



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

TRANSFORMING FEDERAL FINANCIAL MANAGEMENT

Proof of Concept using Distributed Ledger Technology (DLT) for  
Multi-Tier Grants Payments

January 9, 2020



# Agenda

**2:20 –  
2:25pm**

**INTRODUCTIONS AND  
FRAMING**

**2:25pm –  
2:55pm**

**PROOF OF CONCEPT  
OVERVIEW**

**2:55pm –  
3:10pm**

**PROOF OF CONCEPT  
DEMONSTRATION**

**3:10pm –  
3:35pm**

**Q&A AND NEXT STEPS**

# DLT Project Scope and Goals

This POC helps FIT to gain a hands-on understanding of how DLT can enable peer-to-peer transfers of value through tokenizing (digitally representing) grant letters to enable automated payments

## Project Goals

Assess how blockchain/DLT technology could be used to:

- Increase payment efficiency and transparency for sub-recipient payments
- Reduce prime and sub-recipient reporting for Federal payments that “pass through” multiple parties.

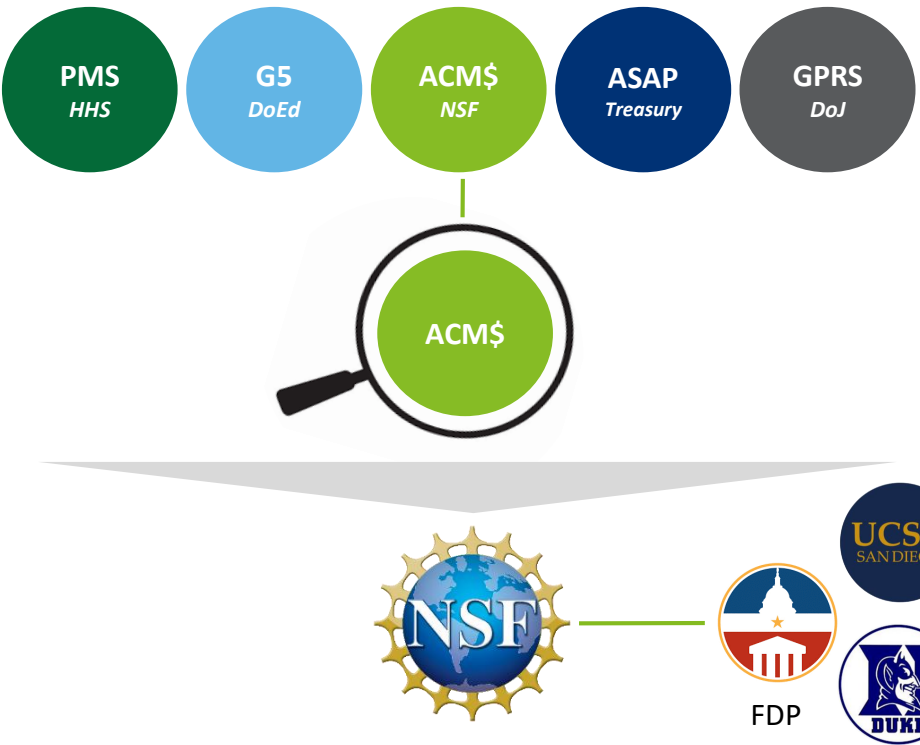
Potential areas for further exploration:

- Identify and deter fraud, and reduce improper payments
- Improve user experience (Grantees, Prime Recipients, and Sub-Recipients)
- Assess the benefits, challenges, and impediments to using a blockchain-based payment application



