RESEARCH REPORT FOR DIGITAL SOURCES OF TRUST 2

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OIX UK is the UK arm of a global organisation and works closely with the Cabinet Office on the Identity Assurance Programme. Its goal is to enable the expansion of online identity services and adoption of new online identity products. It works as a broker between industries, designing, testing and developing pilot projects to test real use cases.

Executive Summary

The Digital Sources of Trust 2 (DSOT 2) Discovery Project looked to understand how documents produced by Issuing Authorities (IAs) such as colleges, could be used as part of a validation process by Identity Providers (IdPs). In particular, it tested the user journey with the use of a technology that could validate the authenticity of a paper document and the data in the document (e.g. name, address, course) for a 'thin file' demographic[1].

Although the research itself did not test the use of QR codes per se, QR codes were part of the solution provided by Validoc. QR codes are the mechanism used to allow people to read the document data produced by the IA (and part of the encryption key to allow the data to be decoded and read). The technology allows IdPs - or anyone with permissions to read the document - to see if the:

- Document is valid - that it was produced by the relevant IA

- Data on the document (in this case the enrolment letter) is correct

There were two user journeys used in the research:

1. User Journey 1 (main): Students at Doncaster College registering with the South Yorkshire Credit Union (SYCU) using "enriched" enrolment letters provided by Validoc which could be read by staff at the Credit Union using freely available 2D / QR readers - to validate the document as part of a KYC check to reach a certain level of assurance about an individual.

2. User Journey 2 (secondary): Existing Members of SYCU transacting with the SYCU to understand how existing thin file demographics might continue to access a service more easily through the use of this technology. Proof of identity to supplement their passbook is required for most transactions at the Credit Union and many people struggle to produce up-to-date and relevant proof of identity.

For students the QR code was almost invisible, they didn't have to engage with it but merely had to present their existing document to the Credit Union. Over 80% of those taking part in the research rated the experience as better or much better than either a typical bank registration or a SYCU transaction. For 'processors' of the document, the simplicity of using an existing 2D reader on a smartphone or tablet meant that the learning curve was negligible.

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[1] Thin file is defined here as lacking formal identity documents such as passport, driving license, birth certificate, documents typically required to get someone to a level of assurance where an organisation will be willing to provide a service, e.g. a bank.

Working with existing processes and with only minimal disruption to the document production process meant that both the IA, Doncaster College, and the Service Provider, South Yorkshire Credit Union saw benefits in the system.

For the SYCU the benefits lay in providing a greater level of assurance around document validity. Document forgeries are relatively common and present a risk to the Credit Union should forgeries not be detected and fraud occur (the PRA does not underwrite such fraud if the account documentation is proven to be forged or incorrect).

For Doncaster College the key benefit lies downstream, potentially reducing the time taken to validate students when requests come through from employers or other organisations. Another side benefit is the ability to repudiate documents, preventing people using staff credentials when they leave the college.

Table of Contents

1. Introduction and Brief

The Open Identity Exchange Discovery project Digital Sources of Trust (DSoT) 2 aims to establish:

1.   Whether documents issued by authorities (Issuing Authorities) such as Doncaster College could form part of evidence necessary when verifying individuals (that they are who they say they are) through certified Identity Providers

2.   The experience for the two key user journeys:

a.   Processors validating the paper document and the data in the paper document, and if this is one which is consistent with existing behaviours / business processes.

b.   Consumers using the service with a service provider to complete a transaction and how this may impact on their likelihood to undertake the transaction.

This particular discovery project looks at the Validoc system of validation, outlined below.

2. User Journeys

There were two user journeys used in the research:

1. Main: Students at Doncaster College registering with the South Yorkshire Credit Union (Doncaster college branch)

2. Secondary: Existing Members of South Yorkshire Credit Union transacting with the Credit Union (Waterdale branch)

The main user journey focused on enrolment letters produced by Doncaster college. From copies of enrolment letters Validoc added a QR code. This code could be used by staff at the Credit Union - using freely available 2D / QR readers - to validate the document as part of a KYC check to reach a certain level of assurance about an individual.

The second user journey was added to understand how existing thin file demographics using a service might continue to access a service more easily through the use of this technology. Proof of identity is required to transact in the Credit Union and many people struggle to produce up-to-date and relevant proof of identity.

