for improved IATI reporting (Experiment 4).

Where are opportunities for (financial) efficiencies?

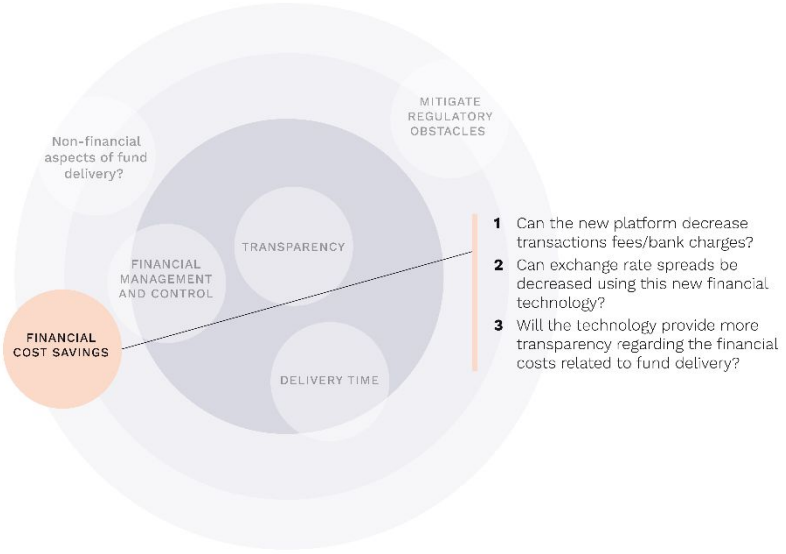

Figure 8: Key questions for cost savings theme

Summary of current situation: interviews confirm that transactions come with a significant price, with bank charges and exchange rate spreads for each transaction down the chain (and up again when repayments are necessary). There is however a lack of sufficient data on these costs; no stakeholder has a complete overview since they are hidden by intermediary banks and dispersed across the funding chain.

There is no reporting mechanisms on the costs related to financial transactions. Partners regularly report on significant costs for transactions (often exchange rate spreads) when they received funds. OCHA also reports high losses for refund payments, where unnecessary exchanges have been known to cut up to 60% of the value of repaid funds.

How stakeholder requirements and concerns can be addressed in future sprints

- Experiment 1 in Sprint 2 will collect the transaction data necessary to quantify these costs and establish a benchmark. The Simulation exercise that is the focus of the Pilot will recreate these transactions, and the benchmark will enable us to compare potential savings in bank charges, exchange rate spreads and other financial costs.

How much can the solution affect delivery times?

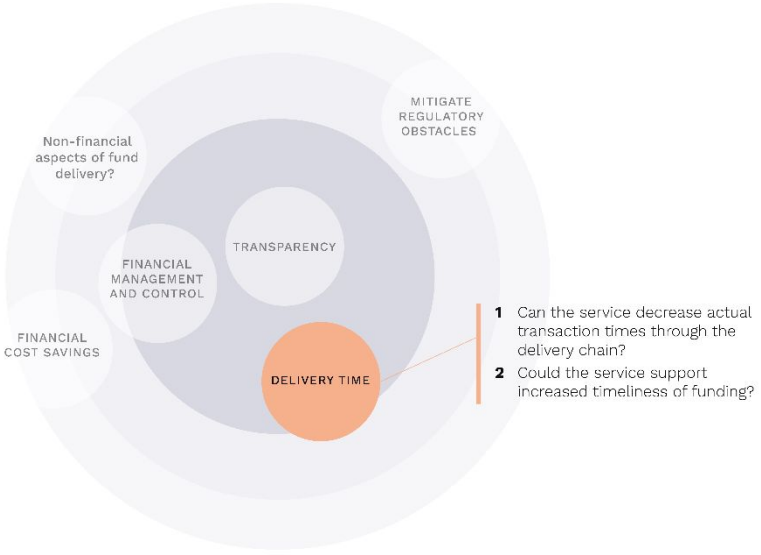

Figure 9: Key questions for delivery time theme

Summary of current situation: There are challenges in regards to the delivery of funds in or on time, i.e. getting funds out quickly (speed) or allocated in a timely manner (timeliness).

There is no aggregated analysis of mean transaction times in terms of speed. OCHA commits to disburse funds within 10 days of a partner request; additional banking days are a constant uncertainty, and usually add at least 3 banking days to delivery. A common problem concerns changes in banking details, which can result in very long delays and in some cases refusal of a transfer - for example, when a destination bank changes its intermediary without notifying clients. Long transfer times in the banking system can have significant impact on timeliness, causing funds to fail to reach implementing partners in time for planned activities, such as missing the time window for winterization activities.

