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November 2019

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Case #: 19-02007-05

MITRE Challenge – Strengthening Eligibility Verification for Federal Benefit Programs

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Executive Summary

Background

Since 2003, federal agencies estimate that they have made about \$1.5 trillion in improper payments. In fiscal year 2018 alone, improper payments totaled \$151 billion, almost 25 percent (nearly \$38 billion) of which occurred because agencies did not verify with certainty that the recipients were eligible for benefit payments or services. New approaches are required to strengthen eligibility verification so, in alignment with the President's Management Agenda, The MITRE Corporation launched the Strengthening Eligibility Verification for Federal Benefit Programs Challenge in 2018. The Challenge sought fresh ideas for eligibility verification from a diverse, nationwide group of stakeholders and contributors.

The goal of the Challenge was to identify innovative, cost-effective concepts to help government agencies improve verification of eligibility, thereby better protecting funds and making it easier for agencies to fulfill their missions by focusing resources where they are most needed. Seeking concepts that would help make eligibility determination processes more rigorous and data-informed, while at the same time efficient, user-friendly, and protective of privacy, the Challenge featured a scenario with a hypothetical federal agency, a hypothetical benefits program, and real-world program eligibility characteristics that needed to be verified. Participants were required to address these characteristics by creating a conceptual framework that could enable effective eligibility verification for this hypothetical benefits program.

The Challenge Process

Major activities in the Challenge process included designing the Challenge, communicating with participants, managing the participant teams, judging the concept submissions, and recognizing the winner and finalists.

Designing the Challenge began with identifying the Challenge goals and desired outcomes. These were key drivers of the design and were followed closely by clearly defining a specific problem to give the Challenge an unambiguous focus. These activities required socialization, especially with federal agency partners, so that the Challenge would produce the needed results.

Building a project team was critical to achieving these goals and outcomes. MITRE assembled a team, consisting of core members augmented by subject matter experts, that collectively had the knowledge to execute the Challenge. A Project Management Office provided critical assistance in areas such as communications, legal, risk, finance, and oversight, and federal agencies served as vital partners.

Other key design activities included:

- Developing a problem scenario for the Challenge participants to address
- Creating a submission template and a web portal where participants would submit entries
- Creating rules for conducting the Challenge
- Developing judging criteria
- Determining the prizes to be awarded

The primary focus of Challenge communications was to ensure that a variety of target audiences nationwide were engaged and encouraged either to participate in the Challenge or be a Challenge ambassador. Ahead of the launch MITRE identified a robust mailing list of entities that would be likely to participate in the Challenge or help promote it, conducted outreach via email and social media, and leveraged outreach from agency partners.

Based on the experiences of past challenges, team retention from start to completion was a risk that required mitigation. To encourage retention, MITRE hosted informational webinars, sent bi-weekly update emails to participants, and regularly communicated via the portal.

The Challenge team designed the judging activity and selected the judges with a key factor in mind – ensuring objectivity and impartiality in evaluating the submissions and selecting the overall winner. Experienced source selection professionals and practiced program managers created program-specific evaluation criteria, which were applied using the same Federal Acquisition Regulation process employed every day across the federal government to award acquisitions. Judging criteria were developed with input from the agency partners using their most important criteria. The judges’ objectives, role, and rules of conduct were clearly defined, they were trained, and they followed a set of instructions. After the judges completed their individual evaluations of all submissions, they participated in group consensus meetings to produce a group rating of each submission.

At the conclusion of the judging, both finalists and non-winning teams were notified. MITRE hosted a day-long event focused on Cross-Agency Priority Goal 9, *Getting Payments Right*, during which the Challenge winning team and finalists were announced. The event was open to all federal agencies, state governments, and others (e.g., industry and not-for-profits) by invitation. The event agenda zeroed in on two payment integrity issues that are difficult for many agencies to address – identity and eligibility.

Results and Next Steps

More than 1,000 individuals nationwide from federal and state government agencies, academia, the commercial sector, not-for-profits, and professional organizations expressed interest in the Challenge. Although it was *deliberately* crafted to be difficult, 24 academic and commercial entities formally organized teams, and eight provided concept submissions. MITRE ultimately selected a Challenge winner and three finalists who presented concepts that have the potential to significantly reduce improper payments by better verifying both the initial eligibility of applicants for, and the ongoing eligibility of participants in, benefit programs.

Challenge Winner

Team SAP Regulated Industries Innovators won the Challenge with their Citizen Wallet concept, which provides a framework for comprehensive eligibility and enrollment monitoring. The concept allows individuals to create accounts by choosing to import information about themselves already available in authoritative government data profiles. It includes features such as agent-based case management and cutting-edge technologies (e.g., blockchain and artificial intelligence-enabled chat bots integrated with predictive analytics).

Challenge Finalists

The following teams were selected as Challenge finalists:

- **Team Converus/AML Partners** for their Objective Eligibility Verification concept, which includes application programming interface plug-and-play technologies, blockchain advancements, and an Exhaust Data Framework with risk indicators
- **Team Proper Bobcats** for their Trusted Applicant Program concept, which features risk-based data verification that provides enhanced targeted vetting and new, novel algorithms such as the Probabilistic Variable Accuracy algorithm
- **Team SAS** for their Recipient-Centric Needs Approach, which uses an open, interoperable analytic platform strategy to provide access to data from virtually any source and to operationalize the creation of analytically ready data environments

Worthy elements in these submissions justify the government moving forward with substantive assessments of the concepts. MITRE recommends the government conduct demonstration pilots to assess whether the concepts individually provide workable, all-encompassing solutions, or whether key elements of individual concepts should be combined to provide an optimal solution. In conducting the demonstration pilots, MITRE believes the government should focus principally on cutting-edge, preventive approaches, vs. long-used, detective ones.

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1. Motivation for the Challenge – A Case for Action

Since 2003, federal agencies estimate that they have made about \$1.5 trillion in improper payments. In fiscal year (FY) 2018 alone, improper payments totaled \$151 billion, a nearly 40-percent increase over the prior decade (see Figure 1).



Source: paymentaccuracy.gov

Figure 1. Improper Payments FY 2009 – FY 2018

Application processes for government benefits are often fraught with paperwork, bureaucracy, duplicated burden of entering data on multiple forms, and little sharing of information – which can lead to improperly granted benefit payments and services. In particular, almost 25 percent of improper payments government-wide occur because agencies do not verify with certainty that the recipients are eligible for benefit payments or services. In FY 2018, this accounted for nearly \$38 billion in improper payments. Specific issues include:

- Eligibility rules – Rules often overlap from one program to another without fully coinciding; often vary from one state to another; and may contain exceptions, all of which complicate program administration.
- Data systems and sharing – In most instances federal agencies and states that administer federally-funded programs operate disparate benefits administration systems that do not communicate well and do not leverage information available in each other’s systems or from commercial or open sources.

Benefit eligibility and enrollment determination processes need to be made less vulnerable to lost funds – due to fraud, applicant error, and agency error – while recognizing the need for efficiency, user-friendliness, and privacy protection. Solving the Strengthening Eligibility Verification for Federal Benefit Programs Challenge will make it easier for agencies to fulfill their missions by focusing resources where they are most needed. It will also positively impact the American people, who entrust their hard-earned tax dollars to government stewards.

2. Goals of the Challenge

Eligibility verification for many benefits programs has been a major hurdle for years, and, too often, agencies are not fully successful in such verification. New approaches are required to strengthen eligibility verification so, in alignment with the President's Management Agenda (PMA), the Strengthening Eligibility Verification for Federal Benefit Programs Challenge sought fresh ideas from a diverse group of stakeholders and contributors. An ideation challenge, in particular, is a great way to entice such innovators to work in the government space and provide creative concepts.

