Grants Innovation Exchange Session

*B is for Blockchain: Proof of Concept using Distributed Ledger Technology for Multi-Tier Grants Payments*

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The National Science Foundation

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The National Science Foundation
Session Overview

- Welcome
- Speaker Introduction
- Innovation Exchange Presentation
- Cross Agency Priority Goal 8: Results-Oriented Accountability for Grants
- Q&A
- Stay Informed!
Mike Wetklow has over 25 years of progressive leadership, management, and audit experience with Federal, State, and local governments. He currently serves as the Deputy CFO at the NSF, focused on transforming NSF financial management functions to include robotic processing automation, blockchain, cyber security, and data analytics. Prior to his work at the NSF, Mike led OMB efforts to develop the Federal Government’s first formal Enterprise Risk Management guidance and update OMB Circular No. A-123. While previously at DHS, Mike established internal control over financial reporting, eliminated pervasive material weaknesses, and obtained DHS' first balance sheet opinion in FY 2011. Mike is presently upskilling through his pursuit of a M.S. in Data Science at UVA., and has a M.P.A. in Public Sector Finance and a B.S. in Accounting from the University of Maryland at College Park.

Justin Poll is a professional with 20 years’ experience in accounting, grants management, and leading teams in the state and federal sectors of government, as well as in the private sector. Justin currently serves as a Senior Accountant for the Division of Financial Management at the National Science Foundation, supporting grant financial management and oversight. Justin has 6 years’ experience at the NSF and previously spent 12 years at Arizona State University, where he primarily focused on grant and contract financial compliance, reporting, audit activities, and business information systems’ support. Justin has a B.S. in Accounting from Western International University and a M.S. in Information Management from the W.P. Carey School of Business at Arizona State University.
B is for Blockchain:
Proof of Concept using Distributed Ledger Technology (DLT) for Multi-Tier Grants Payments
February 27th, 2020
1. Background: The President’s Management Agenda and OMB Memorandum 18-24, *Strategies to Reduce Grant Recipient Reporting Burden*

2. What is a blockchain and how does it work?

3. What is the value of a blockchain?
Blockchain and Distributed Ledger Technologies

1. Company A wants to send money to Company B
2. The transaction is represented online as a 'block'
3. The block is broadcast to every party in the network
4. The users verify the transaction
5. The block is added to the chain of all prior transactions
6. The money is moved from Company A to Company B

Source: GAO | GAO-19-704SP

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
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.

Current State

- Federal Agencies
- Multiple Letter of Credit Platforms
- Prime Recipient
- Unknown Sub-Recipients

Future State

- Federal Agencies
- One Letter of Credit Platform
- Prime Recipient
- Known Sub-Recipients

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

Chris Berner
NSF Section Head, Grants Cash Management Section

“We getting paid shouldn’t be so hard!”

Stephanie Endy
Associate VP for Research at Case Western University
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.

**Kevin Smith**
Grants Officer, NSF

“I spend a lot of time chasing down grantee financial reports, instead of evaluating the progress and impact of active grants.”

**Pam Fuller, Prime Grantee**
Accountant, State University

“I waste time managing sub-grantees reimbursements, when I could be conducting meaningful financial analysis and planning.”

**Tom Johnson**
Data Transparency, Treasury

“It’s very difficult to accurately and reliably show how the government is spending taxpayer funds without transparency into sub-grantee spending activity.”

**Maria Ramos, Sub-grantee**
Preparer, Research Lab

“Not having visibility into who, or what, may be delaying the execution of payments hampers our ability to do our work.”
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.

1. **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.

2. **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.

3. **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.

4. **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.

5. **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.

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.

