BUREAU OF THE
Fiscal Service
U.S. DEPARTMENT OF THE TREASURY

NSF

TRANSFORMING FEDERAL FINANCIAL MANAGEMENT

DLT FOR MULTI-TIERED PAYMENTS

JANUARY 29, 2021

Welcome to the DLT Multi Tier Payment Demo

Please share the following details in the meeting chat:

- Name
- Role/Title
- University
- What brings you here today?

Introductions

Craig Fischer
Fiscal Service, FIT

Tammie Johnson
Fiscal Service, FIT

Mike Wetklow
NSF, DFM

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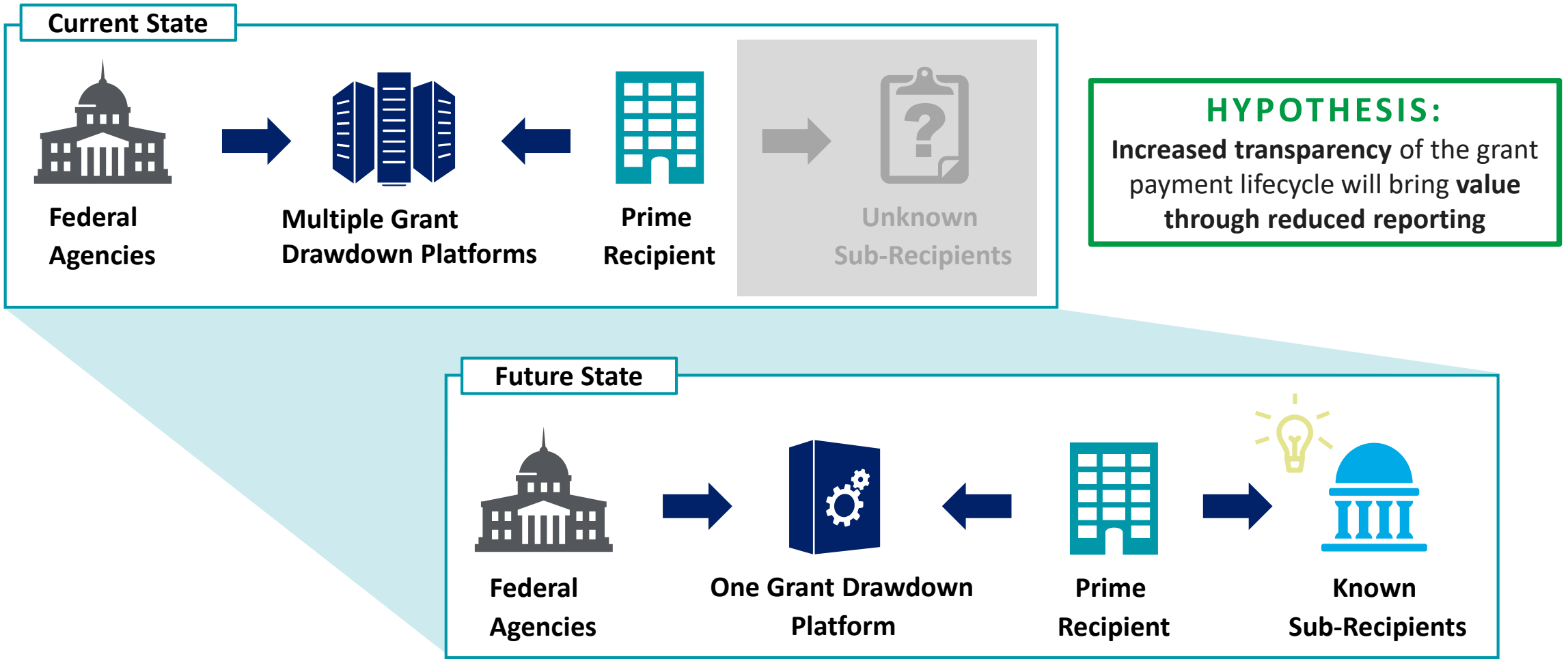
NSF, DFM

Agenda

1. Welcome and Introductions
2. Project Background
3. Project Overview
4. Demo
5. Findings and Next Steps

Project Background

Improving the Grant Payment Process – Enabling Sub-Recipient Payment Visibility



Key Benefits Identified In The First POC

Increased data **transparency and consistency** across all stakeholders

Reduced financial and labor burden and greater ability to focus on mission-oriented activities

Enhanced execution and enforcement of **internal controls and grant compliance**

Improved customer experience across the board

Project Overview

Blockchain Proof-of-Concept Second Phase Overview

FIT engaged a broad group of stakeholders to better understand if blockchain technology can reduce grant recipient reporting.