With that in mind, the overall goal of the Challenge was to identify innovative, cost-effective concepts that government agencies can use to improve verification of eligibility for federal benefit programs. The Challenge sought concepts that would help make eligibility determination processes more rigorous and data-informed, with due consideration of efficiency, user-friendliness, and privacy.

To facilitate this, the MITRE project team¹ and federal agency partners developed a scenario that featured a hypothetical federal agency, a hypothetical benefits program, and real-world program eligibility characteristics requiring verification (see Appendix 1). The goal was to have Challenge participants – a broad range of nationwide competitors from academia, industry, the non-profit sector, and state and local government – address actual problems that many agencies face, without attributing specific problems to individual agencies or programs. Each Challenge participant was asked to create and submit a conceptual framework that could enable effective eligibility verification for this hypothetical benefits program. Proposed concepts were required to specifically address the eligibility issues faced by this hypothetical program.

For participants, the goal was to develop a conceptual framework that included such things as the ability to:

- Detect and prevent attempts to fraudulently or abusively gain or retain benefits
- Expose and resolve those vulnerabilities that allow beneficiaries to improperly obtain benefits
- Verify eligibility at both the time of initial enrollment and over time as benefits continue to be paid (e.g., determining whether an existing beneficiary has experienced a “life change” that would alter his/her eligibility status)

Concepts needed to be operationally feasible, which meant they must be:

- Affordable and replicable
- Implementable without major changes to existing laws
- Designed so as not to significantly burden benefits recipients

Overall, the Challenge sought concepts that would:

- Provide significant savings to the government

¹ The MITRE project team consisted of subject matter experts (SME) and staff with expertise in areas such as payment integrity, technology, communications, outreach, and project management.

- Help put funds to use where they are really needed and intended
- Streamline eligibility verification processes
- Increase benefit programs' security and resiliency in responding to fraud, error, and abuse
- Allow agencies to share experiences and knowledge and identify opportunities for cross-government engagement

3. Designing the Challenge

Challenge design can vary greatly depending on the goals that a challenge is seeking to achieve. It is important to identify the goals, as well as the desired outcomes, at the start of the challenge process because these will be key drivers of the design. Identifying the goals and outcomes requires socialization within the organization conducting the challenge and with stakeholders, in order to fully grasp the depth of the area of challenge focus and to help ensure that the design addresses it appropriately.

In order to fully develop the goals and outcomes, the MITRE team considered the following questions:

- What is the purpose of the Challenge?
- Why should MITRE conduct the Challenge?
- Why is this important to MITRE's sponsors and stakeholders?
- What are some possible solutions to the problem the Challenge will address?

A specific problem needs to be clearly defined to give the challenge an unambiguous focus. Defining the problem involves creating a problem statement based on questions such as:

- What problem is the challenge trying to solve?
- Who owns the problem?
- Who is impacted by the problem?
- What is the ultimate expected impact of a solution?
- Are a variety of solutions possible?
- What context and constraints must be taken into account?

Once these questions are initially answered, it is crucial to meet with internal SMEs and external stakeholders to refine the problem statement and obtain stakeholder validation. It is a good idea to extensively socialize the problem statement at this point.

In the case of this Challenge, the MITRE team initially drafted the problem statement. After internal refinement, the draft was proposed to a group of federal agency representatives, most of whom became members of the joint MITRE-agency team. This joint team then refined the problem statement in a working session to arrive at the final version:

Each year tens of billions of dollars are lost due to improper payment of benefits across federal programs. Application processes for government benefits are fraught with paperwork, bureaucracy, duplicated burden of entry in multiple forms, and little sharing of information – which often results in improperly granted benefits and payment errors.

Benefit eligibility and enrollment determination processes need to be made less vulnerable to lost funds – due to fraud, applicant error, and agency error – while recognizing the need for efficiency, user-friendliness, and privacy protection.

Building a successful team is critical to achieving the challenge goals and outcomes. Team members need to collectively have the knowledge to execute the overall challenge. SME team members are needed throughout the process for various challenge activities and can be either full time or part time on the project. Some SME needs can be identified at the start of the challenge, while others may arise as the project unfolds. Other key challenge team members may include:

- A Project Management Office (PMO) team to provide critical assistance in areas such as communications, legal, risk, finance, and oversight
- External parties, such as stakeholders, to be partners or team members; the roles of these external parties need to be clearly defined and agreed to before they participate, and the parties need to secure approval within their own organizations (e.g., their counsel)
- Entities performing outsourced activities, if applicable; what should be outsourced needs to be identified and arranged for early in the project

Questions such as the following will help identify the correct team members to make the challenge successful:

- What knowledge and talents are needed?
- What knowledge and talents are available internally?
- What knowledge and talents are needed from external sources?
- Should part of the work be outsourced to a third party?
- What partnership is needed with external entities?
- What roles will partners or external team members have?

For the Strengthening Eligibility Verification for Federal Benefit Programs Challenge, MITRE first formed a small team to begin planning. Once approved and funded, the team was expanded to include members who had additional identified knowledge and talents. The team considered outsourcing certain activities, but ultimately decided to keep them internal. A PMO team was already in place and provided critical assistance throughout the life of the Challenge. The MITRE project team conducted outreach to a group of agencies and solicited their participation in the Challenge, including defining the roles they would have. The agency members of the joint team were the Department of Agriculture, the Department of Labor, the Department of Veterans Affairs, the Federal Emergency Management Agency, the Internal Revenue Service, and the Office of Management and Budget.

Creating a challenge project itself includes a multitude of actions, such as:

- Finalizing the challenge scope to put boundaries around the information required from participants
- Identifying the target audience that would likely want to participate in the challenge
- Determining the rights that participants have and need (e.g., challenge submissions might need to include Intellectual Property [IP], so how that will be handled must be addressed)
- Designing a participation agreement

- Creating a submission template that will be used by the participants
- Creating the challenge rules
- Establishing judging criteria for evaluating the participants' submissions
- Determining what the awards will be
- Creating and adhering to a timeline
- Verifying each team's eligibility to participate in the challenge

The MITRE project team for this Challenge addressed the above steps with actions such as:

- Developing a problem scenario for the Challenge participants to address – a hypothetical federal agency with a hypothetical federal benefits program that is experiencing real-world benefits eligibility issues that emphasized two key attributes: preventing errors and deterring fraud, and producing innovative concepts (see Appendix 1, Hypothetical Program)
- Identifying the target audience based on internal domain expertise and agency team member input in order to conduct outreach to generate interest in participating (see section 4, Communications Approach to Attract Participants and Partners, and Appendix 2, Communications Plan)
- Addressing IP issues in the Challenge agreements that participants signed (see Appendix 3, Participation Agreement)
- Creating a submission template and a web portal where participants would submit entries (see section 5, Managing the Participating Teams)
- Creating rules for conducting the Challenge, including the scoring approach (see section 6, Scoring the Submissions, and Appendix 3, Participation Agreement)
- Developing judging criteria for MITRE SME judges to use in evaluating the participants' submissions (see section 6, Scoring the Submissions, and Appendix 4, Scoring Form)
- Vetting registered team members using the Department of Health and Human Services Office of Inspector General's List of Excluded Individuals/Entities and the General Services Administration's System for Award Management

IP issues warranted special attention in designing this Challenge. General concepts and approaches submitted by Challenge participants were considered a part of the public domain and could be freely used by agencies. MITRE ensured, through an agreement that participants were required to sign, that rights of copyrighted material, patents, and other specific IP (leveraged within the general concepts and approaches submitted by Challenge participants) remained wholly with current owners. Challenge participants were asked to state the ownership and restrictions of such items within their submissions.