<table>
<thead>
<tr>
<th>Prime Award</th>
<th>Sub Award</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agency</strong></td>
<td>University of Nebraska</td>
</tr>
<tr>
<td>Payment Type:</td>
<td>Grant</td>
</tr>
<tr>
<td><strong>Award ID</strong>: NSF-34708</td>
<td>NSF-34708</td>
</tr>
<tr>
<td>Description:</td>
<td>Grant to research health effects of e-cigarettes</td>
</tr>
<tr>
<td><strong>Award Start Date</strong>: 10/30/19</td>
<td>10/30/19</td>
</tr>
<tr>
<td><strong>Award End Date</strong>: 10/31/20</td>
<td>10/31/20</td>
</tr>
<tr>
<td>Appropriation Period: 10/30/19 – 10/15/20</td>
<td>10/30/19 – 10/15/20</td>
</tr>
<tr>
<td><strong>Awardee Name</strong>: University of Nebraska</td>
<td>Ohio State University</td>
</tr>
<tr>
<td>PI: Dr. Herbie Husker</td>
<td>Dr. Brutus Buckeye</td>
</tr>
<tr>
<td><strong>Salary &amp; Benefits</strong>: 5,000,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Travel: 20,000</td>
<td>100,000</td>
</tr>
<tr>
<td><strong>Direct Costs</strong>: 40,000</td>
<td>100,000</td>
</tr>
<tr>
<td><strong>Indirect Costs</strong>: 10,000</td>
<td>100,000</td>
</tr>
<tr>
<td><strong>Subgrants</strong>: 400,000</td>
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In 2018, GAO identified key challenges in managing the nearly $700B spent by the Federal government on grants. DLT provides a business value to grants management by improving cost effectiveness and reducing burden.

**INCREASED TRANSPARENCY**
- Award Records were < 1% fully consistent with Budget Data
- **REALTIME VISIBILITY** can enable upstream and downstream accountability

**REDUCED FINANCIAL & ADMINISTRATIVE BURDEN**
- Grants Managers spend 40% of their time on compliance
- **AUTOMATION** of internal controls and grant compliance can decrease the cost and effort of compliance

**IMPROVED CUSTOMER EXPERIENCE**
- Grantees returned $20 Billion in overpayments to the government
- **COMMON DATA SOURCE** can provide consistent, accurate, and trusted data across the network

**GREATER MISSION FOCUS & PROGRAM IMPACT**
Business Value of DLT to Federal Grants Management

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- **IMPROVED CUSTOMER EXPERIENCE**
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**Smart contract automation**
**Distributed ledger**
**Immutability**

DLT enables grantees and funding agencies to focus their efforts on their missions and the impact of their work, instead of the administration of grants.
What’s Next?
Continued demonstrations with key stakeholders to solicit and incorporate feedback as well as increase buy-in

1. Incorporate Feedback from the community
2. Host webinars and demonstrations
3. Engage universities and explore partnership opportunities
Maximize the value of grant funding by applying a risk-based, data driven framework that balances compliance requirements with demonstrating successful results for the American taxpayer.

GOAL STATEMENT
Cross Agency Priority Goal Environment
Grants CAP Goal Strategies

- **Standardize Business Processes & Data**
  Standardize grants management business processes & identify, operationalize, standardize, & link data.

- **Build Shared IT Infrastructure**
  Use standard business processes & data to identify opportunities to build shared solutions that reduce burden & improve the user experience.

- **Manage Risk**
  Leverage data, including data from annual audits, to assess & manage recipient risk.

- **Achieve Goals and Objectives**
  Hold recipients accountable for good performance practices that support achievement of program goals and objectives; & streamline burdensome compliance requirements for those that demonstrate results.
Proposed Revisions to 2 CFR, Subtitle A – OMB Guidance for Grants & Agreements


- **January Grants Innovation Exchange & 2 CFR Listening Session materials can be found at:** [https://www.performance.gov/CAP/grants/](https://www.performance.gov/CAP/grants/)

- **Comments due on or before March 23, 2020.**

The Grant Reporting Efficiency & Agreement Transparency (GREAT) Act of 2019

- Signed into law on Dec 30, 2019.

- Watch for an upcoming Grants Innovation Exchange Session on the GREAT Act.
Instructions:

Please enter your questions via the chat feature via Adobe Connect; or

Email them to GrantsTeam@omb.eop.gov
JOIN OUR COMMUNITY TODAY!

https://www.performance.gov/CAP/grants/

NEXT INNOVATION EXCHANGE SESSION:
March 26, 2020

DO YOU HAVE AN INNOVATION YOU WOULD LIKE TO SHARE?
Please email the Grants Team at GrantsTeam@omb.eop.gov