Objectives

- Identify the **legal/policy/regulatory barriers** to tokenize Federal grant payments
- Stand up a **stakeholder ecosystem** to provide feedback on existing solution
- Make **functional and technical enhancements** to POC based on feedback
- Assess what **metrics** a DLT solution would improve over the current state

Approach

- **100+** stakeholders engaged across 8 demos, 2 workshops, and SME working sessions
- **15** orgs involved: NSF, HUD, Commerce (ITA & NIST), HHS, GAO, FDP (7 universities), and Treasury (PM & ISS)
- **30+** laws, regulations and policies identified related to grant payments
- Developed a **clickable prototype** to maximize MVP socialization and feedback
- **Deployed MVP** in FIT's first innovation sandbox environment

Summary of Functional MVP Enhancements

The team implemented 6 functional user stories in 8 weeks, in addition to technical MVP enhancements. User stories were prioritized with the Treasury and NSF teams from the backlog of features identified in stakeholder demos and workshops.

Priority User Story	Implemented
1. As the Agency Grant Officer, I want the TAS, CFDA, EIN/TIN and DUNS numbers to be prepopulated when creating a Grant so that the award is linked to Treasury's accounting codes	
2. As a Prime, I want to mass upload my token drawdown requests so that I don't need to individually request tokens for multiple grants	
3. As Prime Recipient Accountant I want to "auto-redeem" so that a token drawdown request sends a redemption request for ACH payment at the same time as tokens	
4. As the Agency Grant Officer, I want to certify or reject redemption requests so that I can submit payment files to Treasury	
5. As the Agency Grant Officer, I want to review and export a pre-populated payment file with aggregate token redemption requests so that I can submit a payment file to my Agency's financial system	
6. As the Agency Grant Officer, I want to be able to approve Prime Recipient token drawdown requests so that I can approve or reject token transfers that meet risk factor scenarios (special case/exception)	
7. As a Prime Recipient Principal Investigator, I want to be able to approve subgrantee token drawdown requests so that I can approve or reject token transfers	
8. As a Prime, I want to request multiple token redemption requests so that I don't need to individually request payment on each grant	

Planned during sprint planning

Stretch goals

Summary of Functional Backlog Items

Additional functional enhancements are documented for future consideration and prioritization with stakeholders. In addition to the functional features below, the team also maintains technical solution enhancements for consideration.

1. As a user, I want to use Login.gov for this application so that I can experience a single sign-on for all government portals.
2. As a Prime Recipient or Grant Officer, I want the option to add a custom note with my justification so that I can document why I am accepting or rejecting request and share the reason with all parties related to the grant.
3. As a user, I want to see all business events in grant history (internal control/threshold changes), not just blockchain events, so that I have a more comprehensive view of activities on the grant.
4. As a user, I want to modify details of a grant that I have the appropriate user privileges to update.
5. As a Grant Officer or Prime grantee, I want to see the comprehensive list of all queue results under my completed requests (approved redemption, rejected redemption, approved drawdown, and rejected drawdown).
6. As a user, I want to see the amount of each event in the history table of a grant so I have a better summary.
7. As a user, I want to onboard/customize users from my organization so that new roles and functions can be incorporated into the workflow.
8. As a Prime Recipient and Grant Officer, I want to customize how line-item details are broken out within an award so that I can view only the fields I need to see.
9. As a Grant Officer and Prime Recipient, I want to restrict certain award categories (e.g. salary, travel) so that they can't be modified because they are sensitive or mission-critical to the grant.
10. As a Prime Recipient, I want the ability to input additional identifiers (e.g. Grantee ID) to track the award against other systems.

Summary of Functional Backlog Items

Additional functional enhancements are documented for future consideration and prioritization with stakeholders. In addition to the functional features below, the team also maintains technical solution enhancements for consideration.