Determining the prize is crucial in making the challenge attractive to potential participants. A successful prize is one that stimulates participants to do the things that the challenge team wants them to do. It should be commensurate with the level of effort required to accomplish the goal of the competition. Both monetary and non-monetary prize options should be evaluated, including identifying excellence, influencing public perception, mobilizing new talent, educating individuals, and strengthening problem-solving communities. The following are questions to consider when determining the prize for a challenge:

- What is the budget for the prize money?

- What type of funds can be used for prize money?
- How many prizes will be awarded?
- What are the success criteria for the participants?
- What are the non-monetary incentives?
- How will the submissions be reviewed and considered?

MITRE set aside funding to award to a grand prize winner and multiple finalists. MITRE leadership approved a maximum amount of prize funding, and the MITRE project team elected to allocate a portion of that to the grand prize winner, leaving the balance for the finalists. In addition, the Challenge winner and finalists were offered the opportunity to meet with government agencies to present their concept proposals.

4. Communications Approach to Attract Participants and Partners

The MITRE project team developed a communications strategy and plan (see Appendix 2) that laid out a set of actions and vehicles to ensure a variety of target audiences were aware, engaged, and encouraged to either register and participate in the Challenge or act as a Challenge ambassador.

Ahead of the Challenge launch MITRE worked to identify a robust mailing list of entities that would be likely to participate in the Challenge or help promote it. MITRE gathered contacts from literature searches, websites and internal MITRE SMEs, and identified associations and universities that could help promote the Challenge to their networks. Target audiences included:

- Trade associations that represent industry SMEs
- Commercial firms that work in the payment integrity domain
- Universities
- Small, independent innovators
- State and local government agencies

MITRE also created a public-facing website that linked to a dedicated email box to promote the Challenge and encourage participation, coupled with a brochure that MITRE SMEs distributed when attending industry events. The brochure described the Challenge goals, timeline and benefits of participation, and encouraged interested parties to join the emailing list. As a result of these combined efforts MITRE collected more than 1,000 emails of likely candidates to participate in the Challenge and sent emails to this list on a bi-weekly basis for 3 months prior to the Challenge start, providing information and enticements to complete the participation agreement and register for the Challenge.

MITRE's Corporate Communications also assisted with a social media campaign, using Twitter and LinkedIn to direct people to the Challenge website to obtain more information and to register. A variety of messages were sent in the 3 months prior to the Challenge kick off, with LinkedIn messages generating the most interest and response.

Outreach in order to cast the widest net possible for participants was critical. So, MITRE asked its government partners to supplement or link to its outreach efforts. This included:

- Sharing MITRE’s Challenge tweets and LinkedIn announcements across their agencies’ social media channels
- Developing independent tweets or announcements about the Challenge
- Mentioning the Challenge during stakeholder calls with states, eligibility verification experts, program integrity experts, and other innovators
- Linking to the Challenge website from their agencies’ newsletters or public web communication sites
- Sending an email promoting the Challenge to specific audiences, such as state contacts
- Providing MITRE with a list of companies and experts that their agencies felt should be informed

5. Managing the Participating Teams

Based on the experiences of past challenges, team retention from start to completion was a risk that required mitigation. To encourage retention, MITRE staff deployed several communication techniques to provide the teams with the information they needed to be successful, as well as to continually encourage them throughout the competition period to submit an entry. MITRE used the following techniques to communicate with the teams.

- Hosted two informational webinars during which MITRE staff explained the Challenge expectations the scenario participants were to address, the scoring methodology, how the MITRE project team would communicate with them during the Challenge, and the key deadlines
- Included the agency partners in the webinars so that participants could hear from the agencies directly about their pain points
- Sent bi-weekly emails providing information and encouragement and sent daily emails the final week to remind participants of the looming deadline and how to submit their concepts
- Developed a dedicated Challenge portal (see Figure 2) where competitors could view reference materials, ask questions and, at the close of the Challenge, upload their submissions for scoring

The portal was used to start the Challenge on October 1, 2018. The hypothetical scenario was posted to the portal, and teams were emailed the portal link to download the scenario and begin their work. When questions were posted on the portal, MITRE emailed (using the challenge@mitre.org email box) all participants alerting them that a question had been posted and prompting them to the portal to read MITRE’s response.

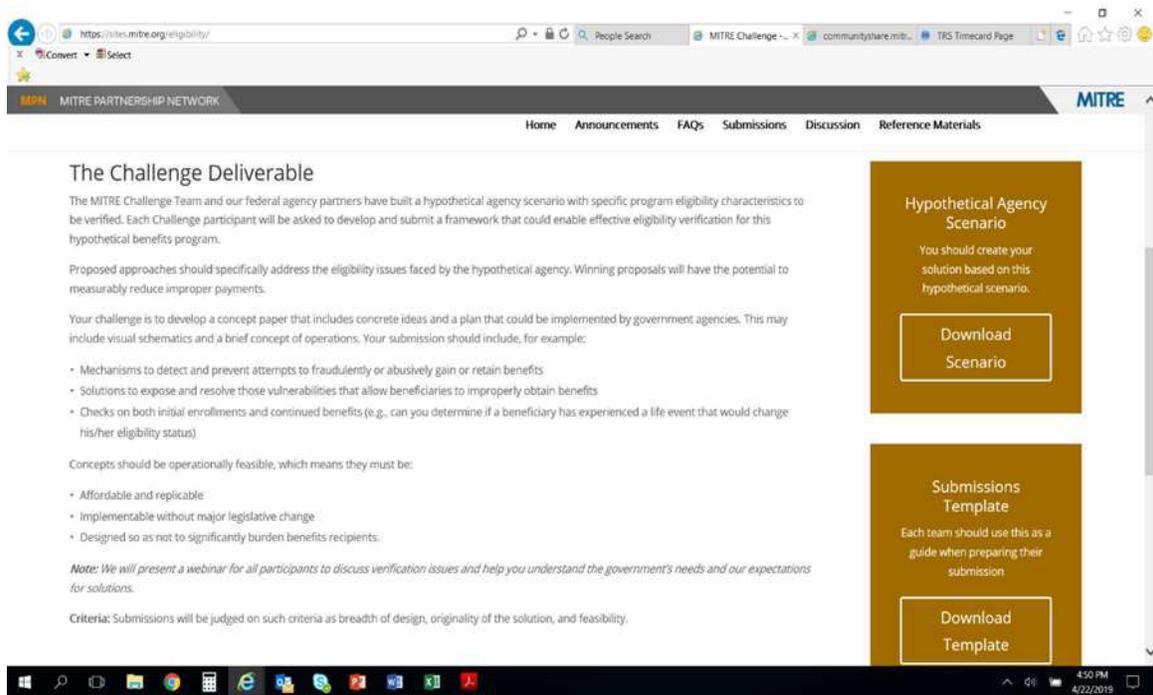


Figure 2. MITRE Challenge Portal

6. Scoring the Submissions

Scoring Approach

The scoring methodology was developed early in the Challenge's life cycle. Experienced source selection professionals from MITRE's Center for Acquisition and Management Sciences, along with practiced program managers, created program-specific evaluation criteria. The judges applied these criteria using the same Federal Acquisition Regulation (FAR) process that the federal government uses every day to award multimillion-dollar acquisitions that sustain protest.