How stakeholder requirements and concerns can be addressed in future sprints

- A key assumption underpinning the Pilot is that the service should be able to improve fund delivery times; the data gathered in Experiment 1 of Sprint 2 will be used to create a benchmark of current delivery times.
- Please note that delivery times are based on two main time factors: internal administrative processes, and external financial transactions. While the Pilot will quantify both types, the technology will impact primarily financial transactions; however it will provide more data on internal processes, enabling more informed engagement with this issue.

How can financial management and control improve?

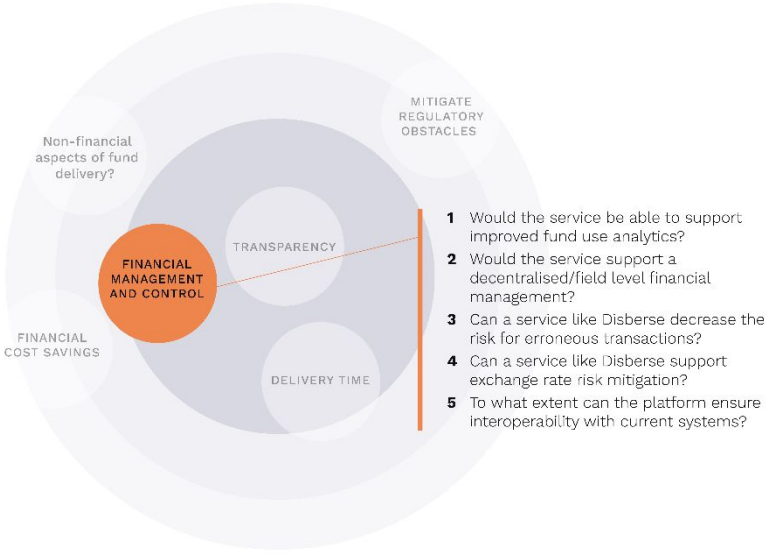

Figure 10: Key questions for fund delivery theme

Summary of current situation: The lack of granular and updated data makes forecasting, control and general financial management burdensome. Many tasks are currently carried out manually, based on fragmented or outdated figures. Many IPs are exposed to significant financial risk from exchange rate fluctuations.

Stakeholders raised a number of issues surrounding financial/transaction management, many of which mirror unmet requirements in current workflows and systems. These requirements differ depending on position in the delivery chain: further upstream the emphasis is on analysis, operational/fiduciary risk and mapping; further downstream the emphasis is more on transaction forecasting, exchange rate risk, transaction processing and reporting.

How stakeholder requirements and concerns can be addressed in future sprints

- The workflows and systems mapping in Sprint 1 identified that the data produced by the platform most likely will be significantly more detailed and timely; Experiment 3 of Sprint 2 will explore data use in more depth

.

- Transaction processing times will be included in the benchmarking for Sprint 3, and will reflect on risk for erroneous transactions.

- Interoperability is complex, as there is such a wide number of systems in use; IATI reporting interfaces will be the focus of Experiment 4 in Sprint 2.

What impact will the service have on regulatory obstacles?

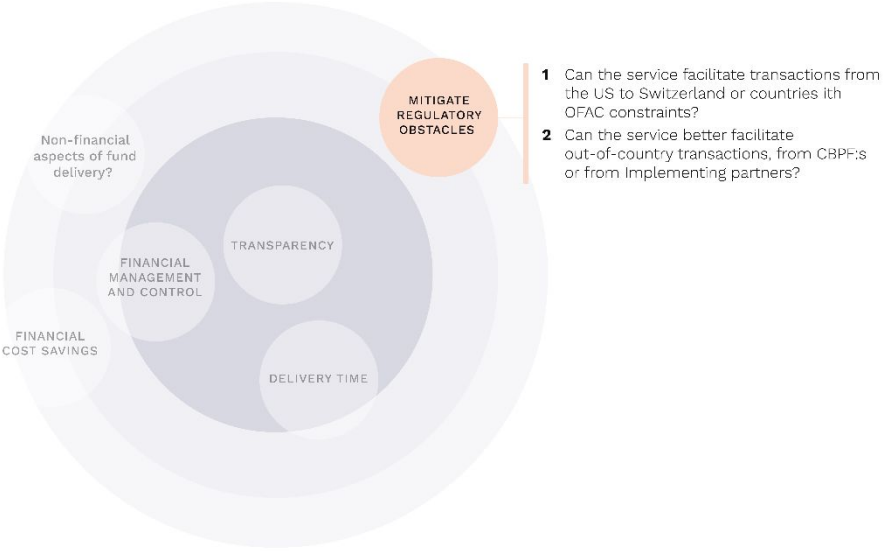

Figure 11: Key questions for regulatory theme

Summary of current situation: Financial transactions down and up the delivery chain are frequently affected by various regulatory constraints, resulting in time delays, additional costs and in some cases the inability to deliver funds effectively.

