

We identify our friends and loved ones  
by the look of their face,  
over the phone by the sound of their voice  
and in the dark by the touch of their hand.

Imagine being able to quickly identify someone on  
the internet with the same level of certitude.



# Daon TrustX Pilot

*P. Godwin*

30 January 2014



Work described in this presentation was supported by the National Strategy for Trusted Identities in Cyberspace (NSTIC) National Program Office and the National Institute of Standards and Technology (NIST).

The views in this presentation do not necessarily reflect the official policies of the NIST or NSTIC, nor does mention by trade names, commercial practices, or organizations imply endorsement by the U.S. Government.



# Daon Background



- Daon is best known for our large scale biometric identity assurance systems:
  - National ID systems – Mexico, India, Portugal, Qatar
  - Border management systems – EU, Japan, Australia, NZ, US
  - Biometric enrollment and background screening services
- Primarily “In-Person” identity authentication
- Daon “guiding principles” and differentiators
  - Device, technology and vendor neutral
  - Open, standards-based platform approach
  - Built into the core technology all of the “ilities” – scalability, adaptability, flexibility, availability, reliability,





# Evolution to “remote identity authentication”



- Following the explosion in growth of Smartphones Daon decided to apply its core technology and guiding principles to the problem of “remote identity authentication” (e.g. on-line authentication)
- From this, IdentityX, Inc. was born

**IdentityX Mobile Authentication Solution Named in Leading Analyst Firm’s Annual “Cool Vendors” Security Solutions Report**

*Vendors selected for the “Cool Vendor” report are innovative, impactful and intriguing*

RESTON, Va., X June, 2012 – [IdentityX](#)<sup>®</sup>, an authentication solution, was profiled by Ant recently released [Cool Vendors in Security: Id Management, 2012](#)\* report. According to the report, the six companies covered provide enhanced technologies within the identity and (IAM) market.

On-Going Pilots with some of the worlds largest banks



**IdentityX™ Wins Cyber Security Category at American Technology Awards**

**Innovative security platform honored by TechAmerica Foundation**

**Reston, Va.** – Daon has been named the winner in the Cyber Security & Authentication category for the American Technology Awards, which bestows the only “Best Of” awards that recognize all technology products and services for the technology industry. The award was attributed to IdentityX, the mobile authentication solution that significantly decreases the risk of unauthorized transactions, protecting businesses and consumers against on-line fraud and hacking.



# TrustX and NSTIC



- Daon begin considering the possibility of providing its IdentityX capabilities as a cloud-based service offering to a range of Relying Parties. At the time we dubbed this service as a “Digital Identity Authority” (DIA)
- Established TrustX Technologies, Inc. (a subsidiary of IdentityX) as the incubator for the DIA concept
- Announcement of NSTIC Grants Competition
- Daon 1-of-5 first round awardees



# Daon Key Objectives for our NSTIC Involvement



- Create a full-service IDP (TrustX IDP) that:
  - Is based on IdentityX authentication technology
  - Conforms to Daon guiding principles
  - Aligns to NSTIC guiding principles
  - Supports multiple authentication protocols and trust frameworks
  - Is assessed and approved compliant with various authorities:
    - Kantara Initiative
    - SAFE-BioPharma
    - FICAM
  
- Market this capability to government and commercial customers nationwide:
  - Make TrustX IDP accessible via FCCX
  - Make TrustX IDP accessible via Criterion AXN
  - Make TrustX IDP the “strong authentication” platform for other IDPs such as ID.me
  - Market directly to a variety of RPs



# Advancing Commercial Participation in the NSTIC Ecosystem



Major  
Bank

PayPal

PURDUE  
UNIVERSITY



AMERICAN ASSOCIATION  
OF AIRPORT EXECUTIVES



# What are we investigating?



- Suitability of strong, mobile-based authentication technology (including biometrics) for online authentication
- Willingness of RPs to move to external identity/credential providers and how this fits within their business models
- Acceptance of subscribers
- Capability of existing trust frameworks (& certification schemes) to support these scenarios & technology
- Degree of interoperability achievable



# Our Pilot Elements



Technology



Trust  
Frameworks

Research

Operational  
Pilots





# Core Technology: IdentityX

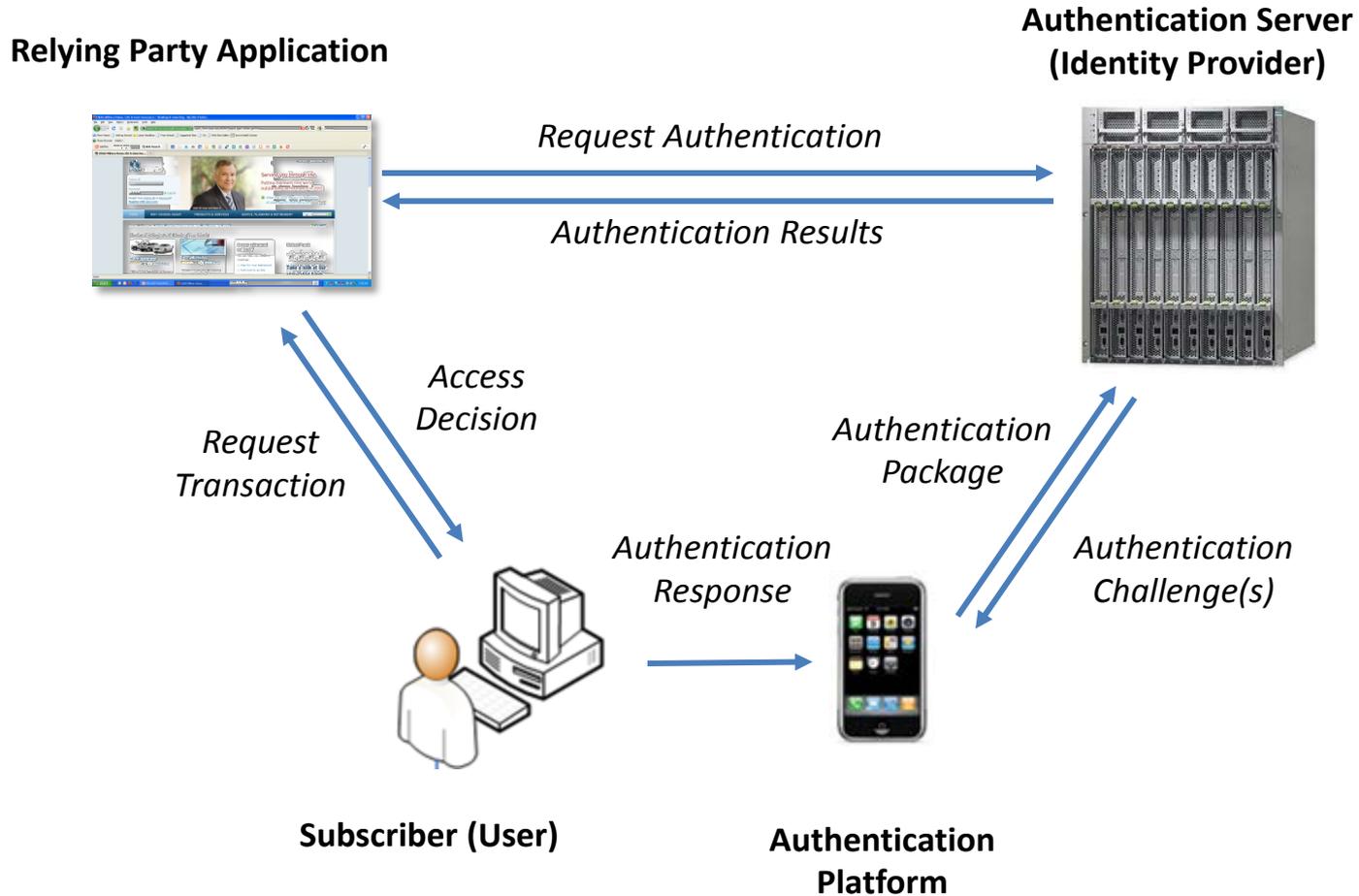


- A unique risk-based, multi-factor authentication capability that leverages latest generation smart phones (e.g., iPhone, Android, Windows Phone, Blackberry, ), smart tablets (e.g., iPad/Playbook) and traditional mobile devices
- IdentityX technology combines multiple authentication techniques for greatest identity confidence:
  - Device (What you have)
  - PKI Certificate (What you have)
  - PIN/PW (What you know)
  - Face (Who you are)
  - Voice (Who you are)
  - Palm (Who you are)
  - GPS (Where you are/context)
  - OOB OTP (What you have)
  - (other as devices enabled)
- Placing biometric levels of identity assurance in the hands of consumers
- Designed to run both as an in-app framework and out-of-band authentication product





# Technology - IdentityX





# Uniquely You

From social networking to your bank, your e-health records, favorite online shopping sites, brokerage firms and much more, IdentityX secures your identity and online transactions with multiple service providers. IdentityX provides risk-based authentication, allowing you to choose the level of security based on the value of the transaction.