11. As a Prime Recipient, I want to see the name of the Granting Agency in my grants list when I do a mass drawdown so I confirm I'm selecting the correct grant.
12. As a prime or subgrantee I want to receive a notification when a draw down or redemption request is rejected so I'm made aware of any issues.
13. As a prime grantee, when I set a threshold, only my organization can change the threshold so that sub grantees are unable to update Prime-set internal controls.
14. As a grantee, I want to view all my token drawdown transactions in one place so that I can keep track of my requests.
15. As a prime grantee, I want to add additional types of internal controls so that I can automate business rules that govern a grant.
16. As a prime, when I create a subgrant, I want to add different dates than the prime grant.
17. As a grantee, I want the FFR report to pull live system data and populate the PDF so that I have the most up to date data without needing to manually fill out the form.
18. As a prime grantee, when I create a subgrant, I want to see the "Total Remaining Balance" as I fill in enter each spend category.
19. As a grantee, I want to view the remaining balance of each spend category when I enter token drawdown amounts on the mass upload screen.
20. As a Grant Officer, I want my queue for redemption requests to be populated with the results of the Do Not Pay list check.

Summary of Functional Backlog Items

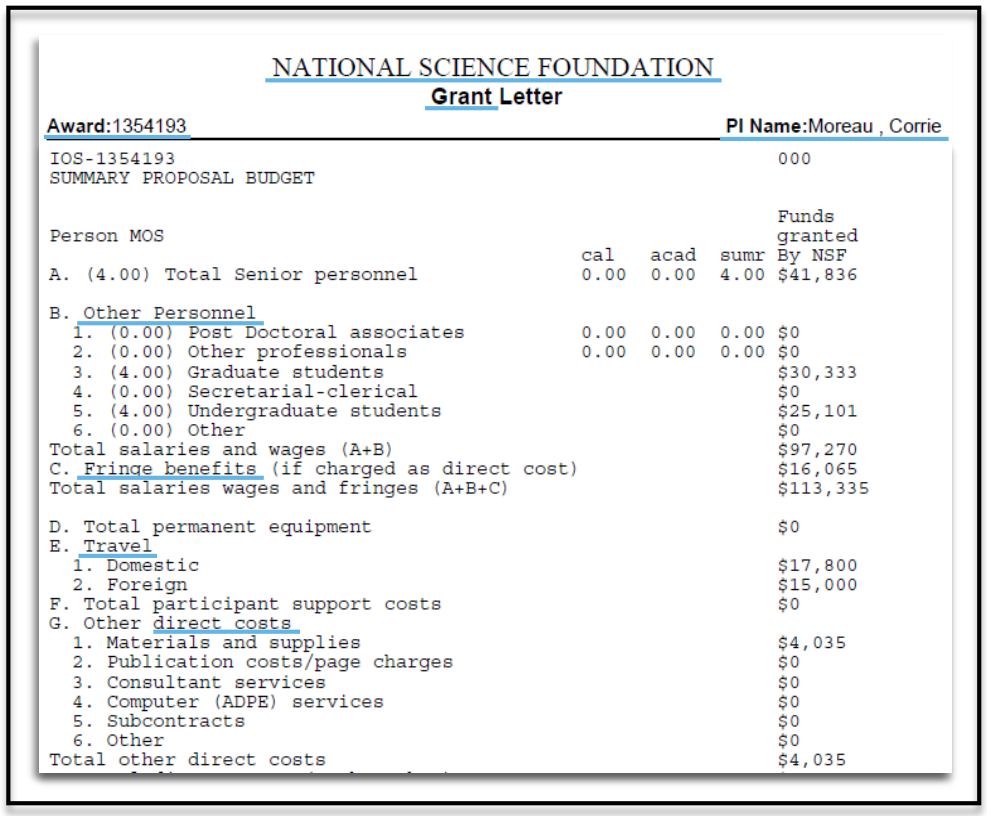
Additional functional enhancements are documented for future consideration and prioritization with stakeholders. In addition to the functional features below, the team also maintains technical solution enhancements for consideration.