Fund transactions going through the US banking system are regularly stopped or delayed for unknown or arbitrary reasons. This is especially problematic when working with implementing partners in/from Muslim countries, but also affect transfers to UN organisations in Switzerland. Re-allocations from a CBPF or repayments from Implementing Partners are complicated by national policy, and several countries forbid USD or other hard currencies from leaving the country.

How stakeholder requirements and concerns can be addressed in future sprints

- The benchmark developed in Sprint 2 will enable a cost comparison of different mitigation strategies that can be incorporated into the scenario design for the Sprint 3 Simulation.
- The scenario design will include inputs from experts in banking regulations and financial technology; however there is a hard limit on how far the Pilot itself can address such regulatory obstacles.
- These limits include external actors whose decisions are out of the control of the sector (banking regulators) and internal actors whose decisions are constrained by organisational rules and dynamics.

What non-financial impacts could this service target?

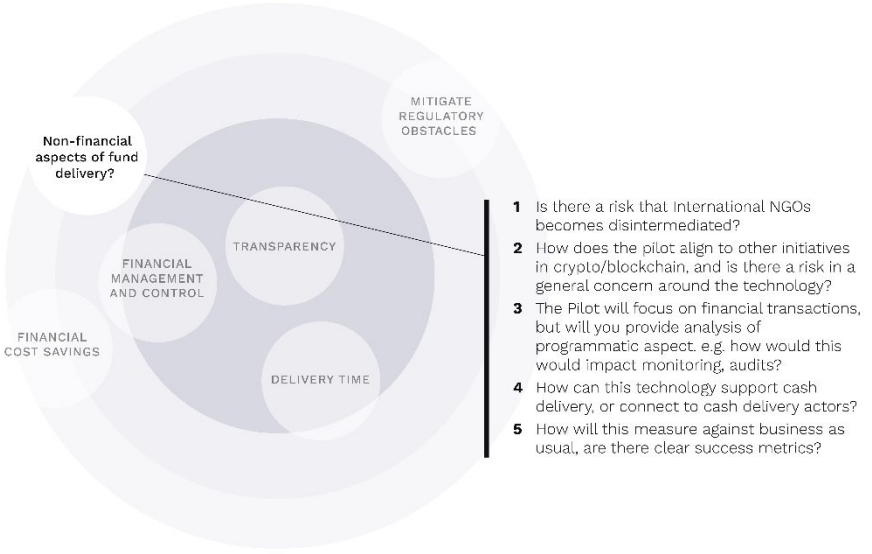

Figure 12: Key questions for non-financial theme

Summary of current situation: While the focus of the pilot is to understand how new financial technologies can affect transparency and efficiency of financial transactions, there are potentially other impacts for stakeholders that could be captured and analysed.

The implementation of new financial technology has the potential to solve some critical problems, but also to exacerbate existing problems and even to create new ones. These include the tangible (how will using a new financial service provider affect internal workflows?) to the speculative (is there a risk of disintermediating key stakeholders in the delivery chain?) There was also interest in how this Pilot compares to and learns from other blockchain initiatives in the aid industry, especially in terms of compatibility to cash and voucher assistance.

How stakeholder requirements and concerns can be addressed in future sprints

- Experiment 3 of Sprint 2 is focused on gaining a deeper understanding of use cases, which we will use as the basis for a separate post on Medium that discusses how the Pilot can contribute to this wider discussion.
- We will not focus on these wider issues in the Simulation itself; however we will engage DFID and OCHA colleagues to support the wider discussion that we hope the Simulation will generate.

Experiment 3: Mapping workflows and systems

"We believe that compatibility with existing Dfid systems and workflows is critical for future uptake."

Workflows

There are multiple workflows within each stakeholder organisation that could potentially be affected by the technology tested in the Pilot: these include Financial management (transactions, monitoring, financial reporting), Delivery chain management (risk analysis, optimization), Reporting, Auditing and Control, and of course Programme management and implementation.