# IdentityX<sup>®</sup>

## Video Introduction to IdentityX

<http://www.youtube.com/watch?v=Du08ccwaVEg>

- Based on IdentityX authentication we have:
  - Created an platform and service offering for delivering highly secure authentication services to businesses and consumers
  - A multi-tenant service hosting multiple applications from different Relying Parties
  - Operating within multiple trust frameworks

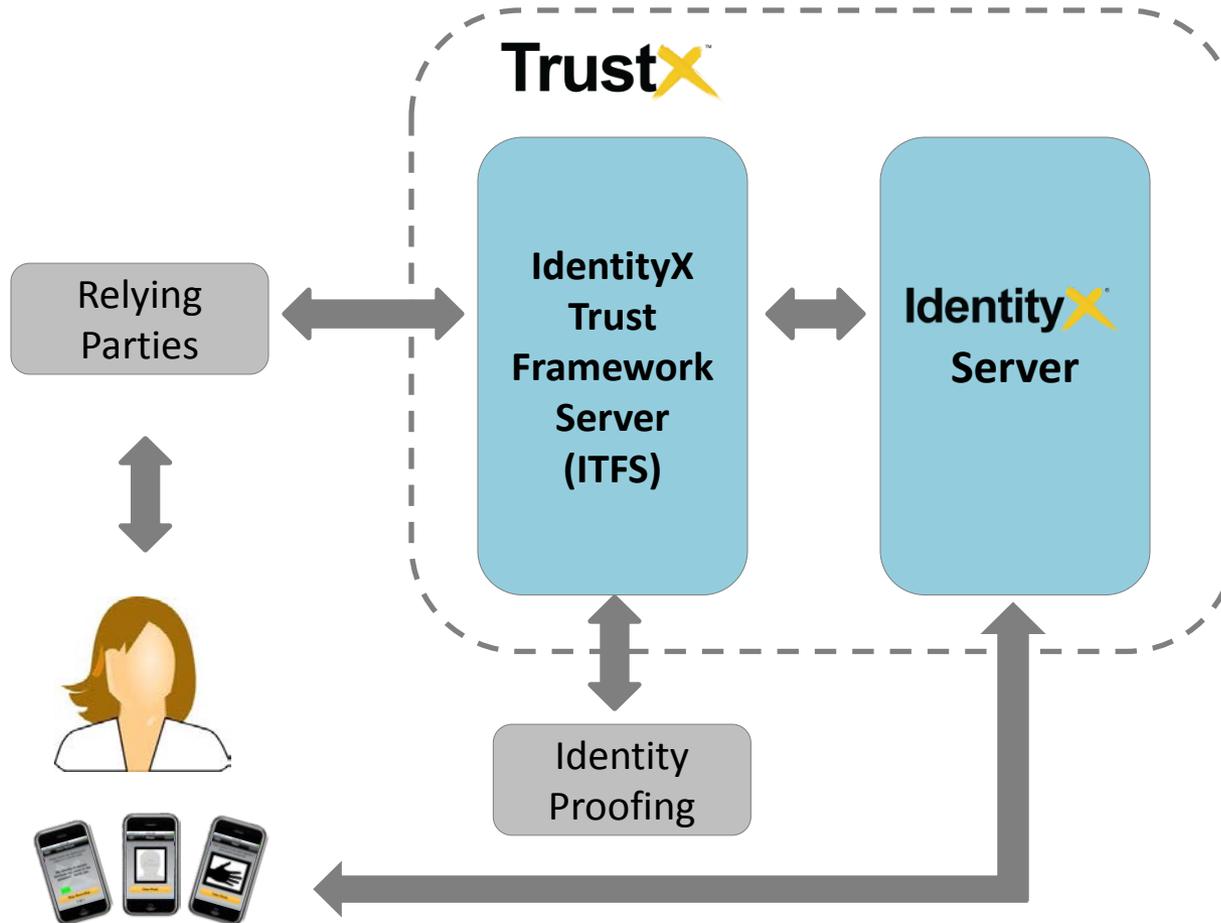


## Identity Provider Service

- Full IDP service:
  - Identity proofing (via partner)
  - Hold min set of data
  - Credentialing
- Single credential can be bound by multiple RPs
- Support subscriber approved sharing of identity data
- LOA3 for all

## Credential Service

- Strong credential issuance, management, verification
- RP performs ID proofing & holds identity data
- Process to bind credential to identity (sponsorship)
- RPs independently bind
- Single credential can be bound to multiple RPs



# ITFS Capabilities

- Multi-tenancy
- Standard WebSSO interfaces
  - OpenID Connect & SAML2
- Sign-Up/Sign-On process
- ITFS & RP administration
  - RP onboarding
  - Lifecycle functions
- RP administrator portal
  - RP applications & subscribers
  - Sponsorship
  - Account blocking/unblocking
- Subscriber portal
  - Profile management
  - Self-service support (e.g., lost/new device)
- 3<sup>rd</sup> party identity proofing
- Transaction auditing

## Sample Administrative "Dash Boards"

TrustX Administration Console - Mozilla Firefox

TrustX Administration Console

Administration Console (TrustX System Admin) | Praveen.Shivashankar@Daon.com

Home

- Subscribers Blacklisted (0/25): + 0 %
- Subscribers Active (20): + 80 %
- Subscribers Invited (5): + 20 %
- IdentityX Instances Active (1): + 100 %
- Relying Parties Active (6): + 100 %
- Relying Parties Blocked (0): + 0 %

TrustX Administration Console - Mozilla Firefox

Welcome

Hi Praveen.Shivashankar@Daon.com

Welcome to the TrustX Administration Console.

You are currently at LOA: 2.

TrustX Administration Console

- Subscribers Active (5): + 7
- Subscribers Blacklisted (0): + 71 %
- Subscribers Invited (2): + 0 %
- Subscribers Invited (2): + 29 %

TrustX Administration Console

RP AcademyOfPetClinicians

- Verifications Successful (22): + 92 %
- Verifications Failed (0): + 0 %
- Verifications Successful last day (0): + 0 %

Application	Request Received	Subscriber Id	LOA	Result	Authentication	Actions
PetClinicApp	11-06-2013 01:04	4#1fmgjGjeETxrdyggUCPS	2	Success	New	[i]
PetClinicApp	11-06-2013 00:31	4#1fmgjGjeETxrdyggUCPS	3	Success	New	[i]
PetClinicApp	11-06-2013 00:29	4#1fmgjGjeETxrdyggUCPS	2	Success	New	[i]
PetClinicApp	11-05-2013 23:48	4#1fmgjGjeETxrdyggUCPS	3	Success	New	[i]

20 Per Page (Total of 24 records)

Page 1 of 2

fPetClinicians

Role	Status	Actions
TrustXAccountAdmin	Active	[i]
09 RelyingPartySuperUser	Active	[i]
XNe3 RelyingPartyAdmin	Invited	[i] [x]
PS TrustXAccountAdmin	Active	[i]

of 7 records)

Page 1 of 1

## Activate Your TrustX Account

You have been invited to use TrustX to secure your on-line interactions with Administration Console.

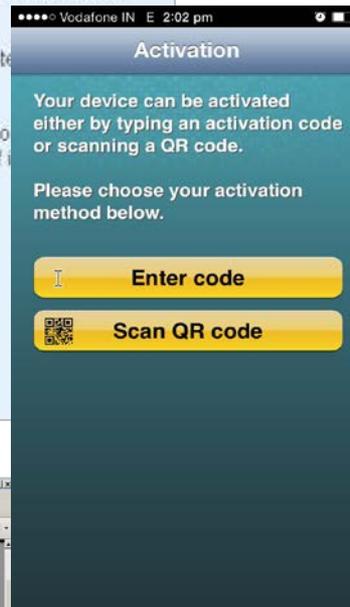
To begin using TrustX to protect your identity and more securely communicate with Administration Console please activate your TrustX account now.

If you already have a TrustX credential, you still need to click the link below to Administration Console to begin accepting your TrustX credential as proof of

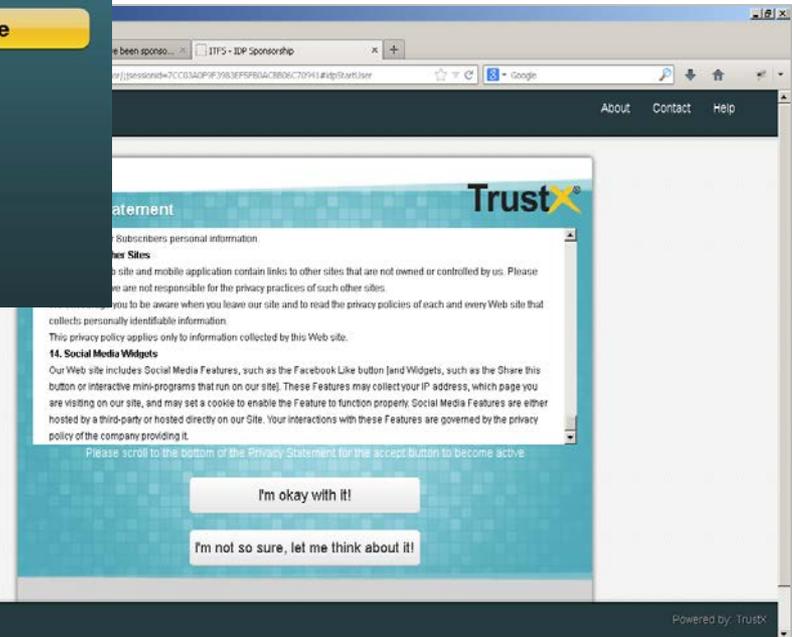
**Yes, Activate my TrustX Account**

Looking for more information about TrustX?  
Please visit the [TrustX website](#).

Regards,  
The TrustX Team



Browser and Mobile Device Screen shots associated with enrollment . We will walk through this in some detail in a few minutes.



# What is different about us?

- Dynamic risk based multifactor/multi-method
- Mobile authentication platform that users already have
- Non-traditional token types, including biometrics
- Trust elevation
- Equivalence
- Modular model –  
“full IDP” and “CSP only”
- Supporting multiple RP interfaces –  
SAML2 & OpenID Connect





InCommon®

SAFE-BioPharma.



- Migrating our TrustX IDP to work within multiple trust frameworks
- Provides CHOICE to subscribers and Relying Parties
- Operate within a multiple IDP environment
- Will assess existing trust frameworks to support:
  - Risk-based multi-factor/multi-method
  - Trust elevation
  - Biometrics
  - Equivalence