Validoc acts an 'eNotary' creating encrypted 'copies' of the 'key facts' data contained within the documents. The encryption is such that Validoc doesn't hold the original data - it is 'hashed' - and only becomes visible and "human readable" when the viewer has the key to 'unlock' the data. A QR code is the mechanism by which the data is passed through a secure online process to be unlocked and read.

3. Research Methodology

The research took a mixed methods approach, focusing on group discussion, semi-structured interviews and observation.

Defining and working with Thin File cohorts

As the broader research aims of DSoT is to understand how those with a small digital footprint (one that potentially excludes them from access to core public and private service provision) can be identified sufficiently well, this project chose to work with a thin file cohort.

"Thin file" is a term that has been imported from the financial services sector and for which there is no canonical definition. It refers to those people who have insufficient documentary proof to provide enough assurance to achieve a level required to open a bank account.

Quotas

For students we chose to adopt a working definition of thin file taken from the Disclosure and Barring Service (DBS) check-list[2]. Our student quota was based on this check-list, that is they would have been unable to apply for a DBS check. 18 students and seven 'pre-screeners' (people passed to the college from the benefits office to apply for a course) were recruited through Doncaster College.

SYCU members were assumed to be a priori thin file, as the service is typically used by people disenfranchised from normal lines of credit and high street banking. 10 members were recruited through the Credit Union[3].

The following table describes the samples and what user journey they were involved in:

Table 1: DSOT 2 Quota and Journey

Quota	Description	Thin File Evidence	No.	User Journey
Doncaster College students	Students enrolled on a full or part-time course.	DBS documents	18	SYCU registration
Pre-screener attendees	People sent from the benefits office to Doncaster College to apply for a BT funded scheme / course.	DBS documents	7	SYCU registration
South Yorkshire Credit Union Members	Existing customers of the Credit Union in South Yorkshire.	South Yorkshire Credit Union (SYCU) members	10	Typical transaction with the SYCU (account balance, withdrawal, recent transaction list etc)

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[2] See https://www.gov.uk/disclosure-barring-service-check/documents-the-applicant-must-provide-

[3] Recruitment through the credit union proved difficult. Initially a quota of 13 was approached and recruited by the SYCU staff. However, not one of the 13 approached turned up on the day. For the second round of recruitment amongst 13 people we sent each member 1 letter and 3 text messages (over 7 days) to welcome them and remind them of the research work. Four people still dropped out in the last 24 hrs (we recruited one more on the day). The SYCU staff mentioned how many members struggled to manage their time effectively and were often late or not present for arranged meetings (to discuss loans etc).

Group Facilitation

We undertook three focus groups with the student and pre-screener cohort and one group discussion with the SYCU member cohort. The facilitation guide focused on understanding the use of identity documents and the perception, values and interests bound up in their use.

Observation

An afternoon observing transactions at the SYCU looked to identify the processes around validating identity and the documents used. We also observed the user journeys and recorded some of these to video.

Questionnaire

After each user journey and prior to giving over the incentive to the participants, we asked them to complete a questionnaire to glean more about their experience[4].

Semi-structured interviews

The Assistant Manager at the SYCU Waterdale branch in Doncaster and two counter staff were interviewed as well as the Welfare Manager at Doncaster College. They were specifically chosen as they took part in the user journeys (as processors or facilitators).

4. Research Findings 1: Identity Documents

Issues of identity that came out in the discussion groups are documented first before looking at the user journey experiences.

The difficulty of obtaining Identity documents

> F, Student 19 (living away from her family home for three years).

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[4] The questionnaire can be found here:
https://docs.google.com/document/d/1Y92ochFDowitiQd9C_1i3pppT3i98PMGqGElRNUpyFQ/edit?usp=sharing

"Yeah, it's really is [hard to prove where you live]. I've moved like 20 times as well so ... last time as four months ago and you have to constantly change your address and stuff. You're always having to prove everything, where you were living, changing your address and change your address on the bank statements ... and ... as well, that you've paid everything and you've got to go back to your old house ... haven't always got the statements there."

How do you do it?

"With difficulty and a tenancy agreement."

Circumstances mean that it's often hard for thin file groups (and younger people in general) to get identity documents in order to get access to Issuing Authority services where they can obtain other identity documents.