21. As a Prime, I want to request multiple token redemption requests so that I don't need to individually request payment on each grant.
22. As a Prime Recipient, I want to make adjustments on awards after they've closed so that I can accurately report the allocation and use of funds.
23. As a Prime Recipient, I want the option of creating a token with a lump award amount instead of specific award categories so that I avoid re-budgeting funds.
24. As a Prime Recipient, I want to be able to re-budget amounts in the Grant Letter so that I can reallocate line items without exceeding the total grant amount.
25. As a Prime Recipient, I want fields to be pre-populated after entering award ID so that I can automatically see the parameters of the payment request.
26. As a Grant Officer, I only want to approve/reject token redemption requests for transactions that are flagged due to an internal control so that I am not over-burdened by the request queue.
27. As a Grant Officer, when I set a threshold, only my organization can change the threshold so that Grantees are unable to update Agency-set internal controls.
28. As an auditor, I want to run a report of what internal controls were set and what was rejected so that I can easily audit transactions.
29. As a Grant Officer, when I create a new grant, I want the threshold field to be optional so that the Prime can enter a threshold.
30. As the Agency Grant Officer, I want to review and export a pre-populated payment file with aggregate token redemption requests so that I can submit a payment file to my Agency's financial system.

Demo

“Tokenizing” a Grant Letter

A Grant Letter becomes “tokenized” by extracting, digitizing, and storing specific data elements onto a blockchain token where those data elements are permanently stored and can be transferred



NATIONAL SCIENCE FOUNDATION
Grant Letter

Award:1354193 **PI Name:**Moreau , Corrie

IOS-1354193 000
SUMMARY PROPOSAL BUDGET

Person MOS	cal	acad	sumr	Funds granted By NSF
A. (4.00) Total Senior personnel	0.00	0.00	4.00	$41,836
B. Other Personnel				
1. (0.00) Post Doctoral associates	0.00	0.00	0.00	$0
2. (0.00) Other professionals	0.00	0.00	0.00	$0
3. (4.00) Graduate students				$30,333
4. (0.00) Secretarial-clerical				$0
5. (4.00) Undergraduate students				$25,101
6. (0.00) Other				$0
Total salaries and wages (A+B)				$97,270
C. Fringe benefits (if charged as direct cost)				$16,065
Total salaries wages and fringes (A+B+C)				$113,335
D. Total permanent equipment				$0
E. Travel				
1. Domestic				$17,800
2. Foreign				$15,000
F. Total participant support costs				$0
G. Other direct costs				
1. Materials and supplies				$4,035
2. Publication costs/page charges				$0
3. Consultant services				$0
4. Computer (ADPE) services				$0
5. Subcontracts				$0
6. Other				$0
Total other direct costs				$4,035

Grant Letter Information and Payment Data are Digitized and Stored on the Token

Grant Info: Agency, Payment Type, Award ID, Description

Key Dates: Appropriation Expiration and Award Start, End, and Closeout

Awardee Information: Awardee Name, Principal Investigator (PI)

Award Amount: S&B, Travel, Direct Costs, Indirect Costs, Subgrants

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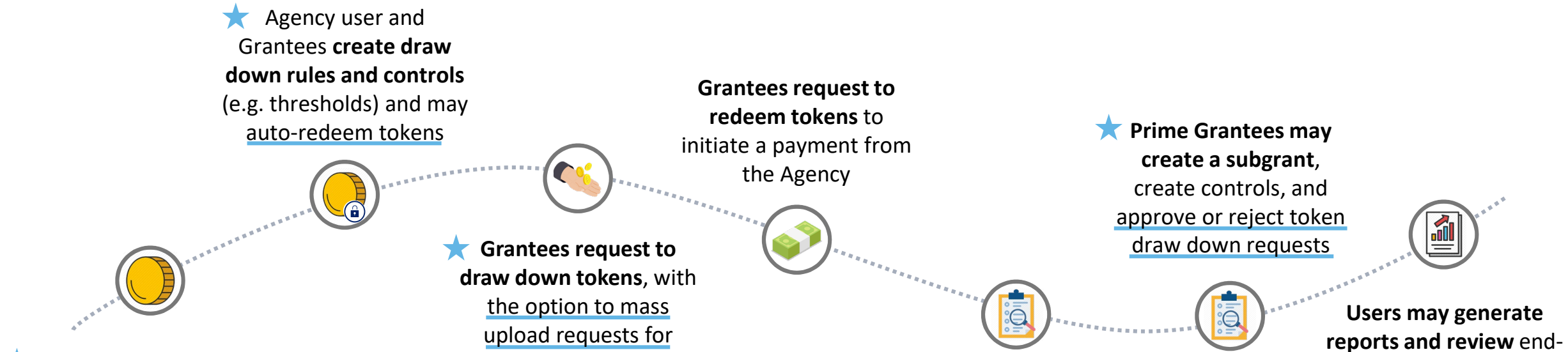
FIT Demo Flow with MVP Enhancements