This Experiment started from the assumption that distributed ledger technology would not be delivered as a software product but as a financial service. Based on this assumption, Sprint 1 confirmed that, although many workflows would benefit from access to better data provided by such a service, this would not necessarily require any workflows to be altered.[2]

Sprint 1 was able to make a first pass at workflow mapping; DFID's internal landscape (let alone the workflows and systems of all other stakeholders in the delivery chain) is too complicated to map in detail (for the scope of the Pilot). We therefore provide an initial inventory of systems, rather than a complete map of workflows, complemented by the stakeholder comments relating to various workflows and systems that are highlighted in the section above on Experiment 2.

However we include general comments below on how each *type* of workflow could be affected by the Pilot technology. The proposed Experiments 3 and 4 in Sprint 2 will add more depth regarding the more important aspects identified by DFID stakeholders: data use and IATI reporting.

DFID workflows

- ❏ Financial management: Under the assumption described above, any financial transactions could be executed within current workflows that include banking services. In the wider context financial forecasting could be improved based on delivery chain analytics.
- ❏ Delivery chain management: New types of financial transaction and delivery chain data could potentially affect delivery chain mapping and analysis, particularly if this data can be presented in near real-time. See also Sprint 2, experiment 3.

[2] At least not immediately; the Simulation itself is likely to explore how adjusting workflows based on this new capability could lead to improvements in aid delivery.

- ❏ Reporting: DFID reporting to IATI could potentially be affected, as more granular data will be available. As this data will cover not only DFID transactions however, the next sprint will look more closely at how reporting could be organised. See also Sprint 2, experiment 4.
- ❏ Auditing and control: Immutable and transparent financial data would provide DFID auditors and other interested parties with new tools for financial control. See also Sprint 2, experiment 3.
- ❏ Programme management and implementation: Transaction speed, financial transparency and so on, are unlikely to have an immediate impact on programme management; and implementation is not directly relevant for DFID.

OCHA workflows

- ❏ Project Management: OCHA has limited agency on finance processes within the UN, and their workflows consequently focus on project management, which is outside the scope of this Pilot.
- ❏ Financial management: Under the assumption described above, transaction workflows would not be affected; however OCHA has a number of other transaction-related tasks that could potentially be affected, such as informing implementing partners of progress of fund distribution.
- ❏ Delivery chain management: New types of financial data and delivery chain data could potentially affect delivery chain mapping and analysis. See also Sprint 2, experiment 3.
- ❏ Reporting: OCHA reporting to IATI could potentially be affected. See also Sprint 2, experiment 4.
- ❏ Auditing and control: Immutable and transparent financial data would provide OCHA auditors and others with new ways to approach financial audit/control. See also Sprint 2, experiment 3.
- ❏ Programme management and implementation: Potential impact on programme management, for example in terms of how *timeliness* of funding could be affected.

Implementing partners

- ❏ Financial management: Under the assumption described above, Implementing Partners would see slight changes in their transaction workflow. Intermediate organisations would have to “exit” the allocated OH/administrative funds from the platform and send sub-contracted funds along. “End chain implementing partners” would have to exit funds from the platform, to one of their accounts or to that of one or several vendors.
- ❏ Reporting: IATI-reporting and other financial reporting workflows could be affected. See also Sprint 2, experiment 4.

Systems Inventory

Experiment 3 was formulated to capture workflows and systems with particular importance for the technology to be tested in the Pilot, based on the results in the requirements experiment. Is clear that there are not only a number of different types of systems that could be relevant to the Pilot, but also that there is a wide selection of types of such systems used within the mapped delivery chain.