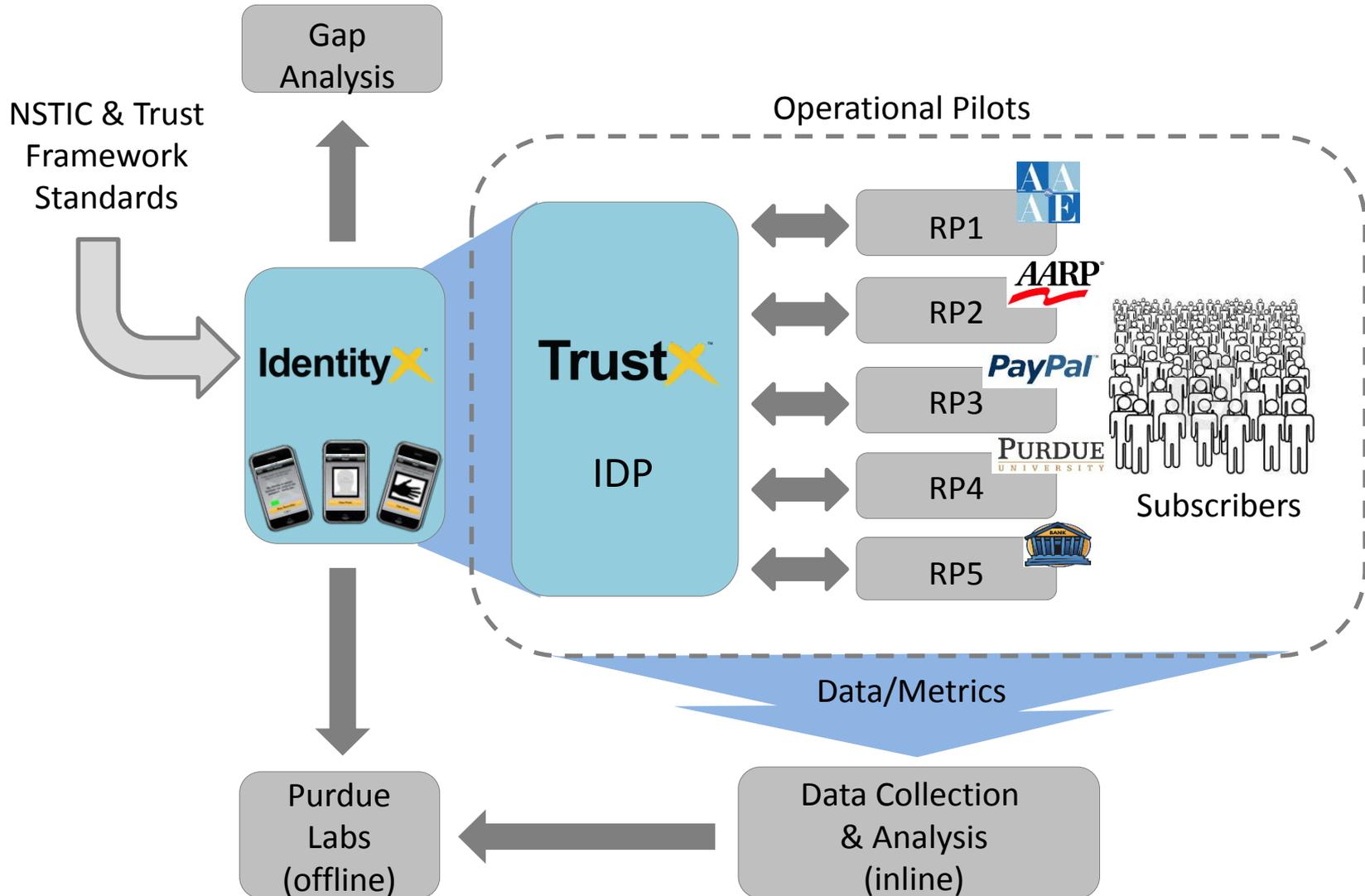


- Biometric Standards, Performance & Assurance Laboratory (BSPA)
- Center for Education and Research in Information Assurance and Security (CERIAS)
- Practical research
  - Offline - Laboratory
  - Online – Analyzing data from the operational pilots
- Areas
  - Usability
  - Accessibility
  - Privacy
  - Security
  - Performance
  - User acceptance





# Operational Pilots





# Steps to get there



- Extend the technology to fit within federated environment and meet certification criteria
  - Involves requirements analysis & trade-offs
  - Supported by research assessments
  - Identify gaps in existing TF standards along the way
- Stand up the enhanced IDP/CSP
- Integrate RP applications
  - Work with RPs on pilot plans (use cases, populations, approaches, schedule, etc.)
- Work through Trust Framework certification and back fit RP integrations to align
  - Work with assessors and consultants
- Collect and analyze metrics to evaluate progress, success
- Work with other pilots to identify opportunities to work together



# Lessons Learned (so far)



- RP adoption challenges
- Componentized identity models still in their infancy
- Methods do not exist for assessing equivalency of token types
- Conformance to standards inhibits some functionality
- Privacy enhancements can sometimes add business difficulties
- Interoperable credentials have non-obvious implications
- Lack of standards around some critical processes/interfaces
- Standards are biased towards hard tokens and secrets
- Standard interfaces/profiles not targeted at 'in-band' applications
- Standards/trust frameworks don't seem to acknowledge that someone has to pay
- Immaturity of some standards
- Standards not keeping pace with market demands

See 16 Dec IDESG report out for more details:

[https://www.idecosystem.org/filedepot\\_download/1369/1039](https://www.idecosystem.org/filedepot_download/1369/1039)



## ■ General use case:

- Relying party has an existing relationship with a set of subscribers (customers, members, partners, staff, etc.)
- RP wants a strong authentication solution (credential) for its higher assurance applications/transactions
  - RP maps its transactions to a set of authentication methods (low to high)
- RP is willing to use (try using) an external service
  - RP may operate within a trust framework/federation
- In general, the RP performs its own identity proofing and holds identity data, which is bound to the strong credential
  - However some RPs may desire to also utilize 3<sup>rd</sup> party identity proofing, particularly for new subscribers
- RPs sponsor a subscriber for a TrustX credential; however once issued, this credential may be bound to multiple RPs
- Subscriber uses their credential in lieu of passwords



# Use cases



Relying Party	Use Case	Pilot Population	Potential Base	Notes
AAAE	Member portal access	AAAE members	5000	Ability to pilot different subsets of population with different access concerns
AARP	PHR	Members	40M	Focus likely to be more on usability than security
Purdue	Passport (OpenBadge)	Students/ Faculty	85K	Year 2 pilot
Major Bank	On-line and mobile banking	Bank customers	50M	Year 2 pilot
PayPal	eCommerce	Under NDA	TBD M	Year 2 pilot

- Improve members' online experience
- Facilitate new services requiring higher levels of identity assurance
- Protect member information
- Reduce the number of individual identity credentials required
- Give more control to the individual (member)
- Support family and inter-generational applications
- Investigate usability and user acceptance

## ■ AARP Health Record (SM)

- An easy-to-use, online tool designed to help people over 50 manage their family health care needs.
- Lets you safely store and access critical health information such as medications, allergies, blood type, immunizations and emergency and provider contact information.
- Lets you print an easy-to-read pocket card with vital stats. You can also quickly access your family's health information from any computer, mobile phone or tablet.
- (May be particularly relevant in certain geographic regions, i.e., Gulf Coast, Tornado Alley, etc.)
- Helps you prepare for emergencies by allowing you to store your family's health information in one easy-to-access location.
- Is free to AARP members. It is available at [www.aarp.org/healthrecord](http://www.aarp.org/healthrecord) and <http://www.aarp.org/mihistorialdesalud>.
- Connects with Microsoft HealthVault, a security- and privacy-enhanced online data repository that enables users to organize, store, share and use their personal health information as desired.

AARP The Magazine | AARP Bulletin | In Your State | AARP Foundation | Discounts | Community | More | My Account | Register | Login

AARP MEMBERSHIP: JUST \$16 A YEAR  
**JOIN** **RENEW** EN ESPAÑOL **AARP** Real Possibilities HELP | A to Z Search AARP.org

MEMBER BENEFITS HEALTH WORK & RETIREMENT MONEY HOME & FAMILY ENTERTAINMENT FOOD TRAVEL POLITICS GAMES  
Medicare & Medicaid Health Insurance Conditions & Treatments **Healthy Living** Drugs & Supplements Brain Health Caregiving Products

**log in to AARP.ORG**

Please register or log in to use AARP Health Record, subscribe to newsletters, comment on articles and so much more!

### Registered Already?

Enter the email address and the password you selected during registration.

**Email Address:**

**Password:**

[Forgot your password?](#)

**Log In**

OR

**Log in using your existing social account:**

OR Log in with your high assurance credential

### Not yet registered?

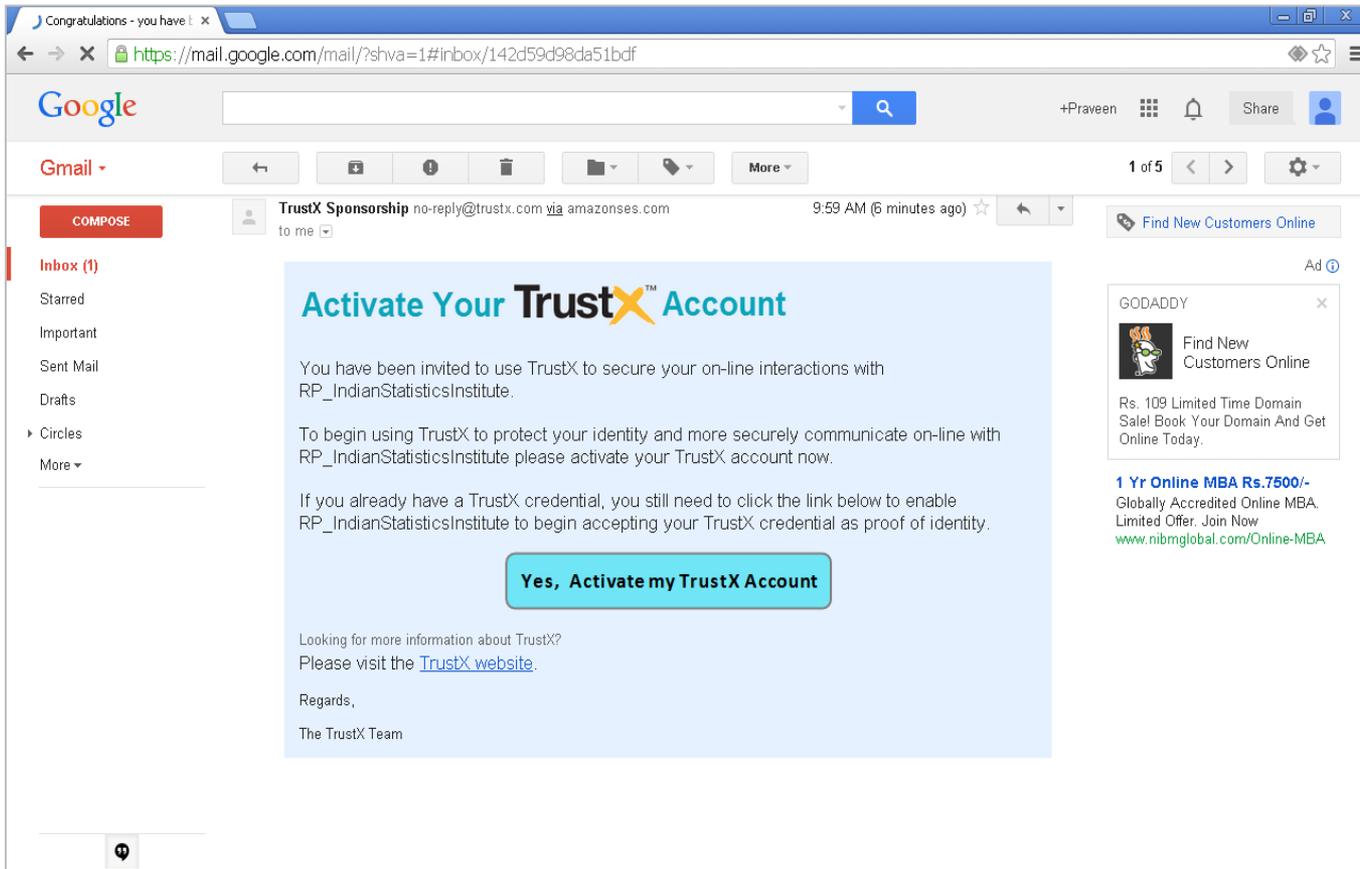
Register with AARP.org now!