Following the guidelines in FAR subpart 15.3, Source Selection, the judging criteria were developed with input from the government partners using a prioritized compilation of their most important criteria. These judging criteria were:

- How well does the solution address each of the six essential eligibility issues: Income, Work Status, Household, Health Circumstances, Residence, and Not Receiving Comparable Assistance?
- To what extent does the solution provide a complete verification approach/set of methods to address the eligibility issues?
- To what degree is the solution efficient, effective, user-friendly, and protective of privacy?
- To what extent does the solution include originality and use of novel components, and can a working prototype be provided?
- To what extent can the solution stay ahead of the curve as fraud schemes evolve?
- How feasible is the solution to implement?

The scoring process was designed, and the judges were selected, with a critical factor in mind – ensuring objectivity and impartiality in evaluating the submissions and selecting the overall winner.

Judge Selection

All judges were senior MITRE SMEs within their technical fields. This provided a significant breadth of knowledge across technical backgrounds and experience with federal agencies and programs. While some had prior judging experience on previous MITRE challenges, they all possessed the required skills and knowledge to implement the evaluation process, including:

- Competently and equitably evaluating the proposals
- Consistently performing the evaluations in accordance with the judging guidelines
- Providing support to MITRE leadership in discussions as required

At the beginning of the evaluation process, the judges were advised as to their objectives and rules of conduct. Their objectives were to:

- Understand the importance of their role and responsibilities in the evaluation process
- Use their knowledge and insight to evaluate the submissions competently
- Provide fair and equal treatment to all participants
- Select the submission that represents the best solution to the MITRE Challenge against the scored categories

The role of the judges was a critical one not only to the success, but also to the fairness and objectivity, of the Challenge process. As such, their rules of conduct were to:

- Prevent the intentional or inadvertent release of information concerning the evaluation to anyone not authorized to receive it
- Compare what was proposed against the evaluation criteria
- Evaluate only what was provided in the submission
- Notify the MITRE project team if they had a conflict of interest, such as a prior relationship with a submitter that could bias their ratings, so that they could be recused from judging that submission

Evaluation Process Overview

The MITRE project team developed the plan for the judging process. The overall evaluation sequence was as follows.

- Training sessions were held with the judges using a strawman solution prepared by MITRE staff to help instruct the judges on the use of the rating system and promote better consensus on the use of the scales.
- All submissions were distributed to the judges once they were received, with the order of review at the discretion of each individual judge.
- At the completion of individual evaluations, the judges participated in group consensus meetings to calibrate their findings and arrive at a final score for each submission.

- Upon completion of all evaluations and consensus meetings, the final scores and provisional selection were reported to the MITRE project team.
- MITRE leadership met to discuss and validate recommendations for award.
- Agencies had the opportunity to hear and comment on the judging outcomes before they were publicly released, but agency employees did not serve as judges.

The individual evaluation steps conducted by the judges followed a prescribed set of instructions. Upon reading each submission, the judges:

- Identified strengths and weaknesses for each of the factors within the six measured areas
- Compared what was proposed against the factor definitions using a scale of 0 to 10 (see Table 1)
- Documented narrative comments that supported their assessments
- Provided additional comments, if appropriate, to capture innovative ideas even if the submission was not among the highest rated

As previously mentioned, after the judges completed their individual evaluations of all submissions, they participated in group consensus meetings. At these meetings:

- Each judge explained their individual score and comments (strengths and weaknesses) to the group
- Group discussion then took place to arrive at a single group consensus score and supporting comments for each submission
- Consensus was not necessarily a unanimous agreement; the goal was to arrive at a general agreement of opinion, which meant that:
 - Judges could support each consensus decision as well as the overall winner and other top-rated submissions, or
 - Judges could believe that the decisions reached may not have been their preferred choices but were ones that they could support, or
 - At the very least, if a judge disagreed with the other judges on a decision, they could agree not to speak ill of the outcome.

Table 1. Scoring Values

Numeric	Adjectival	Description
9-10	Superior	Greatly exceeds all the minimum requirements of the criteria; has a very high probability of success; contains no weaknesses or deficiencies; extraordinary positive impact
7-8	Very Good	Exceeds all the minimum requirements of the criteria; has an above average probability of success; contains no significant weaknesses and only minor correctable weaknesses exist; significant positive impact
5-6	Good	Meets all the minimum requirements of the criteria; has an average probability of success; contains no significant weaknesses and any deficiencies can be readily corrected; moderate positive impact

Numeric	Adjectival	Description
3-4	Marginal	Fails to meet multiple minimum requirements of the criteria; low probability of success; major weaknesses and/or significant number of deficiencies exist; low positive impact
1-2	Insignificant	Fails to meet a majority of the minimum requirements of the criteria; proposal needs major revisions; very low probability of success; negligible positive impact
0	Not Addressed	Fails to address the requirement of the criteria

Source: Table contents based on evaluation guidance, FAR subpart 15.305, Source Selection

Note: “Deficiency” is a material failure of a proposal to meet a requirement, or a combination of significant weaknesses that increases the risk of unsuccessful performance to an unacceptable level.

Finally, to assist in the judging score tabulation, the MITRE project team created an electronic Scoring Matrix specifically to process weighted criteria that supported the most important outcomes. The scoring weighting factors were programmed into the electronic scoring sheet, which automatically calculated the individual scores by criterion and then totaled the final scores for each judge (see Appendix 4).

7. Results

The real importance of this Challenge lies in the potential for change that will significantly improve the ability of the federal government (and perhaps states) to reduce improper payments at a difficult pain point – verifying the initial eligibility of applicants for, and the ongoing eligibility of participants in, benefit programs. To facilitate such change, MITRE sought to reach a broad audience with the Challenge in order to secure engagement and participation that would provide innovative ideas and produce results that would lead to beneficial outcomes for federal agencies.

This *deliberately* difficult Challenge generated significant interest across a wide spectrum of organizations. More than 1,000 individuals nationwide from federal and state government agencies, academia, the commercial sector, not-for-profits, and professional organizations asked to receive information and email updates about the Challenge. Of these, 24 academic and commercial entities formally organized teams and submitted participation agreements to join the Challenge. Eight teams ultimately provided a total of ten concept submissions to compete in the Challenge.

Proposed Concepts to Address the Challenge Problem

MITRE’s judging methodology included ratings for criteria such as how well each concept specifically addressed the six eligibility issues of the hypothetical Program G, whether the concept included novel components, and how feasible the concept would be to implement. Each of the top four submissions met these and the other rating criteria to varying degrees.

SAP Regulated Industries Innovators

The Challenge winner was SAP Regulated Industries Innovators for their Citizen Wallet solution, a comprehensive benefits eligibility verification concept. Designed to put the citizen at the center of the ecosystem, the Citizen Wallet aims to deliver the most intuitive user experience for the end-to-end process of benefits application, eligibility verification, and receipt of approved benefits. Individuals can create accounts in the Citizen Wallet app by choosing to import information about themselves that is available in existing authoritative government data profiles. Users would then be able to enhance their profiles by choosing to import more data from non-governmental sources and selecting the programs in which they want to enroll through easy-to-use menu options, ranked through a machine learning-based analysis of their profile. These citizens would have options to select a contact method (text, app notification, telephone, website, mail) and preferred frequency of communication (weekly, monthly, annual) to help ensure benefits are received in a timely manner. Additionally, “life change” updates (e.g., birth of a child, change in job status) would be provided and verified in a timely manner to prevent improper payments. Other features of the Citizen Wallet innovation include:

- Customer focus (e.g., using an eVoucher, giving individuals control over their profiles)
- Chatbot and agent-based case management
- Use of an array of cutting-edge technologies, including blockchain, machine learning, and artificial intelligence-enabled chat bots integrated with predictive analytics and application programming interfaces (API)
- Ability to measure success – percentage reduction in fraudulent payments, reduction in time to provide benefits, and reduction in administrative costs

The Citizen Wallet innovation provides a framework for a comprehensive eligibility and enrollment monitoring system and addresses mechanisms to detect and prevent attempts to fraudulently gain or retain benefits in a variety of federal and federally funded, state-administered programs. It offers the capability to detect unqualified applicants for benefits before payments are made.