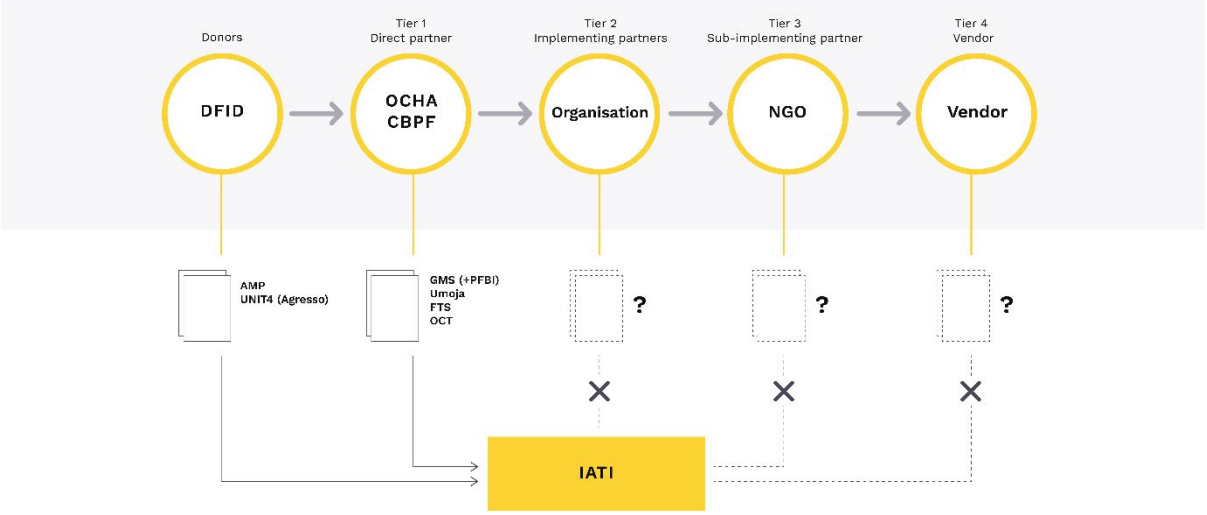

Figure 13: Systems map, with link to IATI reporting

The two key types of systems are Enterprise Resource Planning (ERP) which usually manage transaction processing, and Project Management Systems (PMS), which manage projects, programming and reporting.

DFID

Type	Name	Notes
ERP	UNIT4 Business World	
PMS	Aid Management Platform (AMP)	Within AMP, Microsoft's Power BI is used to create analytics dashboards; there are a number of "control dashboards" such as a compliance dashboard and a risk dashboard.

- ❏ UNIT4: DFID is using UNIT4 (Agresso) Business World as ERP.

OCHA

Type	Name	Notes
ERP	Umoja	This is the UN ERP; it includes transaction processing and financial management, but is not compatible with GMS.
PMS	Grant Management System (GMS)	GMS was developed internally. It provides all information about projects, includes financial disbursement data, and has interface for IPs.
	Ocha Contribution Tracking (OCT)	This does not process transactions, but records and tracks donor contributions.
	Financial Tracking Service (FTS)	This does not process transactions, but records them based on reporting..

Implementing partners

- ❏ Implementing partner systems: IPs use a wide range of systems; some of the UN systems have common systems like Oracle's PeopleSoft, while others do not; and among NGOs there are almost as many systems as organisations. Data exchange is not a priority for any of these systems.

How do we build on Sprint 1?

How can these findings be used to inform upcoming Sprints?

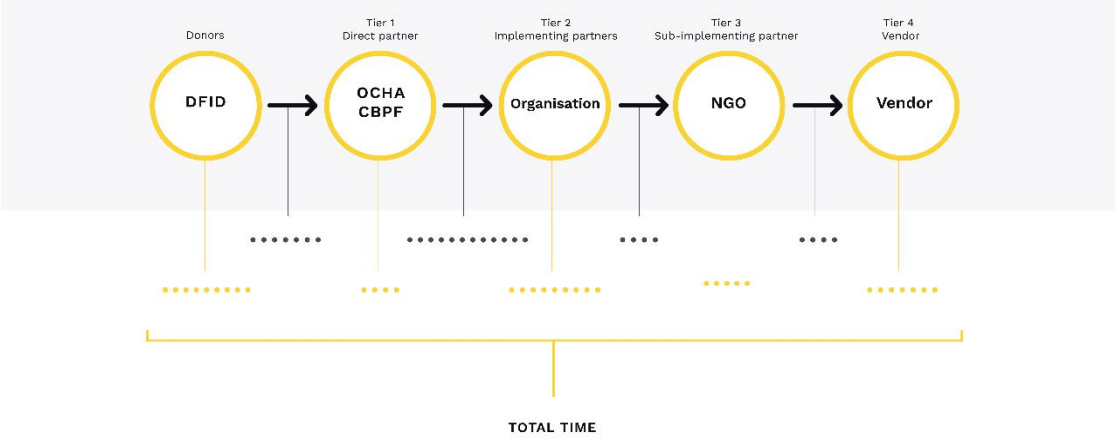

Figure 14: Benchmark analysis sketch: fund delivery time per actor and transaction

Sprint 1 has confirmed that this Pilot can engage constructively with stakeholder concerns; these concerns will be built into the Simulation scenario, and strategies developed to address them. The relationships we have built in Sprint 1 will facilitate data collection for each CBPF in Sprint 2, and this data will form the basis of the Simulation in Sprint 3. The maps produced here will be expanded in Sprint 4 to visualise the outcomes of the Simulation: These will include comparison against the benchmarks we will gather in Sprint 2, and analysis of potential efficiencies in time and costs (see Figure 14 and Figure 15).

Figure 15: Benchmark analysis sketch: delivery amounts/costs, per actor and transaction