- Save your top games scores.
- Get discount alerts and our webletter, with the very best of AARP.org each week.
- As a member, manage your family's important health information with AARP Health Record

**REGISTER >**

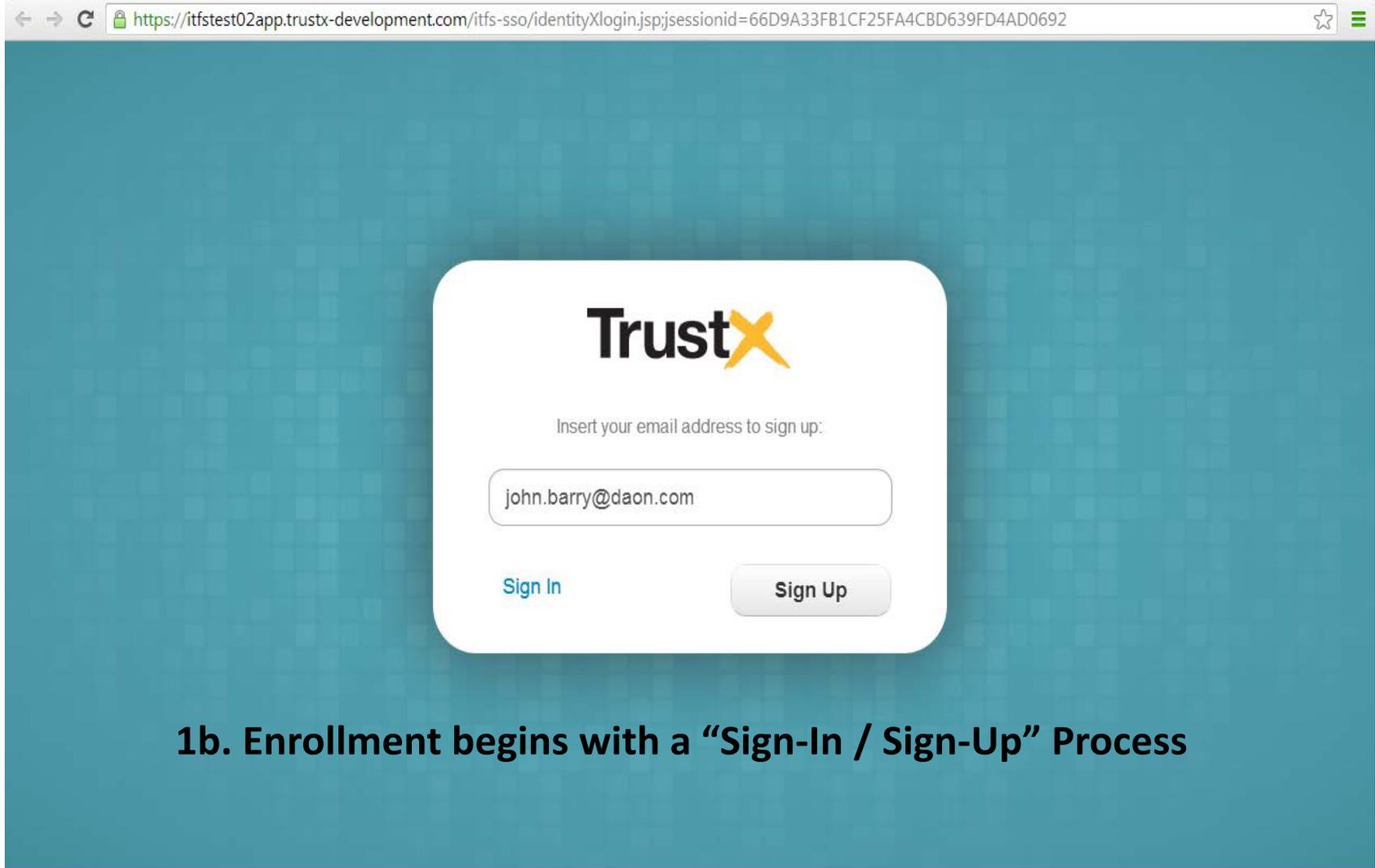
Sitemap | RSS | Your Privacy Rights: Privacy Policy | Terms of Service | Copyright Information

# AARP Use Case – Health Record Access Enrollment



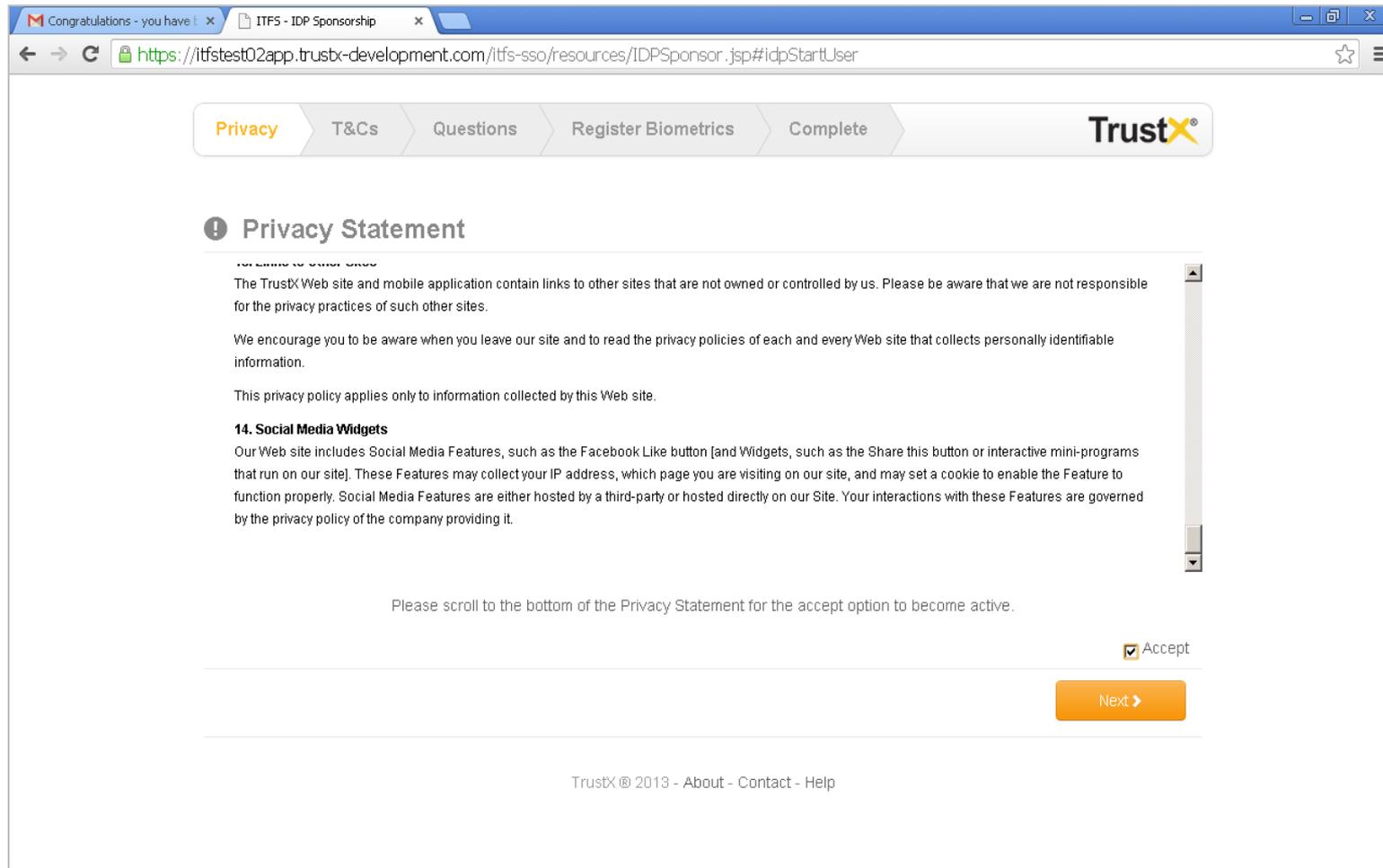
## 1a. Enrollment begins with a “Sponsorship Email” OR ...

# AARP Use Case – Health Record Access Enrollment



## 1b. Enrollment begins with a “Sign-In / Sign-Up” Process

# AARP Use Case – Health Record Access Enrollment



Privacy T&Cs Questions Register Biometrics Complete TrustX®

## ! Privacy Statement

The TrustX Web site and mobile application contain links to other sites that are not owned or controlled by us. Please be aware that we are not responsible for the privacy practices of such other sites.

We encourage you to be aware when you leave our site and to read the privacy policies of each and every Web site that collects personally identifiable information.

This privacy policy applies only to information collected by this Web site.

#### 14. Social Media Widgets

Our Web site includes Social Media Features, such as the Facebook Like button (and Widgets, such as the Share this button or interactive mini-programs that run on our site). These Features may collect your IP address, which page you are visiting on our site, and may set a cookie to enable the Feature to function properly. Social Media Features are either hosted by a third-party or hosted directly on our Site. Your interactions with these Features are governed by the privacy policy of the company providing it.

Please scroll to the bottom of the Privacy Statement for the accept option to become active.