This can lead to routes to services (and improved social mobility) being unnecessarily difficult to access:

F, Student 19

"In my old job I was applying for an NVQ and I was having my name changed as well [there were some familial reasons why she was having a name change]... like very, very soon ... and I didn't have my passport either, I had lost it for a bit and I'd not lived in the country ... you can't just put it in your new name or your old name because you're going to have to prove that. And if I put it in the old name then I'm going to have to change it and keep it in your [sic] old name and use a passport and if it was the new name on the deed poll. It was so hard that I just didn't bother doing it [applying for an NVQ]."

For many students the main obstacle to obtaining an identity document is financial. Passports are relatively expensive for this group to get, as are provisional driving licenses. However, for a significant minority of students - those from backgrounds where parents were divorced and changed names or familial relationships had broken down - obtaining such identity documents was difficult. The older SYCU members - not reliant on parents to vouch or validate their identity as students were - invariably had issues managing their documents, claiming to have had house fires or thefts as well as marriage break ups and other social issues that had resulted in documents being lost or becoming outdated. The cost of replacing these documents was often beyond the means of the individuals in the group.

The concept of Identity and how it related to time

Not all people with a thin file demographic have the same understanding of identity or the same issues relating to managing their identity.

Identity is understood more conceptually amongst younger people who are familiar with managing their image using social media. Younger people in the research also valued the idea of an identity tied to a future - for example in terms of a career. It was different for the existing SYCU members many of whom are in extreme poverty. Members only talked about identity in material terms, as documents and 'things' rather than an understanding or a projection and this seems related to their concept of time and future time. The future for SYCU members in the group didn't seem to extend beyond the day. Their life was led one day at a time. Students on the other hand - perhaps because they were enrolled on a course and were imbued with the concept of a future in a career - had a different concept of future time.
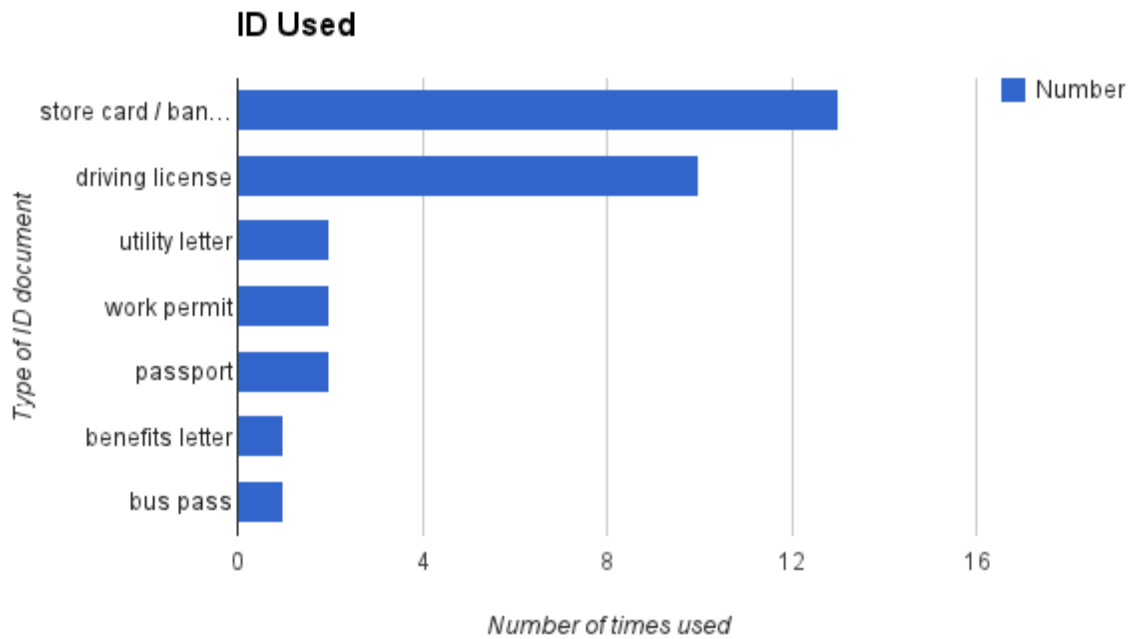
Use of Identity Documents

Documents were mainly valued by what they could provide access to. Passports were generally seen as the Holy Grail of identity documentation, due to the fact that they were photo documents and accepted by most types of organisations looking for assurance (retailers to bars and clubs, banks and then public services). However, passports are expensive and people seemed reluctant to buy them - or couldn't afford to - unless they were going abroad.