Team Converus/AML Partners

One of the finalists was Team Converus/AML Partners for their Objective Eligibility Verification (OEV) concept. The OEV technology makes possible a leap forward in accurate and automated eligibility verification related to payment processing by leveraging new RegTech-platform technology, cutting-edge identity-resolution methods, API plug-and-play technologies for systems and data, and blockchain advancements. Other features of the OEV concept include:

- A learning environment that promotes adaptation as schemes change
- State-/program-specific rules set up within the concept’s Event Library
- An ecosystem of eligibility data accessible across agencies
- An Exhaust Data Framework featuring risk indicators

Team Proper Bobcats

Another finalist was Team Proper Bobcats from Texas State University for their Trusted Applicant Program (TAP) concept, a continuous pre-payment, risk-based data verification framework that provides enhanced targeted vetting. Features of the TAP include:

- Exact Data Matching using existing algorithms
- Data verification using the new, novel predictive analytics algorithm – Probabilistic Variable Accuracy
- Assumption of ineligibility unless otherwise documented
- Extension of the definition of “applicant” to all members of the household and inclusion of the applicants as an active component of the eligibility checks
- Risk-based resource allocation

Team SAS

Team SAS was also a finalist for their Recipient-Centric Needs Approach. This solution takes a recipient-centric, needs-based approach, as compared to a “verifying eligibility per benefit program” approach, with an open, interoperable analytic platform strategy. This approach provides a social benefit program office the ability to (1) access data from virtually any available source, hardware platform, operating system, or data format, (2) instill governance, and (3) operationalize the creation of analytically ready data environments. The framework operationalizes data ingest and performs contextual analytics from all data, including other available benefits processing systems, publicly available data, employment information, or other federal and state available data. Other features of the Recipient-Centric Needs Approach include:

- Analytic risk modeling – at regular intervals or coincident with certain events
- Forecasting/predictive capabilities
- Continuous monitoring and alerts
- Use of dashboards to quantify outcome-based performance measures and provide the drivers behind potential risk measures that can affect those outcomes

8. Recognition of Finalists

Once the finalists were identified, MITRE notified them via e-mail and then held individual team conference calls with them to:

- Provide key information for the teams to share with their organization’s leadership
- Discuss the next steps in preparation for the awards event
- Ensure that MITRE could use their name, logo, and information in announcing the awards event
- Confirm their availability to attend the awards event and host a tabletop display of their solution at the event
- Explain the award levels and the financial award distribution process

MITRE also communicated with the non-winning teams, congratulating them on their effort and inviting them, as well, to host a tabletop display at the awards event. Finally, MITRE notified the agency members of the Challenge team and held conference calls to prepare them for the awards event.

A day-long event was held at MITRE on March 13, 2019, to focus on Cross-Agency Priority (CAP) Goal 9, *Getting Payments Right*, and to announce the Challenge winning team and finalists. The event was open to all federal agencies, state governments, and others (e.g., industry and not-for-profits) by invitation. The agenda zeroed in on two payment integrity issues that are difficult for many agencies to address – identity and eligibility. During the event, MITRE announced the Challenge winner and finalists and presented each with their prizes. The event included:

- Keynotes by Office of Management and Budget officials on the PMA and CAP Goal 9, as well as the Government Effectiveness Advanced Research (GEAR) Center concept
- A panel addressing the CAP Goal 9 Work Groups
- A panel discussing research and innovative approaches to address identity issues
- Announcement of the winning proposal and a presentation by that team
- Presentations by the finalist teams of their innovative concepts
- A panel addressing Challenge questions from the audience
- Tables where the Challenge participants interacted with attendees to discuss their ideas in-depth at lunch and breaks

The winner and finalists were announced via press release and social media. Prior to the event, MITRE's communications team coordinated the timing of the press release and social media announcements with the sponsor agencies, as well as with the winner and finalists, so that when the winning and finalist teams were announced, the announcements could be broadcast in real time via social media across several platforms (e.g., Facebook and Twitter).

9. Next Steps

There are worthy elements in the submissions of the Challenge winner and finalists that would justify the government moving forward with substantive assessments of the concepts. MITRE recommends that demonstration pilots be conducted to assess whether:

- The concepts individually provide workable, all-encompassing solutions for verifying eligibility for benefit programs.
- There are key elements of individual concepts that, when combined, provide an optimal solution for verifying eligibility (if no one concept appears to provide the perfect, all-encompassing solution). For example, the government might consider combining selected elements of each concept to craft an extremely comprehensive demonstration pilot that would focus on continuous risk assessment.

In conducting the demonstration pilots, the government should focus principally on cutting-edge, preventive approaches, vs. long-used, detective approaches.

Appendix 1 – Hypothetical Program

MITRE Challenge: Strengthening Eligibility Verification

Hypothetical Program Description: Program G



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Approved for Public Release 18-2319-10.
Distribution limited to Challenge participants, judges, and advisors

October 1, 2018

Introduction

This paper describes the hypothetical federal program that serves as the basis for the *MITRE Challenge: Strengthening Eligibility Verification*. The laws, agencies, and programs described herein are fictitious, though representative of the current federal situation in a general sense.

Background

In May 2018, Congress passed and the President signed into law the New Benefits Act of 2018, authorizing the creation of a new benefits program called Program G under the authority of the Department of Federal Benefits (DFB).¹ Program G will begin benefits disbursement on October 1, 2019, and the DFB estimates that approximately 2 million households will apply for Program G benefits each year.

The DFB recognizes that each year tens of billions of dollars are lost due to improper payment of benefits across federal programs. Agencies attribute about 25 percent of these losses to the inability to verify, or failure to verify, the applicant's eligibility. The Administration is moving to address this problem in the President's Management Agenda's Cross-Agency Priority goal, *Getting Payments Right*.² In addition, application processes for benefits can be paperwork-intensive and duplicative, and lack of information sharing often results in improperly granted benefits and payment errors.

The DFB wants to make Program G's benefit enrollment and eligibility determination process less vulnerable to lost funds due to fraud, applicant error, and agency error. At the same time, the DFB wants this process to be efficient and effective, to be user-friendly, and to protect privacy. In doing so, the DFB prefers to focus on deterring fraud and preventing errors through improved application processes and stronger verification techniques to enhance the quality of the application information, as opposed to identifying fraud and errors after-the-fact and attempting to recover the lost funds.

Program G Benefit Description

The goal of Program G is to help remove barriers to getting back to work³ when there are unexpected changes in life circumstances, such as a change in disability status or the addition of a new family member.

Program G provides short-term benefits to working families during periods when the benefits they are receiving through other programs are inadequate to provide for basic living needs. Program G also includes transitional and temporary benefits for working families that are awaiting adjudication of other benefits.