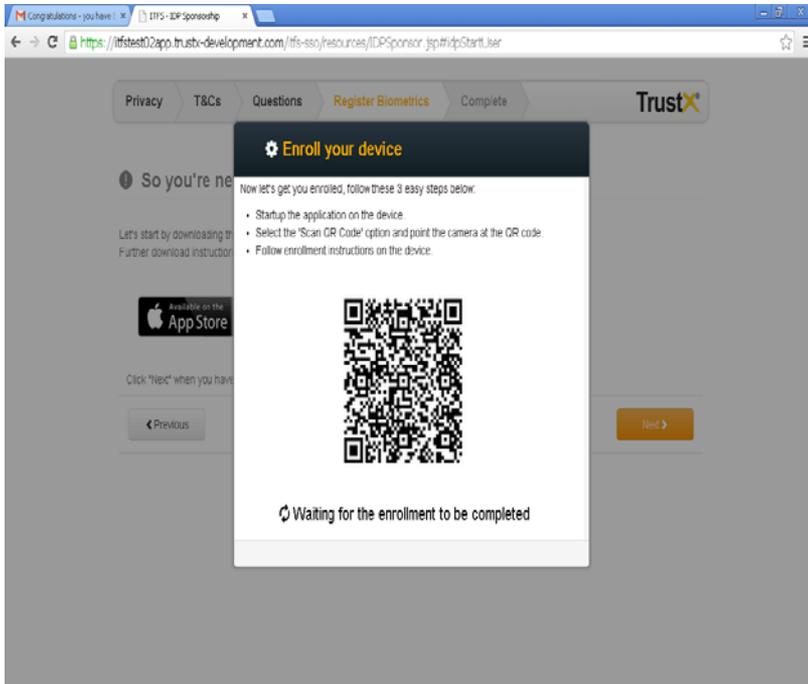
Accept

Next >

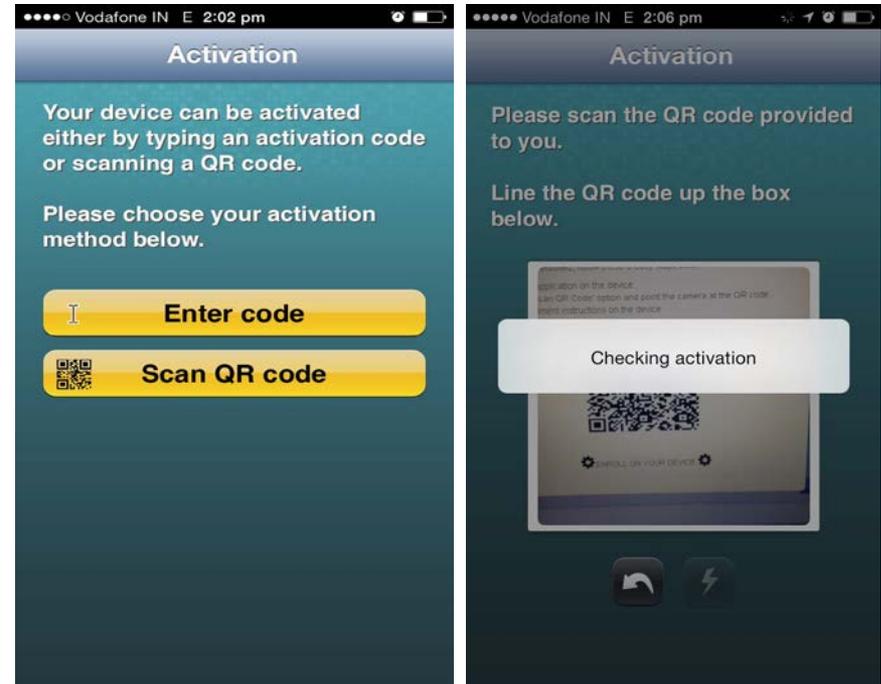
TrustX © 2013 - About - Contact - Help

## 2. Accept TrustX Privacy Policy and Terms and Conditions of Use

# AARP Use Case – Health Record Access Enrollment



Browser

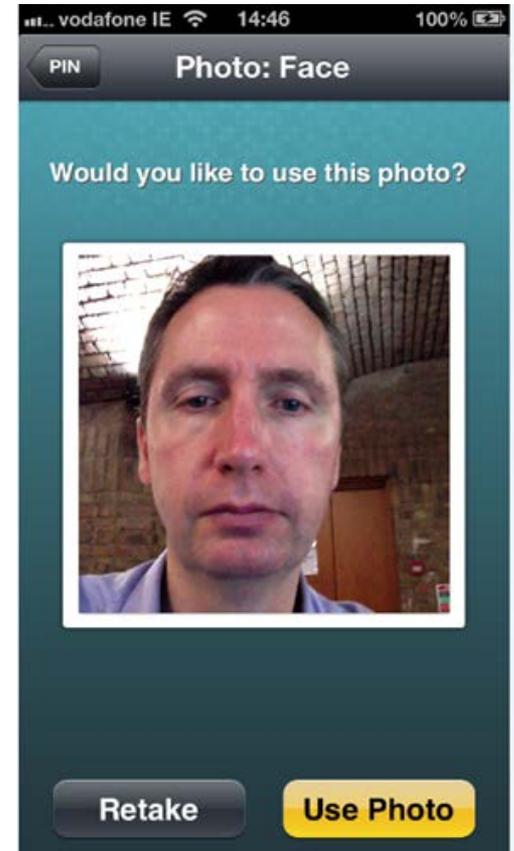
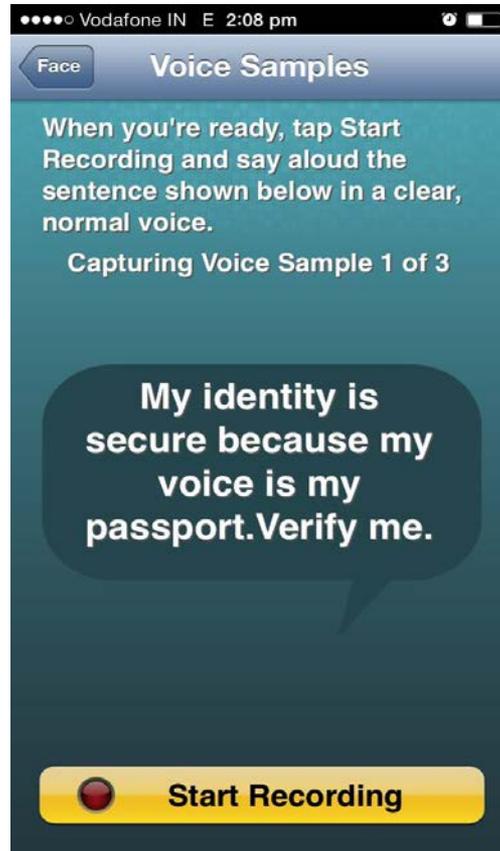
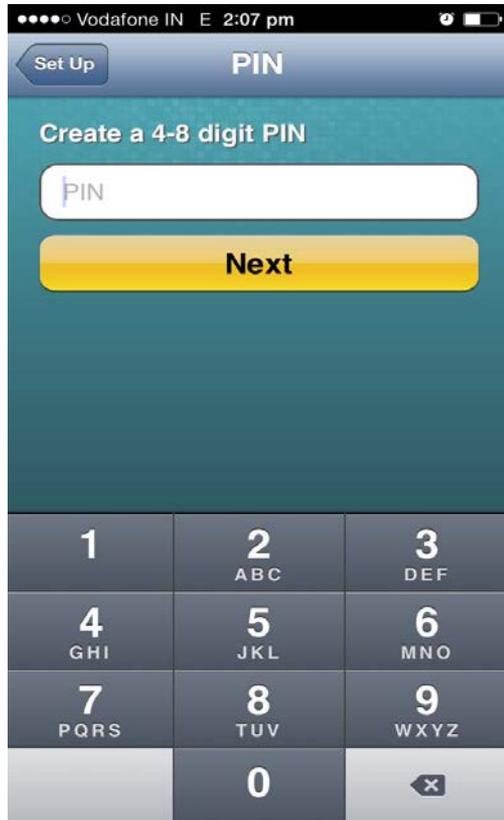