Students from Doncaster College in Group Discussion:

Provisional driving licenses were popular with younger people too, mainly due to it being widely accepted because it was a photo ID (key for buying alcohol and gaining access to bars and clubs), but it was bank and store cards that proved most popular as an everyday identity document for the older SYCU member cohort. We undertook a sample of 35 transactions at the SYCU to see which documents were presented[5]. Bank and store cards predominated and it became clear that - despite these accounts often being redundant - the documents themselves were still useful due to their long shelf life compared to utility bills or benefit letters or bus passes.

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[5] See the data: https://docs.google.com/spreadsheets/d/1tUGdEYsRTWX6acNhQvKAY2Nteh15gJ-8Epo292UhSUc/edit?usp=sharing

ID Used

Parents as Issuing Authorities

Students and younger people are relying on parents to be informal Issuing Authorities as they vouch for them. Not only is this disempowering, it is made problematic when parents are divorced or take different names.

No ID at all

For some SYCU members proof of identity was a huge problem as they had no identity documents in their name. One woman in the group explains:

> F   I use whatever letter I've got because I had a house fire so I've got no ID at all except for my wedding certificate. So I use whatever letter's come through the door that morning. In fact you usually go for my money so I don't really use it at all do I?
>
> M   Yeah.
>
> [...]
>
> M   (her partner) I use my bus pass to get yours don't I?
>
> F   Yeah.

Another goes on to say how she has no ID at all:

> F   I don't have either a driving licence or a passport, I have no photo ID whatsoever.

> F   That's a nightmare then isn't it?

> F   So I'm scuppered, I am scuppered.

> F   Yeah.

> F   I can't do anything.

And can you tell us a bit more about why that is?

> F   I don't drive, so I don't have a driving licence and I've never been abroad so I don't have a passport, there is no need for me to get one.

> F   And they're expensive things to get for something for like that aren't they, yeah.

Most in the SYCU group used whatever proof they could get on the day - letters from the benefits office or utility bills. However, it isn't always easy and workarounds are used as the first woman states, her partner gets her money for her from the Credit Union using his bus pass, something she has arranged with the Credit Union.

Data, "the cloud" and trust

The members of the SYCU cohort are wary of data "in cloud" and tend to be pragmatic / fatalistic and live in the now: "we just want one ID to use" was an agreed statement at the end of the group session. "We're being screwed by everyone so what does another matter" gave feeling to this pragmatism.

Younger people also seemed to be quite open to cloud based data though for different reasons. Possibly more political and aware of the consequences of privacy they nonetheless were accepting of their choice to do business with whoever was managing their data: they would make choice about who they would trust to do that.

5. Research Findings 2: User Journeys

The system Validoc put in place was a minimum viable product, a basic service that could perform the functional requirements described in the user journey. As this was not a usability test as such - we were not concerned with the specific GUI or pattern designs used[6].

User Journey 1: Registering with the SYCU

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[6] It should be noted that it is impossible to divorce the experience of using a system from the user interface. What we can do is try to minimise the impact that the specific interface has on the overall feedback we get about the interaction and use of the system.

Students registering with their enrolment letters needed to show one other form of ID, this usually meant their college ID card.

The KYC check for the SYCU tends to be more involved than a traditional high street bank or financial institution. This is because in order to prove an identity using a thin file of documents the SYCU often has to use a broader range of documents and check the validity of these documents with the issuing source. It can be time consuming. A typical "complex" case can take upwards of 20 minutes to complete.

The process of validating the identity of the individual using the Validoc system gave the SYCU greater confidence not only in the document being correct but also of the data in the document being correct (scoring 2 in the IPV Element B 26).

The SYCU is not covered by the Prudential Regulation Authority (PRA) if the documents used as part of the KYC check are proven to be invalid and subsequently that identity is used in fraud. Getting the KYC to LOA2 is vitally important. As forged and inauthentic documents are common and data within these documents often incorrect, the Validoc process used in the research was seen to be a significant benefit to the team at SYCU.