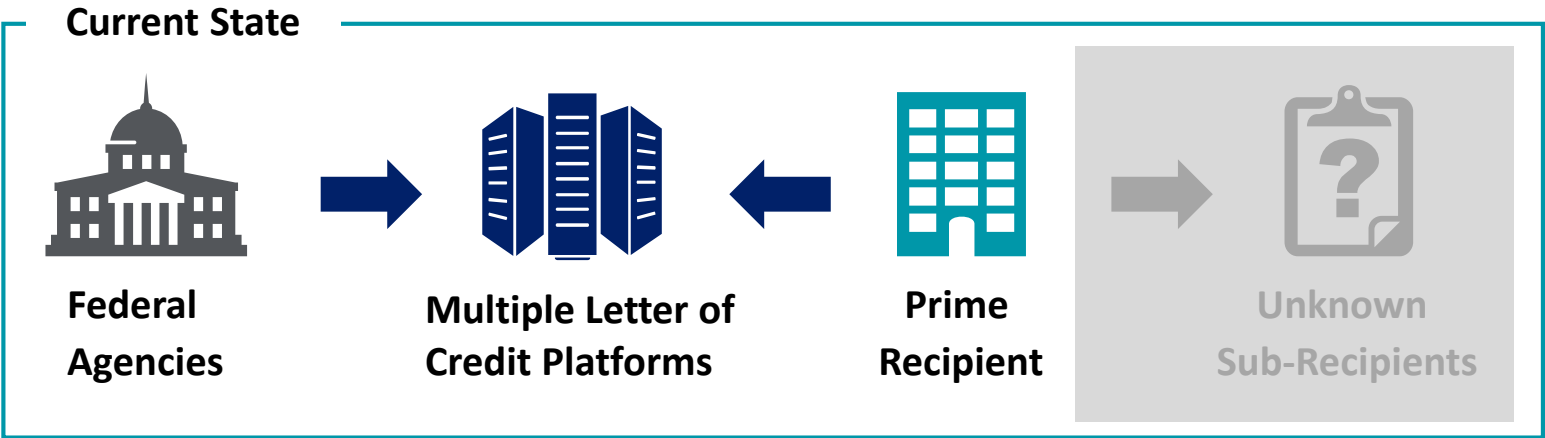
## Project Scope

### Letters of Credit Systems



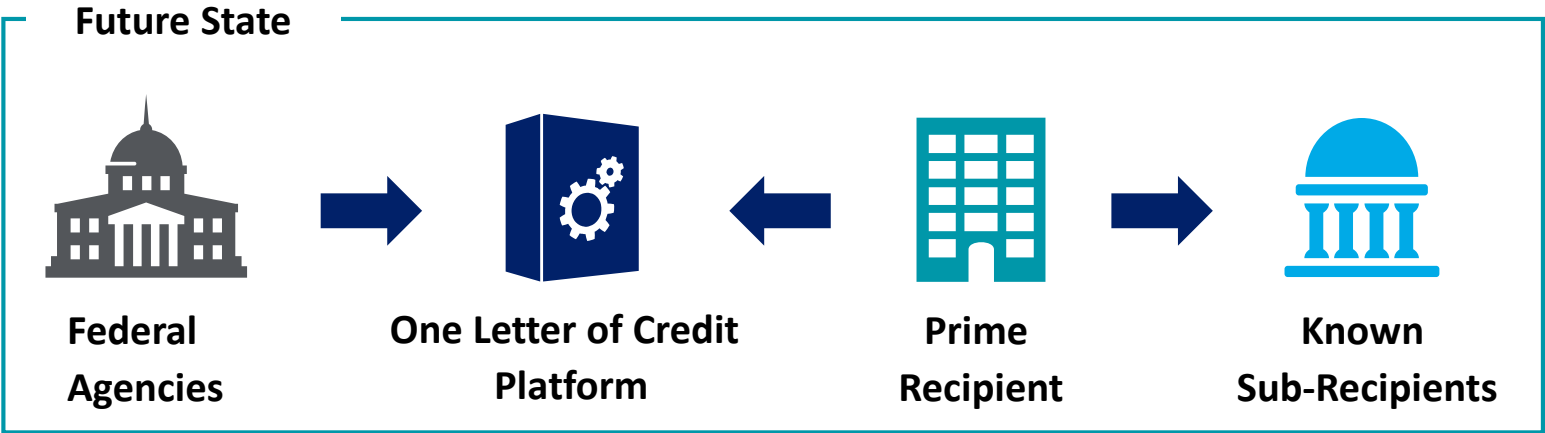
# Improving the Letter of Credit Process – Enabling Visibility into Sub-Recipient Payments

Currently prime recipients have to navigate multiple, redundant Letter of Credit platforms and Federal agencies have little visibility into the identity or spending information of sub-recipients



*“We need better visibility into how federal funds are spent.”*

National Science Foundation Representative



*“Getting paid shouldn’t be so hard!”*

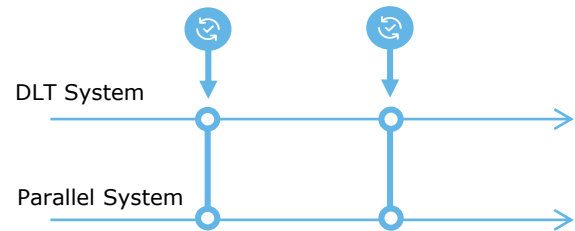
Federal Demonstration Partnership Representative