Applicant's Mobile

**3. Download TrustX Authenticator APP**

**4. Scan the QR code with the APP to link the enrollment record to the device**

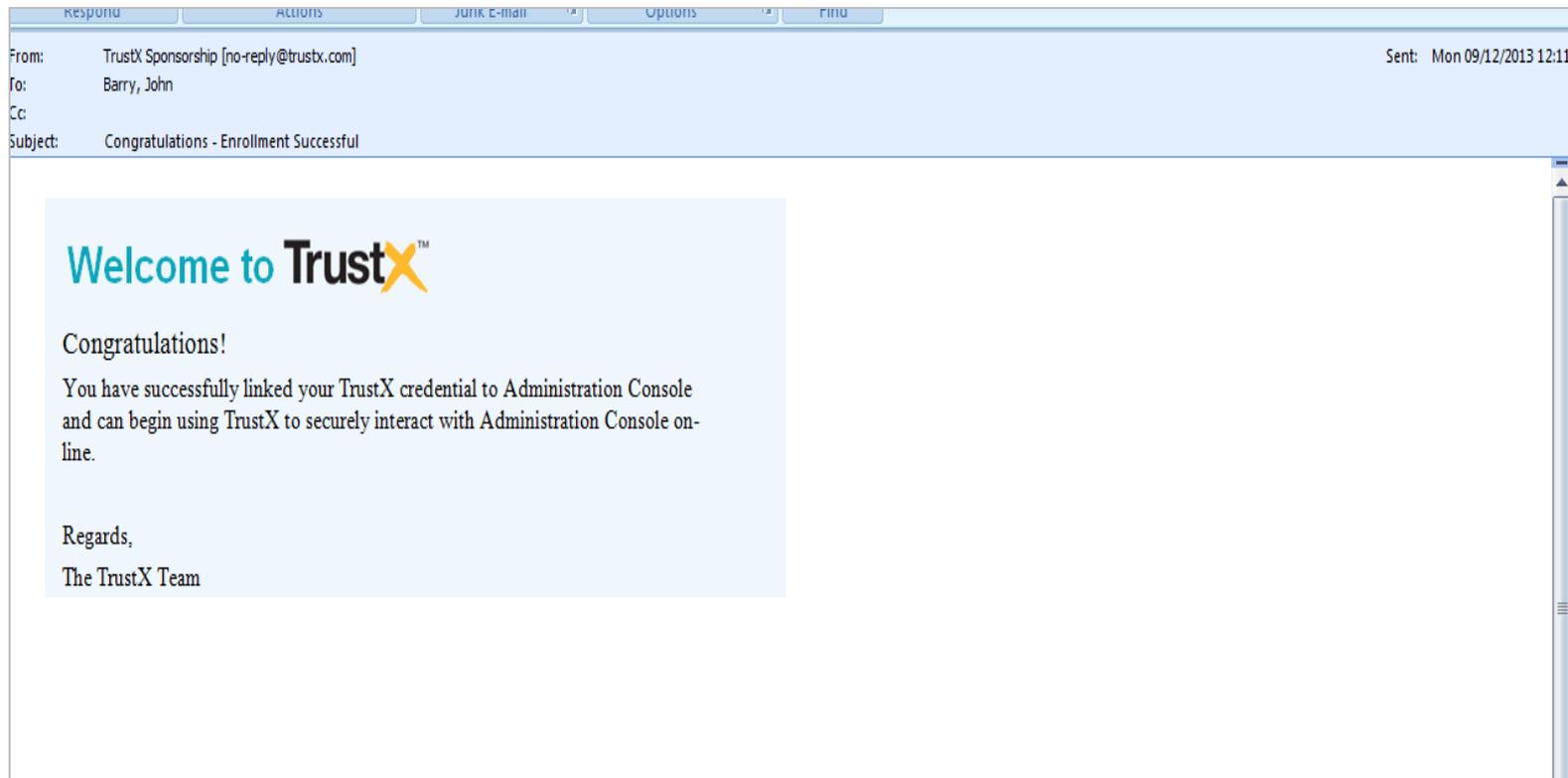
## Enrollment



5. Select a PIN

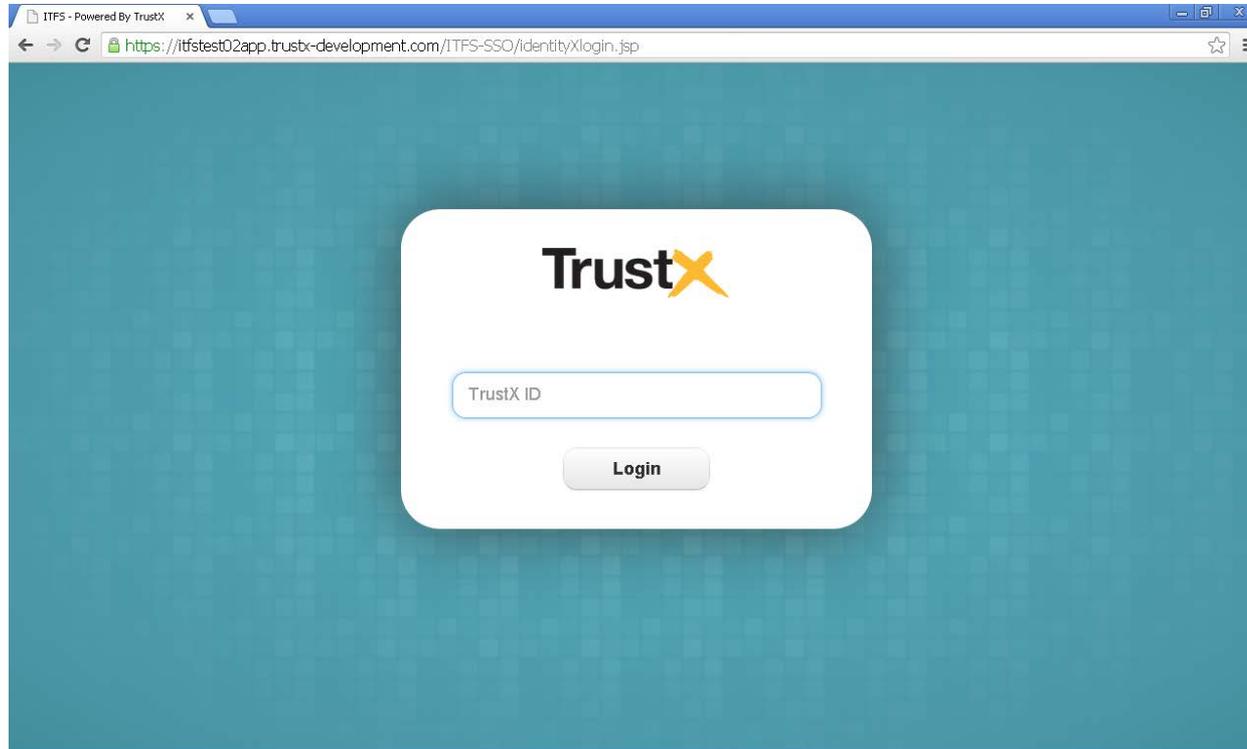
6. Enroll Biometrics (Face and Voice)

## Enrollment



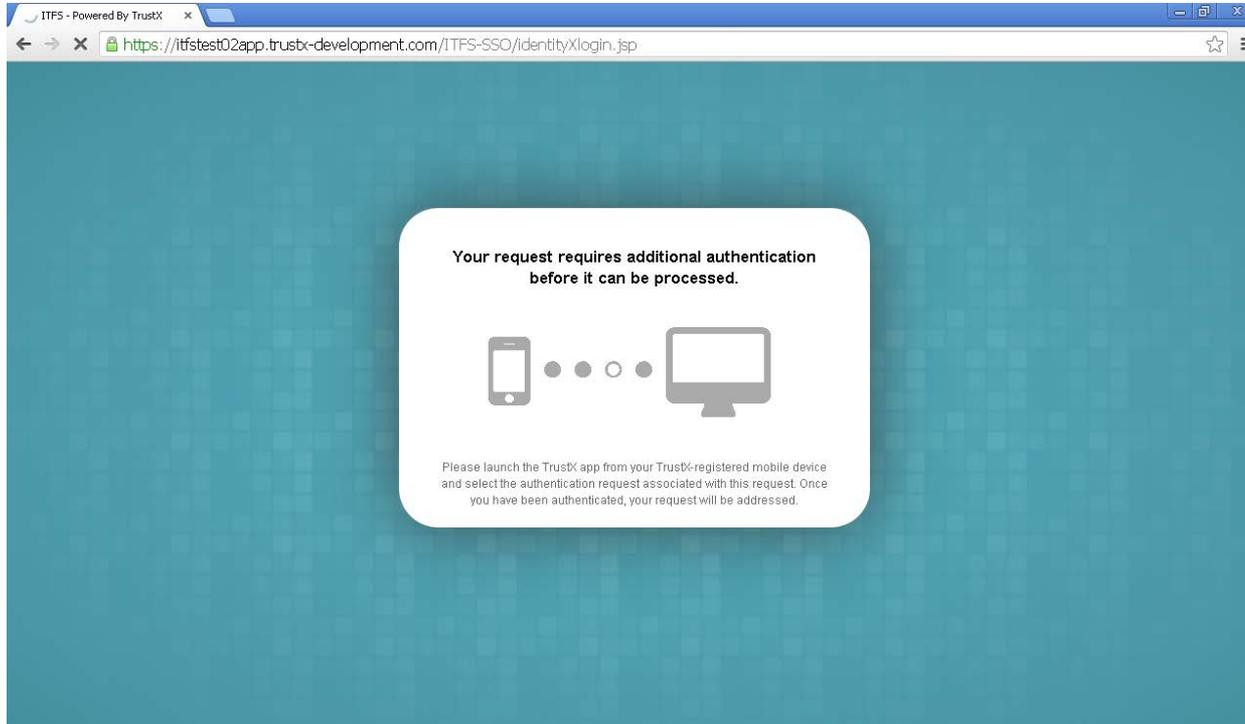
## 7. Welcome email

# AARP Use Case – Health Record Access Usage



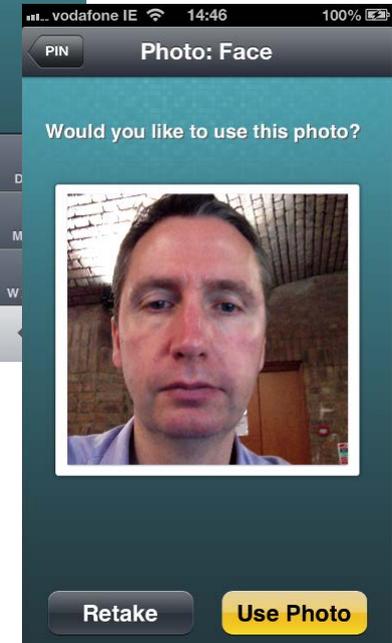
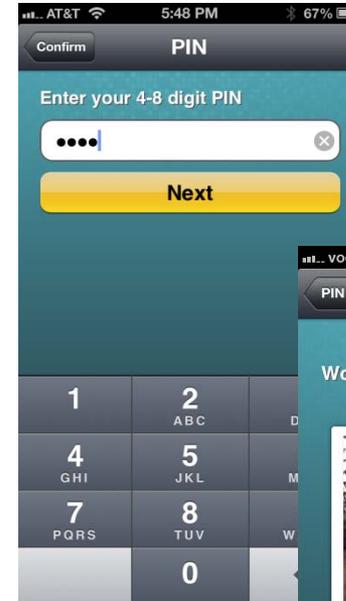
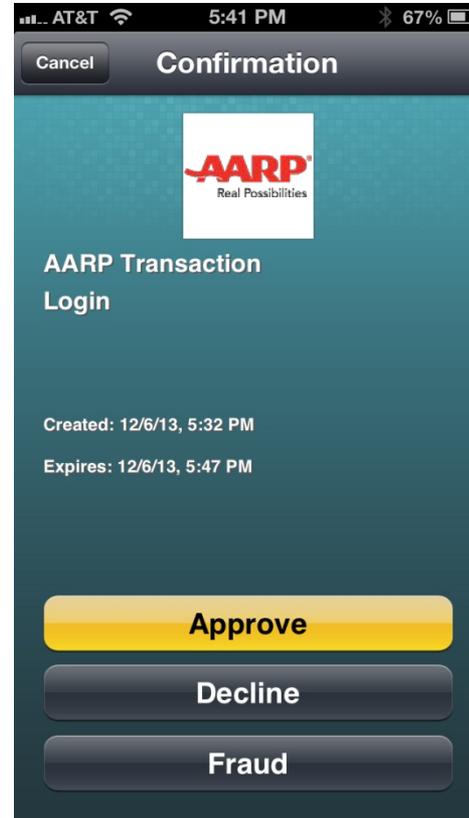
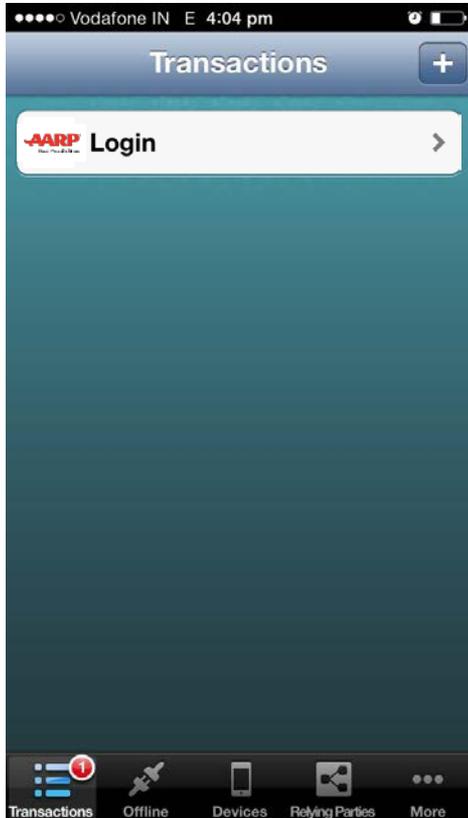
1. Subscriber enters their TrustX ID (e.g. their email address)