In addition to a monthly cash stipend, Program G provides vouchers to cover expenses for clothing, relocation, transportation, temporary accommodations, and sundry items required to engage in a work search and facilitate a successful return to work.

¹ The mission of the DFB is to support the well-being of Americans by efficiently and effectively delivering financial support and many other benefits. As appropriate, the DFB works closely with other federal departments and agencies to coordinate benefits, and with all states and territories to administer benefit programs. The DFB administers programs under legal authorities established in relevant authorizing statutes and with funding appropriated annually by Congress. The DFB comprises its headquarters in Washington, D.C., five regional offices, and a computer center, where it houses and operates computer operations and benefits processing systems.

² See <https://www.whitehouse.gov/omb/management/pma/>.

³ The New Benefits Act of 2018 defines "work," for Program G's purposes, as gainful employment. "Getting back to work" entails actively seeking gainful employment, performing community or volunteer service, or attending an educational or training program designed to lead to gainful employment.

Payments and vouchers are provided directly to beneficiaries or, in some cases, to fiduciaries, such as individuals acting in a fiduciary relationship with disabled veterans. The DFB pays Program G benefits each month, on the first day of the month, for the upcoming month. For example, benefits for the month of July are paid on July 1st, not July 31st.

The DFB establishes policy and provides funding for Program G and is responsible for verifying applicants' eligibility and overseeing the states' compliance with Program G policy and requirements. The states help administer the program by first referring potential beneficiaries whom the states believe may be eligible to Program G. The states also report which beneficiaries are ineligible because they already receive similar benefits under a state program, and the states are responsible for distributing Program G benefits to eligible beneficiaries.

Eligibility Overview and Verification

Individuals applying for Program G benefits must meet certain criteria to be eligible to receive benefits (see Table 1). These criteria also help determine the level of benefits provided.

Program G applicants will be required to self-report information related to the eligibility criteria, so the quality (accuracy, completeness, validity, etc.) of the data submitted is very important.

While the DFB will place some degree of reliance on this self-reported information, the New Benefits Act of 2018 requires the DFB to also objectively and independently verify whether the applicants meet each criterion before benefits can be paid – both at initial application and regularly thereafter. (Note: While verifying identity can also be a challenge for some agencies, the DFB has an extensive, robust identity verification system in place, which it considers to be completely effective.)

The Program G eligibility criteria, and the current verification methods that the DFB uses for its other programs with the same or similar criteria, are shown in Table 1.

Table 1. Program G Eligibility Criteria and Current DFB Verification Methods

Eligibility Criteria	Current Verification Methods
Income level – Household income may not exceed twice the poverty level to receive benefits	<ul style="list-style-type: none"> • Automated matching with: <ul style="list-style-type: none"> ○ Data available through the Social Security Administration (SSA) income verification portal ○ Public Assistance Reporting Information System (PARIS) data, which includes Department of Defense and Office of Personnel Management income information for current/retired federal employees ○ Data from other programs, for example, Medicaid, child support enforcement, workers compensation, or unemployment insurance ○ Data from commercial sources, e.g., financial institutions' direct deposit data, credit reporting agencies' income information • Use of complex scoring algorithms to screen for potential fraud • Detailed post-payment audits

Eligibility Criteria	Current Verification Methods
Household ⁴ size/structure – Number of adults and children in the household; more members of the household equates to more benefits	<ul style="list-style-type: none"> • Automated matching with data from commercial sources, e.g., providers of data and analytics • In some instances, interviews/home visits by a state or local social services case worker • Detailed post-payment audits
Work status – Whether any adults in the household are actively searching for gainful employment, performing community or volunteer service activities, or attending an educational or training institution; at least one working age adult must qualify as “getting back to work” to receive benefits	<ul style="list-style-type: none"> • Automated matching with: <ul style="list-style-type: none"> ○ National Directory of New Hires data ○ Data available through the Department of Health and Human Services, Administration for Children and Families’ portal for employment verification ○ Data from commercial sources, e.g., providers of data and analytics • Detailed post-payment audits
Residency – Whether the household occupies the residence as their main residence; beneficiaries must reside in the U.S. to receive benefits	<ul style="list-style-type: none"> • Automated matching with: <ul style="list-style-type: none"> ○ State motor vehicles data ○ Data from commercial sources, e.g., providers of data and analytics, utility companies, credit card companies, employers • Detailed post-payment audits
Health status (specifically related to disability) – Whether any children or adults of working age are disabled; at least one child or adult of working age must be at least partially disabled to receive benefits	<ul style="list-style-type: none"> • Automated matching with: <ul style="list-style-type: none"> ○ Federal or state workers compensation data ○ Medicare, Medicaid data ○ SSA Disability Insurance program and Supplemental Security Income program data • Supporting documents from physicians and medical tests or documented exposure to certain specified hazards during military service • Detailed post-payment audits
Receipt of comparable assistance – Whether the household receives similar assistance from another federal or state government program or private source (e.g., insurance)	<ul style="list-style-type: none"> • Automated matching with PARIS data, such as matches with information on recipients of numerous kinds of public assistance • Manual check against selected state data, when available • Detailed post-payment audits

Eligibility must be verified not only when applicants first apply for the benefits, but also each month thereafter. Further, the DFB needs to quickly learn when “life changes” that could affect eligibility occur during a given month – such as when the household income level rises above the eligibility threshold – so that benefits can be adjusted as quickly as possible to prevent improper payments. Figure 1 shows a high-level overview of the eligibility determination process.

⁴ The New Benefits Act of 2018 defines “household,” for Program G’s purposes, as all persons who (1) occupy the same residence and (2) perform normal daily functions together (such as preparing meals). Children are considered members of the household if they are in a legal relationship with a household adult (e.g., are natural born children of one of the adults, are legally adopted by one of the adults).

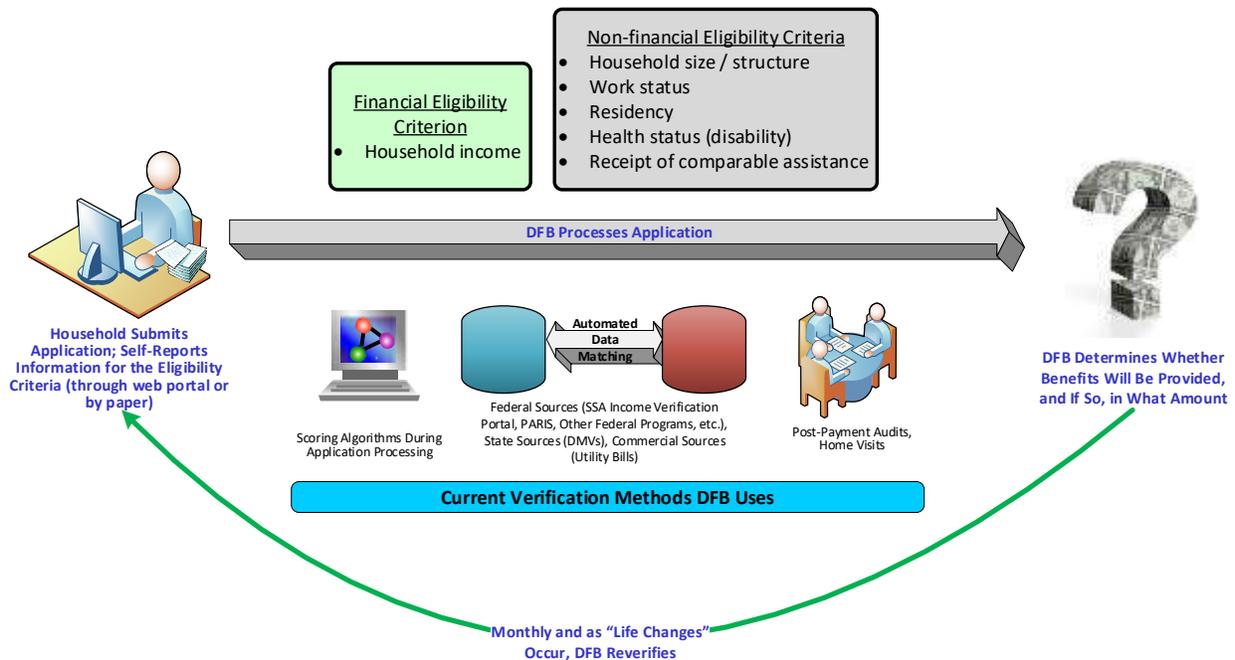


Figure 1. Overview of the Likely Program G Eligibility Determination Process, which the DFB Considers to be Inadequate

