BUILDING A TRUSTED ENVIRONMENT

EVENT-BASED DATA ASSURANCE

PRIVATE AND CONFIDENTIAL
This project was a discovery phase, executed over the summer

<table>
<thead>
<tr>
<th>Date</th>
<th>Milestone</th>
<th>Agenda</th>
<th>Project participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 31&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Workshop 1</td>
<td>Review proposed ecosystem definition and high level target functional architecture</td>
<td>• DWP</td>
</tr>
<tr>
<td>June 21&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Workshop 2</td>
<td>Use case examples from private, public and third sectors; use case for visualisation</td>
<td>• Factern</td>
</tr>
<tr>
<td>July 4&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Workshop 3</td>
<td>Finalise landscape review</td>
<td>• HMRC</td>
</tr>
<tr>
<td>August 1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Workshop 4</td>
<td>Review potential viable economic models</td>
<td>• Idemia</td>
</tr>
<tr>
<td>August 15&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Workshop 5</td>
<td>Review use case visualisation</td>
<td>• Inidsol</td>
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- • Mydex
- • Santander
- • tScheme
- • Zonafide
Hypothesis:
Events can be harnessed to improve data assurance outcomes

• Events can be used as inputs into models that use different forms of reasoning to validate and verify claims, providing a powerful and agile defence against fraud

• Relative to alternatives, Events are cheap to produce, publish, exchange and consume, and directly address the costs of duplicated effort

• Events capture the individual micro-transactions which are aggregated to form competing quality standards, enabling overlaps to be identified and re-used

• An Event-based approach federates trust to any entity with which we may have interacted, diversifying away from a reliance on a small number of sources

• Events offer a mechanism for ‘thin file’ citizens or customers to provide third party evidence to support their claims, even in the absence of traditional forms of proof
What do we mean by “Data Assurance”?

Investigating the nature of a claim

Controlling entity trusts Issuer issues Evidence has subject Claimant claims to hold

Valid; Genuine has status contains

Attribute is same as Attribute
What do we mean by “Data Assurance”?

Assigning a status to a claim

“Controlling Entity A says that Claimant D holds [Attribute], to confidence level [X]”
What do we mean by an “Event”?

- We define an “Event” as a trustable record of any attribute, relationship or activity that is made available as a digital resource for re-use by authorised third parties.

- **Trustable**:  
  - An Event is a signed witness statement of the form: “X says that Y is true” 1

- **Understandable**:  
  - Events reference attributes, relationships or activities whose meaning has been defined – and can be shared – in a standard, relatable, machine-readable way 2

- **Accessible**:  
  - An Event can be consumed directly (at scale) by automated reasoning engines  
  - An Event is explicitly made available for re-use by authorised third parties  
  - Access to an Event is governed separately to access to the data (i.e. attributes, relationships or activities) that the Event references

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1. This is similar in form to a Verifiable Credential  
2. Leveraging tools from the Semantic Web
What do we mean by an “Event”?

“Claimant A says that Claimant A is employed by Entity XYZ”

is not the same as:

“Witness B says that Claimant A is employed by Entity XYZ”

is not the same as:

“Entity XYZ says that Claimant A is employed by Entity XYZ”

3 separate events
What do we mean by an “Event”?

“Controlling Entity A says that Claimant D holds [Attribute]”

Based on…

“Bob in the branch says that he had a quick look”

3 separate events
What do we mean by a “Trusted Environment”?

Relative roles within the ecosystem

Entity A

Event Producer

Entity B

User

Claimant

Entity A/C

Event Consumer

Rules of engagement
Is there a viable economic model for the exchange of Events?

Motivation for each role

Entity A
- Event Producer
  - Reduce cost
  - Recover cost
  - Broaden service offer

Entity B
- User
  - Convenience
  - Confidence
  - Continuity
- Claimant

Entity A/C
- Event Consumer
  - Avoid cost
  - Manage risk
  - Improve experience
Is there a viable economic model for the exchange of Events?

Value exchange across the ecosystem

1. Give User (some level of) control over the disclosure of Events
2. Request access to Event
3. Authorise access to Event
4. Make access to Event contingent on commercial terms
5. Make **accountability for accuracy of attribute/assertion/activity** contingent on commercial terms
6. Acceptance of commercial terms
What infrastructure needs to be in place?

**Rules of engagement**

- Vocabulary and semantics
- Discovery
- Transport and trust
- Contracting, accounting and settlement
What implementation options are there?

Example implementation options

**Aggregator**
- Event Producer
- Event Producer
- Event Producer
- Event Consumer
- User
- Claimant

**Point-to-point**
- Event Producer
- Event Consumer
- User
- Claimant

**Self-sovereign**
- Event Producer
- User
- Claimant
- Event Consumer
- Trust Framework
Next steps

- Complete and publish Whitepaper

- Publish visualisation artefacts developed during course of the work:
  - Model queries and tests: https://github.com/pjworrall/trustedenvironment
  - Model query endpoint: https://fuseki.interition.info/
  - Solid server used with the Visualisation App: https://solid.interition.info:8443/

- Establish and execute Alpha phase