# AARP Use Case – Health Record Access Usage

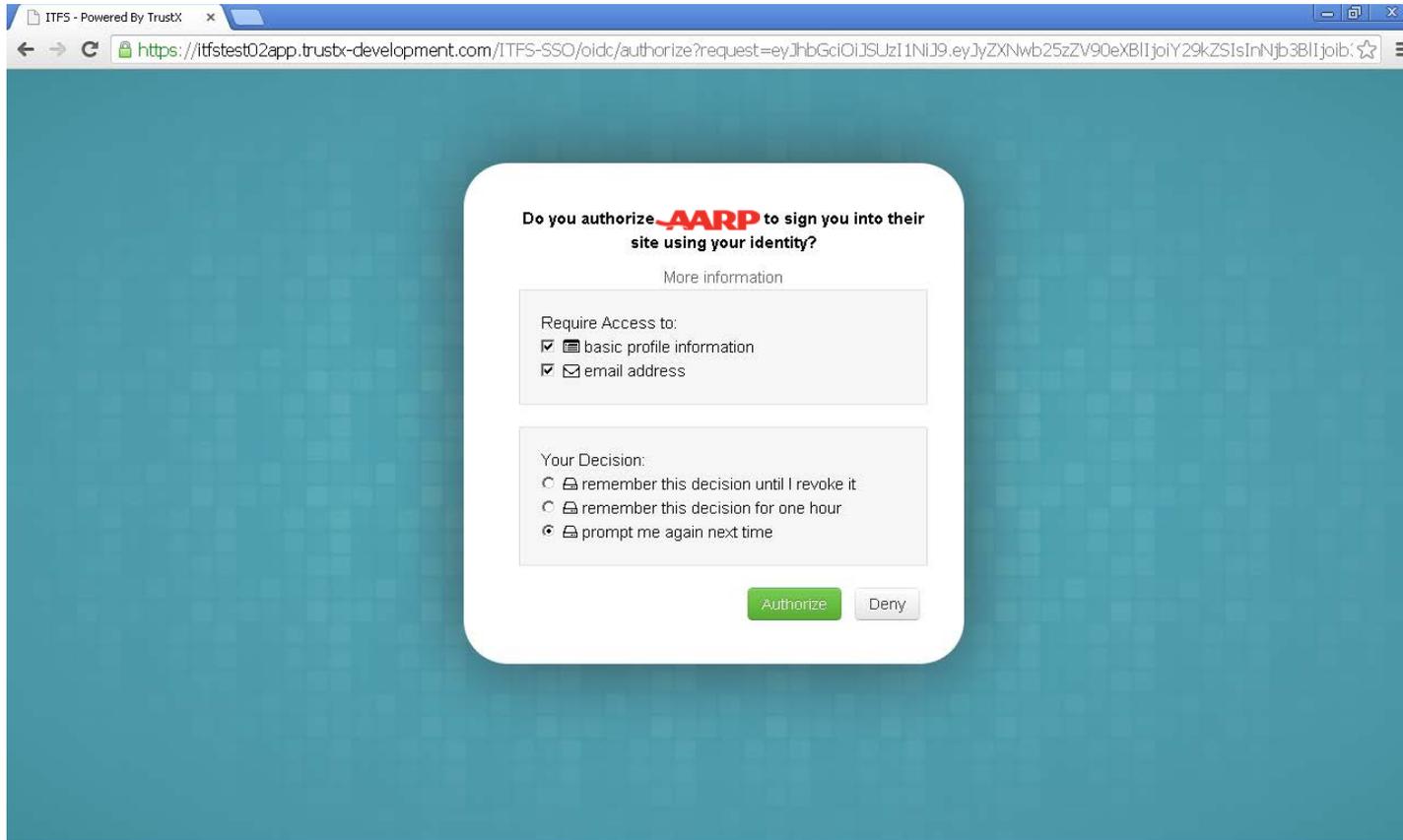


**2. Based on Relying Party authentication policies, TrustX sends authentication challenges to the Subscribers mobile**

## Usage



3. Subscriber opens APP to view pending transactions
4. Approves the AARP Log-in
5. Responds to authentication challenges (PIN and/or Face and/or Voice)



**6. Subscriber determines what information they will / will not share with the Relying Party. (Note: The Subscriber can set a default policy so they don't need to perform this step each time).**

The screenshot displays the AARP website's health record interface. At the top, there is a navigation bar with links for 'En Español', 'Join/Renew', 'Find a Discount', 'Donate', 'Volunteer', 'Video', 'Music', 'My Account', 'Community', and 'Help'. A search bar is also present. Below this is the AARP logo and a secondary navigation bar with links for 'AARP The Magazine', 'AARP Bulletin', 'In Your State', 'AARP Foundation', 'Discounts', 'Community', and 'More'. A red banner below the navigation bar features the AARP logo, the tagline 'Real Possibilities', and buttons for 'DONATE' and 'VOLUNTEER'. The main content area is titled 'AARP HEALTH RECORD' and shows a user profile for 'Mike Lee'. The profile has tabs for 'Home', 'Basic Information', 'Contacts & Providers', 'Health History', 'Medications', and 'Allergies'. Below the tabs, there is a section for 'Below are the profiles of people you're caring for. Click on "Edit profile" to update one.' which lists 'Mike Lee' with 'Edit profile' and 'Share profile' buttons. On the left side, there is a sidebar with a 'THANK YOU, VETERANS.' banner and a 'most popular ARTICLES' section.

7. TrustX returns subscribers “identity information” to RP which then makes the access decision.

Mike Lee ▾ [En español](#) | [Help](#) | [Privacy](#) **Print** **Signout**

**Home** **Basic Information** **Contacts & Providers** **Health History** **Medications** **Allergies**

Fill out your information in the fields below (\* indicates a required field).

**Name\***  
Mike   Lee

**Date of Birth\***  
Aug ▾  ▾  ▾

**Gender**  
 Female  Male

**Blood Type**  
 ▾  I don't know

**Address\***  
P.O. Box or Street

City or Town  Country  ▾ State  ▾ Zip/Postal Code

301-  Home ▾

**Save**

Mike Lee | En español | Help | Privacy | Print | Signout

Home | Basic Information | **Contacts & Providers** | Health History | Medications | Allergies

Organize contact information for friends and family, doctors, pharmacies and insurance providers.

### Emergency Contacts (0)

Name	Relationship	Email
<input type="text"/>	<input type="text"/>	<input type="text"/>

### Health Care Providers (0)

Health Care Providers	Specialty	Email
<input type="text"/>	<input type="text"/>	<input type="text"/>

### Pharmacies (0)

Pharmacy	Location
<input type="text"/>	<input type="text"/>

### Medical Insurance (0)

Plan Name	Member ID	Phone
<input type="text"/>	<input type="text"/>	<input type="text"/>

### Dental Insurance (0)

Plan Name	Member ID	Phone
<input type="text"/>	<input type="text"/>	<input type="text"/>

### Vision Insurance (0)

Plan Name	Member ID	Phone
<input type="text"/>	<input type="text"/>	<input type="text"/>

Mike Lee | En español | Help | Privacy | Print | Signout

Home | Basic Information | Contacts & Providers | **Health History** | Medications | Allergies

Keep track of medical conditions and procedures, vaccines and family history.

### Health Conditions (0)

Condition	Age At Diag
<input type="text"/>	<input type="text"/>

### Surgeries & Procedures (0)

Surgery or Procedure	Date
<input type="text"/>	<input type="text"/>

### Vaccines (0)

Vaccine	Date
<input type="text"/>	<input type="text"/>

### Family History (0)

Condition	Relationship
<input type="text"/>	<input type="text"/>

Mike Lee | En español | Help | Privacy | Print | Signout

Home | Basic Information | Contacts & Providers | Health History | **Medications** | Allergies

Stay on top of prescription and over-the-counter drugs, vitamins and supplements. Would you like to fill out this page with information imported from HealthVault? Check to see if your pharmacy connects to HealthVault.

### Medications (0)

Medication	Dose	Frequency	Notes
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Save Medication

### Vitamins (0)

Vitamin	Dose	Frequency	Notes
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Save Vitamin

### Supplements (0)

Supplement	Dose	Frequency	Notes
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Save Supplement

## AARP HEALTH RECORD

The screenshot displays the AARP Health Record interface. At the top right, there is a "Microsoft HealthVault" logo. Below it, the user's name "Mike Lee" is shown with a dropdown arrow and an "Add a Profile" link. To the right are links for "En español", "Help", "Privacy", a "Print" button with a printer icon, a search icon, and a "Signout" button. The main content area has tabs for "Home", "Basic Information", "Medications", and "Allergies". The "Basic Information" tab is active, showing a list of profiles with "Mike Lee" selected. A red-bordered dialog box is overlaid on the page, containing the following text and options:

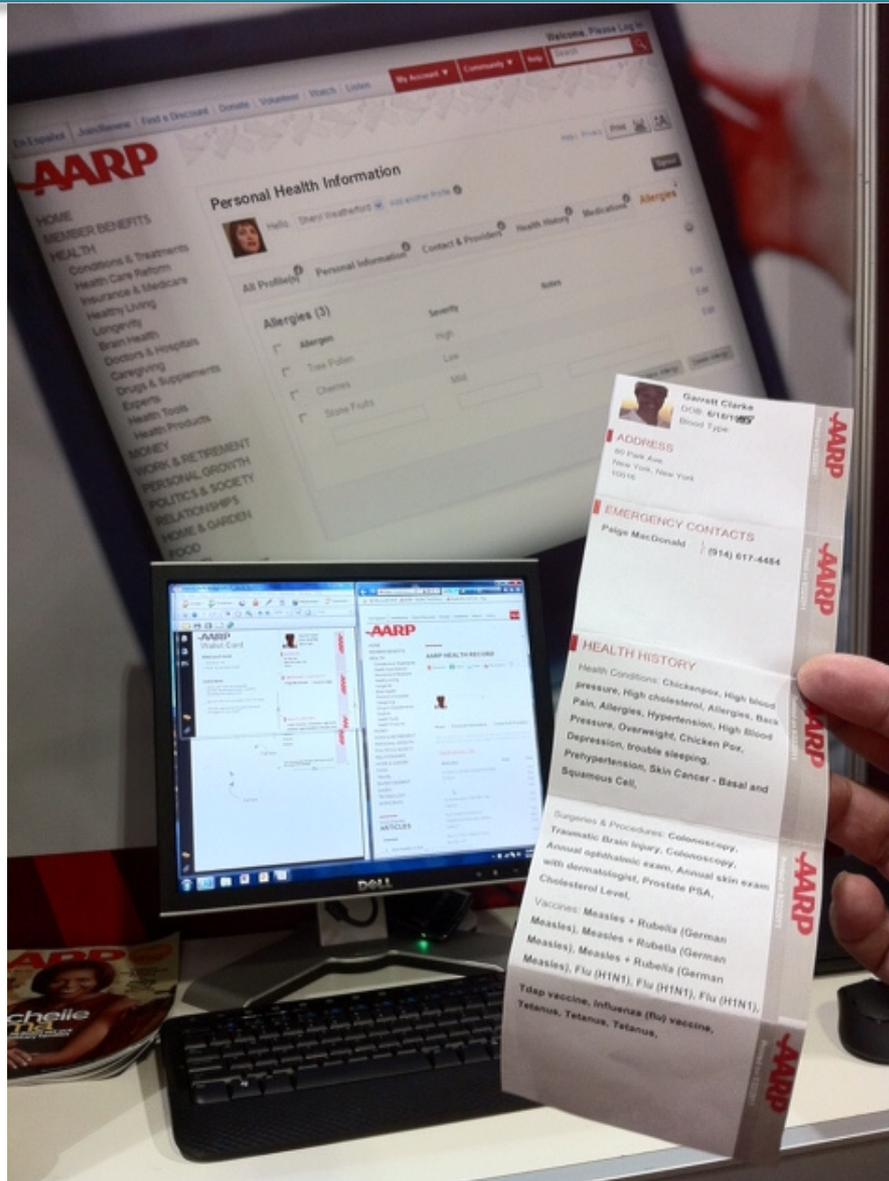
Check the boxes below to print your full record, sections of your record or a pocket-sized card with your vital information.

- The works
- Contacts And Providers
- Health History
- Medications
- Allergies
- Pocket card

The "Pocket card" option includes a preview of a card with the following details:

- XXXXXX X X
- DOB: 01/01/1985
- Blood Type: A+
- ADDRESS: 1025 Vermont Avenue Apt 05, Washington D.C., District of Columbia 20005

Below the options is a disclaimer: "Disclaimer: This is user-generated information. AARP cannot vouch for the accuracy of the information." and a "Print" button.





**Take control of your health**

Microsoft HealthVault is a trusted place for people to gather, store, use, and share health information online.

[Learn more](#)

You can also sign in with:

 Facebook  OpenID

 TrustX



Because you're accessing sensitive info, you need to verify your password.

curiouslee@gmail.com

Sign in

[Can't access your account?](#)

[Sign in with a different Microsoft account](#)

## ■ Use Case – Passport



- Learning system that demonstrates academic achievement through customizable badges
- Integrates with Mozilla OpenBadges
  - Using this infrastructure, any organization can use, create, and issue these badges
- Purdue has extended their existing Passport application to allow for multiple authentication options – e.g., FaceBook Connect
  - They are now integrating with TrustX
- 1<sup>st</sup> phase pilot
  - Class: IT34500, Automatic Identification and Data Capture
  - Badge: NSTIC 101
- Links:
  - <http://www.itap.purdue.edu/studio/>
  - Video: [http://www.youtube.com/watch?v=O41-BWJ\\_VE0](http://www.youtube.com/watch?v=O41-BWJ_VE0)
  - <http://openbadges.org/quickstart/>

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## Passport

show what you know

A **learning system** that demonstrates  
academic achievement through  
**customizable badges.**



## Apply for Beta

Purdue is accepting **test pilot applications** for a limited number of beta users so that instructors everywhere can explore **digital badges for learning**.

**Apply now.**



### Badge-powered flexible learning

Passport guides students through tasks by providing a framework to submit documents, share links, complete quizzes, or gather approvals. Instructors can follow each student's progress and connect badges with course objectives.



### Badge builder

With the system's badge-builder tool, instructors can select different styles, colors, icons and fonts for each badge, or upload their own images. They also can set expiration dates for challenges, or reset tasks when a student's first attempt is not satisfactory.



### Scorecard

Achievements — such as essays, online discussions, blog posts and podcasts, to name a few — can then be translated into a numeric-based evaluation system for grading purposes.



Welcome to **Passport**.



Log in with **Purdue Career Account**

or



Log in with **Facebook account**



Log in with **Google account**



Log in with **Passport account**

Don't have any of these accounts?  
[Create a Passport account.](#)

Passport v2.1.12, brought to you by [Purdue University](#).

Need help? Have trouble accessing this page because of a disability? Contact us at [studiohelp@purdue.edu](mailto:studiohelp@purdue.edu).



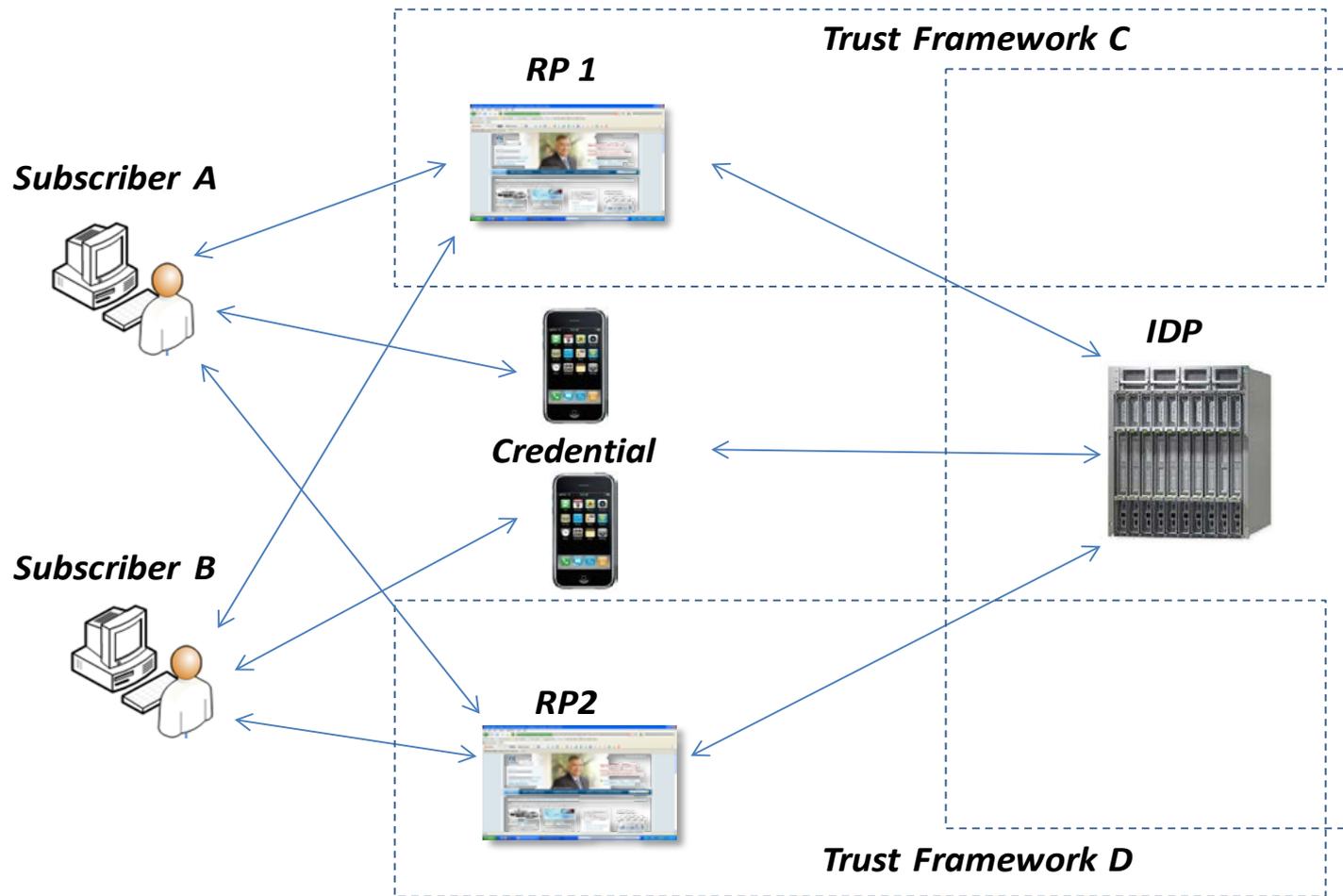
# Addressing Guiding Principles



Principle	Affirm	Investigate/Enhance
Privacy enhancing & voluntary	<ul style="list-style-type: none"> <li>• No PII stored on phone.</li> <li>• Authentication proportional to transaction risk level.</li> <li>• Opt-in pilots.</li> </ul>	<ul style="list-style-type: none"> <li>• Assess privacy</li> <li>• Investigate PETs</li> </ul>
Secure & resilient	<ul style="list-style-type: none"> <li>• Strong multifactor authentication</li> <li>• Server security assessment</li> <li>• High availability configuration</li> </ul>	<ul style="list-style-type: none"> <li>• Assess security, recommend improvements</li> <li>• Evaluate performance</li> </ul>
Interoperable	<ul style="list-style-type: none"> <li>• Supports multiple methods, hosted on multiple devices</li> <li>• Biometric independent</li> </ul>	<ul style="list-style-type: none"> <li>• Integrate with multiple trust frameworks</li> <li>• Demonstrate across multiple RPs</li> </ul>
Cost effective & easy to use	<ul style="list-style-type: none"> <li>• Use of existing mobile device is convenient and cost effective</li> <li>• RP/user choice of methods</li> </ul>	<ul style="list-style-type: none"> <li>• Assess usability, accessibility, and user acceptance</li> </ul>



# Interoperability Goal



# Schedule