Some other DFB programs have the same eligibility criteria as Program G. And as shown in Table 1, the DFB has verification methods in place for those other programs. However, the DFB considers these verification methods to be inadequate for Program G because:

- The data sources that the DFB currently uses do not provide all the information that Program G needs.
- Some data sources do not provide information that is current enough for Program G’s need, e.g., the information may be last year’s annual summary when what is needed is today’s status.

When considering new methods of verifying Program G applicants’ eligibility, the DFB is faced with both opportunities and constraints. Opportunities include the following.

- The New Benefits Act of 2018 authorizes Program G to collaborate with states to help administer eligibility determination, if doing so would cost-effectively strengthen the verification process.
- The DFB has an opportunity to design new approaches to facilitate the self-reporting processes for both the initial application for benefits and the subsequent reporting of “life changes.”
- The DFB has an opportunity to explore new systems/methods at other entities (e.g., federal and state agencies, commercial firms), including new data sources (both existing and potential) that could be used to create better eligibility verification processes for Program G than have historically been used.

Constraints that Program G officials must consider include the following.

- In designing the self-reporting approaches for initial benefits application and the reporting of subsequent “life changes,” they must consider the requirements of the Paperwork Reduction Act (44 U.S.C. § 3501 *et seq.*).
- They must also consider the Computer Matching and Privacy Protection Act of 1988 (Pub. L. 100-53) if they want to incorporate automated data matching of additional data sets in the verification process.
- They must protect individuals’ information in accordance with the Privacy Act of 1974 (5 U.S.C. § 552a) and the Health Insurance Portability and Accountability Act of 1996 (Pub. L. 104–191).

Appendix 2 – Communications Plan

Target Audience	Identification	Strategy	Message	Expected Outcome	Method of Delivery
Associations (National Health Care Anti-Fraud Association, Association of Certified Fraud Examiners, others)	Identification of not-for-profit associations that represent organizations with expertise in developing eligibility verification solutions	Raise awareness about the Challenge and seek partnerships with associations to assist with outreach	Participate in the Challenge, help MITRE promote the Challenge	Associations will agree to promote the Challenge using their own membership outreach vehicles and lead their members to the MITRE Challenge website and ultimately the Challenge mailing list	Emails and phone calls, Challenge ambassador toolkit and website information
Government Partners	Work with partners identified at the start of the Challenge	Ask government partners, to the extent they are able, to retweet, share and promote internally their engagement with the Challenge	Updates on status, and ways they can help support outreach	Opportunity to uncover new leads and build the Challenge mailing list	Face to face, regular communications on Challenge status, outreach materials and website
Cultivated Contact List	Through outreach efforts, internal research and social media traffic, cultivate a list of prospects	Build a list of interested parties and continue to communicate with them and provide updates to encourage Challenge participation	Updates on Challenge information, requirements, frequently asked questions and incentives to encourage teams to register	Robust participant pool	Email, website, calls, flier, possibility for face to face if local events (e.g., conferences) can be identified

Target Audience	Identification	Strategy	Message	Expected Outcome	Method of Delivery
Industry experts	Literature searches to identify industry experts, add them to the contact list	Identify leading minds and ask if they will either participate in or help promote the Challenge	Challenge purpose, need and participation information or how to serve as a Challenge ambassador	Ensuring the best minds and best solutions will be represented in the Challenge	Emails, calls, Challenge ambassador toolkit
Academia	Identify university contacts to promote team involvement	Identify university champions who are willing to help organize teams and promote the Challenge	Challenge purpose, need and participation information or how to serve as a Challenge ambassador	Grow the pool of candidates	Emails, calls, local conferences if applicable, ambassador toolkit
Internal MITRE	MITRE universe of employees, MITRE intern program	Harness the MITRE community to help engage in outreach about the Challenge by retweeting, sharing and leading likely candidates to the Challenge website	Pilot awareness, progress made, experience explained, how they can serve as a Challenge ambassador	Grow the pool of candidates	MITRE intranet news, Technical Exchange Meetings, various MITRE community outreach actions, Challenge ambassador toolkit
Challenge Participants	People who submit team information and sign participation agreement	Create a Challenge community and private resource where MITRE can efficiently communicate with all teams	Communicate Challenge information, resources/references, and questions during the Challenge and hold pre-Challenge webinars to review expectations	Motivated, prepared teams that are engaged and ready to win	Handshake and webinars

Appendix 3 – Participation Agreement

MITRE Challenge Participation Agreement

Strengthening Eligibility Verification

Between

The MITRE CORPORATION

and

“Participant”

This Participation Agreement, including all Appendices and Attachments thereto, (hereinafter “Agreement”) made and entered into as of the _____ day of _____, by and between The MITRE Corporation (hereinafter referred to as “MITRE”), a Delaware Corporation, having its principal offices at 7515 Colshire Drive, McLean, Virginia 22102, and

_____, having an address of _____

(hereinafter “Participant”).

Whereas MITRE is conducting a competition titled the Strengthening Eligibility Verification Challenge (hereinafter the “Challenge”) to discover innovative, cost-effective solutions that government agencies can use to improve verification of benefit eligibility in federal programs, and;

Whereas Participant desires to compete in the Challenge.

Therefore, the parties expressly agree to be bound by the following terms and conditions.

1. GENERAL TERMS AND CONDITIONS:

- a. Each member of a team must sign and return this participation agreement in order for that individual and that team to participate in the Competition. All members of a Participant team must satisfy the eligibility requirements, described in Section 2 below, and a single individual from the team must be designated as an official representative for each team. MITRE reserves the sole right to determine the eligibility of any team.
- b. Any compromise to the fair and proper conduct of the Challenge may result in the disqualification of an entry or participant, termination of the Challenge, or other remedial action, at MITRE’s sole discretion.
- c. MITRE reserves the right in its sole discretion to extend or modify the dates of the Challenge, and to change the terms set forth herein.
- d. MITRE reserves the authority in its sole discretion to determine if no eligible submissions are entered, any or all Competition awards will not be bestowed. MITRE

also reserves the authority in its sole discretion to modify the honorable mention categories.