# Alternative Approaches to Using Distributed Ledger Technology

DLT activities in the market related to payments fall into one of three models – this POC most closely follows the third model to tokenize value and share it across a network

## Model 1: DLT provides real-time awareness for when transactions occur



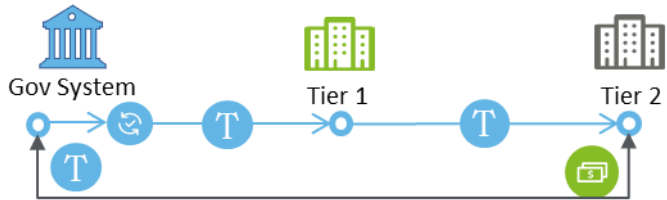
In 2019, Mitre issued a report supporting the use of blockchain as a tracking system for grants payments resulting in enhanced transparency and reduced reporting burden on grantees.

## Model 2: DLT turns fiat currency into token and back to fiat



In 2019, J.P. Morgan and Wells Fargo created a digital coin on a blockchain enabling instantaneous transfer of payments where 1 coin was redeemed for 1 dollar.

## Model 3: DLT tokenizes “value” that can be transferred and tracked within a network

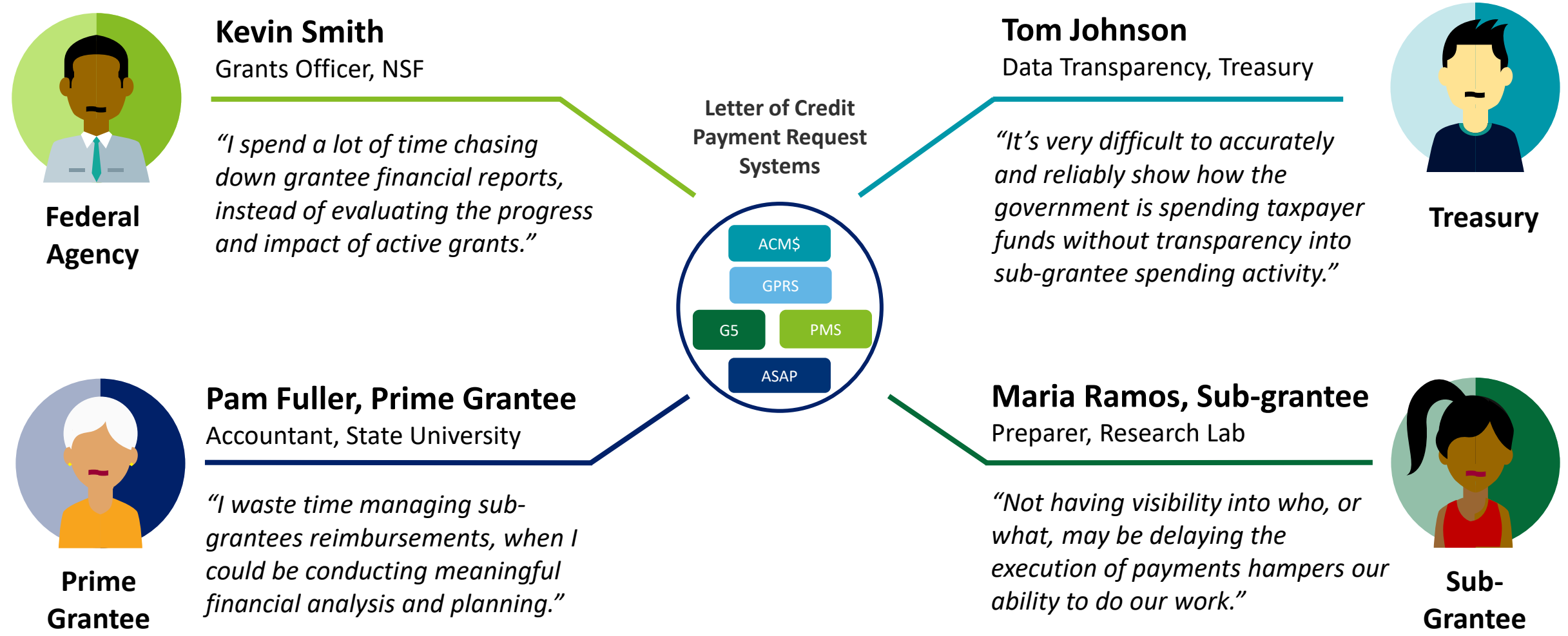


In 2018, HSBC launched the Voltron initiative which digitized a Letter of Credit on a DLT network speeding up payment clearance between banks from 5-10 days to 24 hours.