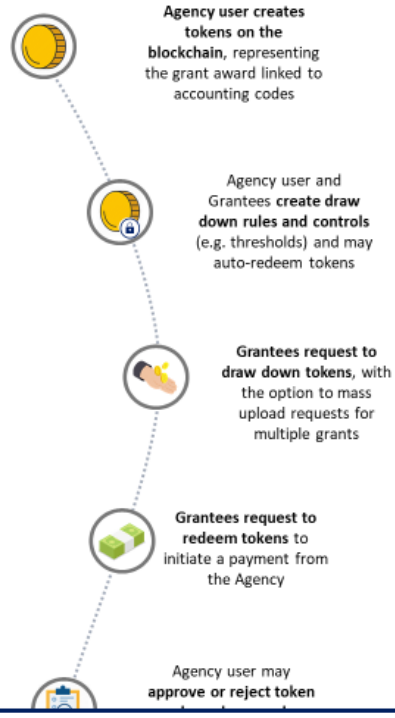
The prototype demonstrates how Federal Agencies can convert a grant award into a digital asset with programmable properties and business rules for the transfer and redemption of the award, all which can be stored and tracked digitally.



★ MVP Enhancements

Blockchain-Based Grant Payment “Clickable Prototype”

This clickable prototype allows us to share the process flow and concepts of the prototype with greater audiences to receive their input.



Copy and paste the following link into your browser:
https://projects.invisionapp.com/share/XR102NLZB9MD
Password: fit_gps

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Findings and Next Steps

Project Findings

Through stakeholder demos and workshops, the team received positive feedback from stakeholders and achieved technical milestones. FIT also identified four primary findings of which two will need to be addressed for a successful pilot.

- **Statutory disbursement authority:** There is no authorization enabling an Agency to directly pay a sub-grantee.

- **DLT compliance with Federal IT standards:** DLT protocols, token standards, and digital wallets have yet to receive NIST approval.

- **Converting a token into a payment file:** FIT and partner agencies must determine how the token will flow to an Agency financial system.

- **Accounting treatment:** Tokens are not recognized as cash making their treatment under existing guidance unclear.

Proposed Next Steps for Blockchain

The team identified four immediate next steps to advance FIT's goal of using DLT to facilitate a federal grant payment.

1) BUSINESS CASE AND PILOT PLAN

Develop a business case laying out a path to production, that includes a concept of operations, pilot project, alternatives analysis, core questions to be answered and an ROI analysis.

2) TECHNICAL UNDERSTANDING

Collaborate with NIST to evaluate multi-agency ATO requirements, node hosting and required infrastructure for DLT solutions.

3) BUILD ECOSYSTEM

Expand the ecosystem to target additional agencies, OMB and end-users to help support the business plan, pressure test the blockchain application, and address regulatory hurdles (i.e., sub-recipient payment issue)

4) EXPLORE CONNECTIVITY

Establish API connectivity between the DLT system and NSF financial system and prime grantee.

Questions / Feedback

Please contact us with any additional questions, feedback or ideas you have concerning the proof of concept/prototype:

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mwetklow@nsf.gov
FDP-Costing-Finance-L@lsw.nas.edu

Join the Grant Payments Blockchain Exploratory Working Group

We are looking for **10-15 volunteers** to form an FDP working group to support the next phase of this initiative.

- **Responsibilities:**
  - Attend working sessions
  - Review materials and provide feedback
  - Provide viewpoints from grant recipient point of view
  - Provide input into the business case including potential savings estimates
  - Pressure test the blockchain application
  - Provide input into the development of pilot plan
  - Advise on potential integration points with University financial system

- **Expected commitment:**
  - Spring-Fall 2021
  - 1-2 hours per week

We need you because we are better together!