2. COMPETITION RULES:

- a. The Challenge is open to persons over age eighteen (18) and all companies and organizations except for any entity (e.g., an individual, business, or university) on the U.S. Commerce Department Lists of Parties of Concern (<https://www.bis.doc.gov/index.php/policy-guidance/lists-of-parties-of-concern>) or any other federally sanctioned entity.
- b. MITRE employees, employees of U.S. Government agencies, and immediate family members from either organization are not eligible to participate in the MITRE Challenge.
- c. Participants who are not U.S. citizens or entities may be subject to additional requirements or restrictions imposed by MITRE.
- d. Participant agrees to comply with all U.S. federal, state, and local laws and regulations. Void where prohibited or restricted by law. Participant assumes all responsibility for complying with all applicable laws and regulations when participating in this Challenge.
- e. Participants representing a college or university team are responsible for confirming that their participation and entry does not violate any policies of that institution or legal entity.
- f. Participants' entries will not be returned at the end of the competition.
- g. Participants bear all costs incurred in the preparation of Competition entries.
- h. Submitted entries must be completed in the English language.
- i. Entries submitted before the start date and time, or after the end date and time, will not be accepted. Once the submission period has ended, Participants may not make any changes or alterations to the entry.
- j. Scoring of Entries
 - i. Participants must submit entries in a standard format, and to the designated portal.
 - ii. Participant teams can submit multiple unique entries and can only submit an entry once. Phased scoring will occur after the close of the competition period; entries will be pre-screened for completeness and relevance. MITRE reserves the sole right to determine the eligibility of any entry.
 - iii. Final awards will be decided by MITRE, the U.S. Government and its subject matter experts ("Judges") based on the final score and details of the Participants' methodology.
 - iv. Participants will be notified 10 weeks after the competition window closes, and the awards will be posted on the MITRE Challenge website.
- k. All awards are a one-time offer and there is no offer of licensure, royalty, or other financial compensation implied beyond the awards. Winning Participants are responsible for all applicable taxes and reporting related to any award received as part of this Competition.
- l. A participating team can win the overall award, as well as one or more honorable mention awards.

3. INTELLECTUAL PROPERTY RIGHTS:

- a. Concepts and approaches developed and submitted by Challenge Participants in response to this Challenge can be freely used by federal, state, and local government agencies to address the problem of improper enrollment. Copyrights, patents, and other specific intellectual property rights leveraged within the Challenge Participants' submissions will remain with the current owner. Challenge Participants should clearly identify and mark ownership and restrictions of such items within their Challenge submission.
- b. Other than as set forth herein and in other MITRE-supplied Challenge documentation, MITRE makes no claim to ownership of any third-party intellectual property contained therein.
- c. Participant hereby grants to MITRE and U.S. Government subject matter experts the right to review Participant's entry, and to describe the entry as represented by any materials created by Participant in connection with the Challenge, to U.S. Government entities, MITRE sponsors, Challenge administrators, and the designees of any of them.
- d. By submitting an entry, Participant grants to MITRE a non-exclusive right and license to use Participant's name, affiliation, likeness, information, image, and to publicly disclose the Competition results. Participant also agrees that this license is perpetual and irrevocable.
- e. Participants shall provide a written description of their ideation approach suitable for public dissemination. Participant hereby grants MITRE the right to publicly disclose and discuss this description, and statements based upon such description, to describe entries to the Challenge. Except as otherwise provided in this Agreement or in other MITRE-supplied Challenge documentation, MITRE shall keep all other information from Participant's entry confidential.
- f. Participant agrees that nothing in this agreement or Challenge grants the Participant a right or license to use any names, trademarks, or logos of MITRE, or any other intellectual property or proprietary rights of MITRE. Participant grants to MITRE the right to include Participant's company or institution name and logo (if such entry is from a company or institution) in MITRE materials announcing winners of or participants in the Challenge. Other than these uses or as otherwise set forth herein and in other MITRE-supplied Challenge documentation, Participant does not grant MITRE any rights to Participant's trademarks, tradenames, or likenesses.

3. WARRANTIES:

- a. Participant represents and warrants that all information Participant submits is true and complete to the best of Participant's knowledge, Participant has the right and authority to submit the entry on Participant's behalf and on behalf of the persons and entities identified within the entry, and that Participant's entry (the submitted information, ideas, and underlying technologies or concepts described in the entry):
 - i. is Participant's own original work, or is submitted by permission with full and proper credit given within the entry;
 - ii. that the Participant has all rights, permissions, licenses and consents necessary to grant federal, state and local governments the rights agreed to in Section 2 a, including the right for these entities to develop derivative works from the proposed solution, and is not entitled to compensation from use of the entry;

- iii. does not misappropriate third-party intellectual property rights, rights in technical data, rights of privacy, publicity, or other intellectual property or other rights of any person or entity;
 - iv. does not contain malicious code, such as viruses, malware, timebombs, cancelbots, worms, Trojan horses or other potentially harmful programs or other material or information; and
 - v. does not and will not violate any applicable law, statute, ordinance, rule, or regulation, including, Participant represents and warrants that:
- b. Participant acknowledges entities on the U.S. Department of Commerce's restricted list or other U.S. sanctioned entities may not participate in the Challenge. Participant hereby represents and warrants Participant, and all individual team members if Participant is part of team entering the Challenge, are not on the U.S. Department of Commerce's restricted lists and are not an otherwise U.S. sanctioned entity.
- c. Participant acknowledges that MITRE and U.S. government employees, and immediate family of Participant hereby represents and warrants Participant is not a MITRE employee, a U.S. Government employee or an immediate family member of either organization.

4. LIMITATION OF LIABILITY:

- a. Participant agrees to assume any and all risks and to release, indemnify, and hold harmless MITRE, the U.S. Government, and each of the U.S. Government subject matter experts, from and against any injuries, losses, damages, claims, actions, and any liability of any kind (including attorneys' fees) resulting from or arising out of participation in, association with, or submission to the Challenge (including any claims alleging that Participant's entry infringes, misappropriates, or violates any third party's intellectual property rights).
- b. Participant agrees to waive claims against MITRE, the U.S. Government, and each of the U.S. Government subject matter experts, for any injury, death, damage, or loss of property, revenue, or profits, whether direct, indirect, or consequential, arising from participation in this Challenge, whether the injury, death, damage, or loss arises through negligence or otherwise.
- c. MITRE is not responsible for, and Participant hereby releases MITRE from any claim for, any miscommunications such as technical failures related to computer, telephone, cable, and unavailable network or server connections, related technical failures, or other failures related to hardware, software or virus, or incomplete or late entries.
- d. MITRE is not responsible for: (1) Any incorrect or inaccurate information, whether caused by a Participant, printing errors, or by any of the equipment or programming associated with or used in the Challenge; (2) unauthorized human intervention in any part of the entry or demonstration processes; (3) technical or human error that may occur in the administration of the Challenge or the processing of entries; or (4) any injury or damage to persons or property that may be caused, directly or indirectly, in whole or in part, from a Participant's participation in the Challenge or receipt, use, or misuse of an award.
- e. If for any reason an entry is confirmed to have been deleted erroneously, lost, or otherwise destroyed or corrupted, Participant's sole remedy is to submit another entry in the Challenge.

- f. Participant hereby agrees to the terms set forth herein and to all decisions of MITRE, the U.S. Government subject matter experts, and/or all their respective agents, which are final and binding in all respects.

5. TERMINATION AND DISQUALIFICATION:

- a. MITRE reserves the authority to cancel, suspend, and/or modify the Challenge, or any part of it, if any fraud, technical failures, any other factor beyond MITRE's reasonable control impairs the Challenge's integrity or proper functioning, or for any other reason as determined by MITRE in its sole discretion.
- b. MITRE, in its sole discretion, has the unilateral right to reject, disqualify, or delete Competition entries that do not conform with the terms and conditions of this Agreement, compromise fair conduct, or are not in accordance with professional standards. Such entries shall be deemed disqualified and a disqualified entry will not be evaluated or considered for an award.