Current PoC Approach

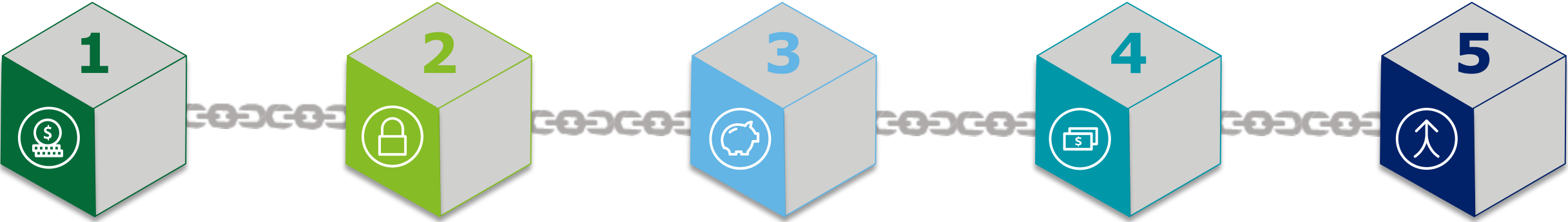
# The Case for Change – Improving Grant Payments to Prime Awardees and Sub-Awardees

The POC strived to understand the value proposition of using DLT for grant payments through the eyes of four unique personas



# Five Key DLT-Enhanced Functions

Today’s demonstration will walk through various scenarios to show the functionality of tokenized payments driven by smart contracts and the value DLT provides to current grants payment processes



## Tokenize Grant Letter

Federal Agency **generates a digital representation** of a grant letter (i.e., digital tokens) and **automates** the **enforcement** and **execution** of the grant letter terms. Grantee does the same for sub-awards, thus **integrating sub-grantees** into the grants payments ecosystem.

## Set Thresholds/ Constraints

Grantee sets a threshold on amount that sub-grantee can request without additional oversight, allowing for the **automation of internal controls** and **automated reimbursement** of all requests that adhere to the grant letter parameters.

## Request Reimbursement

Grantee/Sub-grantee submits request for reimbursement on **specific line-item amounts** specified in the Grant Letter and **receives tokens in digital wallet**.

## Redeem Tokens/ Initiate Payment

Grantee/Sub-grantee submits redemption request for tokens, effectively **initiating** the ACH or Fedwire **payment** process to “cash out” the tokens.

## Streamline Reporting

Treasury is able to view the **lifetime activity** of federal grant funds, across primary and sub-grantees, and can **easily generate reports** to improve public **transparency** and **trust** of government data.

# 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

<u>NATIONAL SCIENCE FOUNDATION</u>				
<u>Grant Letter</u>				
<u>Award:1354193</u>			<u>PI Name:Moreau , Corrie</u>	
IOS-1354193			000	
SUMMARY PROPOSAL BUDGET				
Person MOS				Funds granted
	cal	acad	sumr	By NSF
A. (4.00) Total Senior personnel	0.00	0.00	4.00	\$41,836
B. <u>Other Personnel</u>				
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. <u>Fringe benefits</u> (if charged as direct cost)				\$16,065
Total salaries wages and fringes (A+B+C)				\$113,335
D. Total permanent equipment				\$0
E. <u>Travel</u>				
1. Domestic				\$17,800
2. Foreign				\$15,000
F. Total participant support costs				\$0
G. <u>Other direct costs</u>				
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 Other Data Elements that 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



# Tokenization and Sub-Grants – Demonstrating Multi-Tier Payments

To demonstrate value of tokenization for multi-tier payments, funds allocated to a Prime Grantee for Sub-grant activities can only be redeemed for cash by the Sub Grantee, reducing the cash management burden

## Prime Award

**Agency:** NSF  
**Payment Type:** Grant  
**Award ID:** NSF-34708  
**Description:** Grant to research health effects of e-cigarettes

**Award Start Date:** 10/30/19  
**Award End Date:** 10/31/20  
**Appropriation Period:** 10/30/19 – 10/15/20

**Awardee Name:** University of Nebraska  
**PI:** Dr. Herbie Husker

**Salary & Benefits:** 5,000,000  
**Travel:** 20,000  
**Direct Costs:** 40,000  
**Indirect Costs:** 10,000  
**Subgrants:** 400,000

## Sub Award

**Agency:** University of Nebraska  
**Payment Type:** Grant  
**Award ID:** NSF-34708  
**Description:** Grant to research health effects of e-cigarettes

**Award Start Date:** 10/30/19  
**Award End Date:** 10/31/20  
**Appropriation Period:** 10/30/19 – 10/15/20

**Awardee Name:** Ohio State University  
**PI:** Dr. Brutus Buckeye

**Salary & Benefits:** 100,000  
**Travel:** 100,000  
**Direct Costs:** 100,000  
**Indirect Costs:** 100,000



## **Proof of Concept Demonstration**


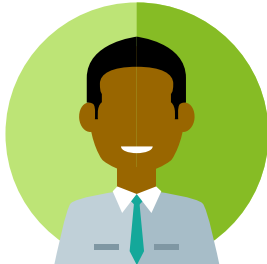


















A man in a white t-shirt and black pants stands in front of a large digital display mounted on a wall of vertical wood slats. The display shows a complex, colorful geometric pattern of interlocking triangles. The man is pointing at the screen with his right hand. The office environment is modern, with a concrete wall on the left, a glass partition on the right, and a wooden conference table in the foreground. The ceiling has exposed pipes and a grid of lights.

# DLT's Transformative Potential

# DLT Value Add for Grants Payment Users

Different users will benefit in different ways from a DLT grants payment system though all will see reduced manual processes and increased visibility

 DLT Value Add	 Kevin Smith Federal Agency	 Pam Fuller Prime Grantee	 Maria Ramos Sub-grantee	 Tom Johnson Treasury
 Increased Transparency				
 Reduced Burden				
 Improved Customer Experience				



# What's Next?

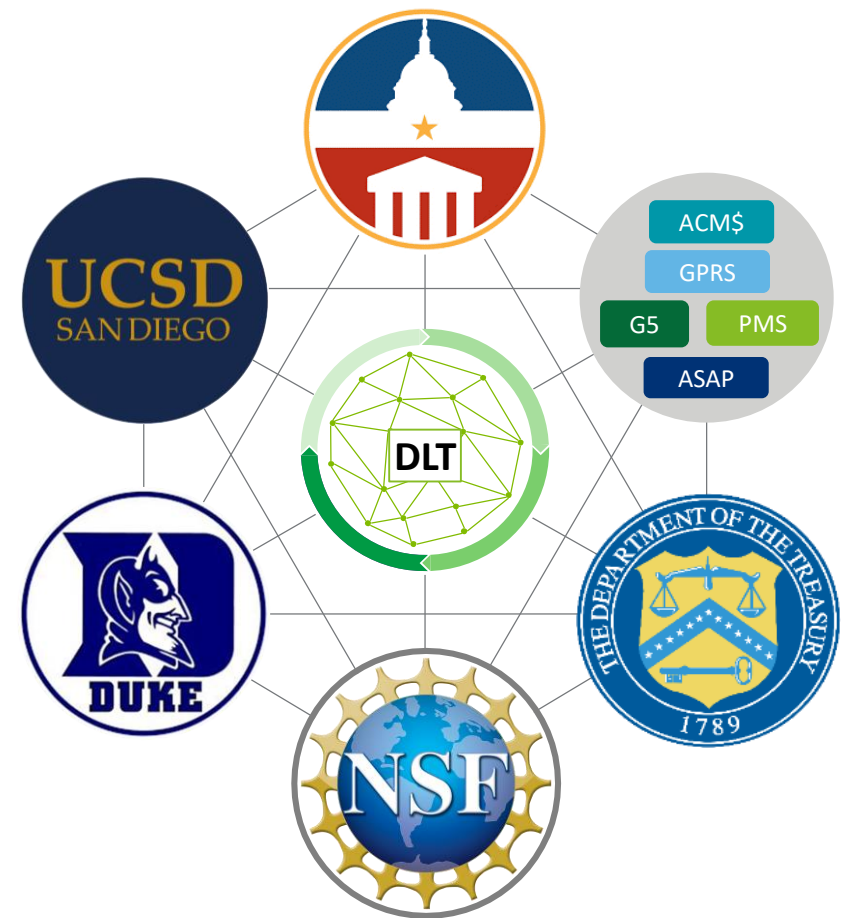
Continued demonstrations with key stakeholders to solicit and incorporate feedback as well as increase buy-in

- 1

Incorporate Feedback From FDP Demonstration
- 2

Host in-depth webinar demonstrations with interested FDP members
- 3

Engage universities and explore partnership opportunities





**Question and  
Answer**