For most students the process of registering with the SYCU was easier than registering with a bank. Over 90% of the students and pre-screeners said the process was simple and efficient and easier than registering with a bank:

> F "It was a lot easier to register and all the information was in the same place"

> F "Easier because once scanned all information required plus a picture can be seen"

Because the technology uses existing documents and requires nothing of the individual there is effectively no user interface for them to interact with, so the experience they were describing was the process of the Credit Union using the QR technology.

Screenshots of the Validoc QR process on a smartphone:
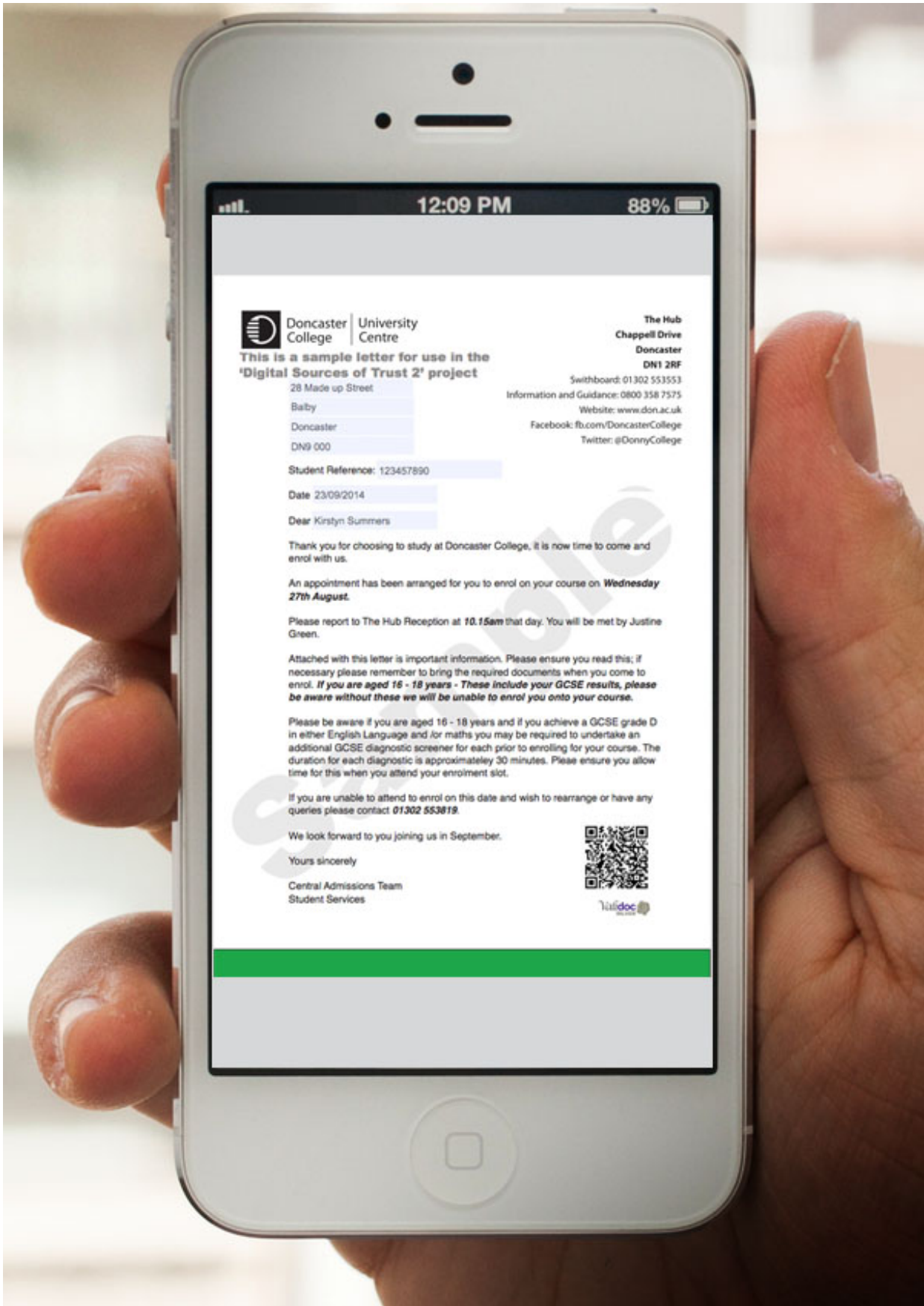
(This image shows the physical enrolment document in web form on a mobile)
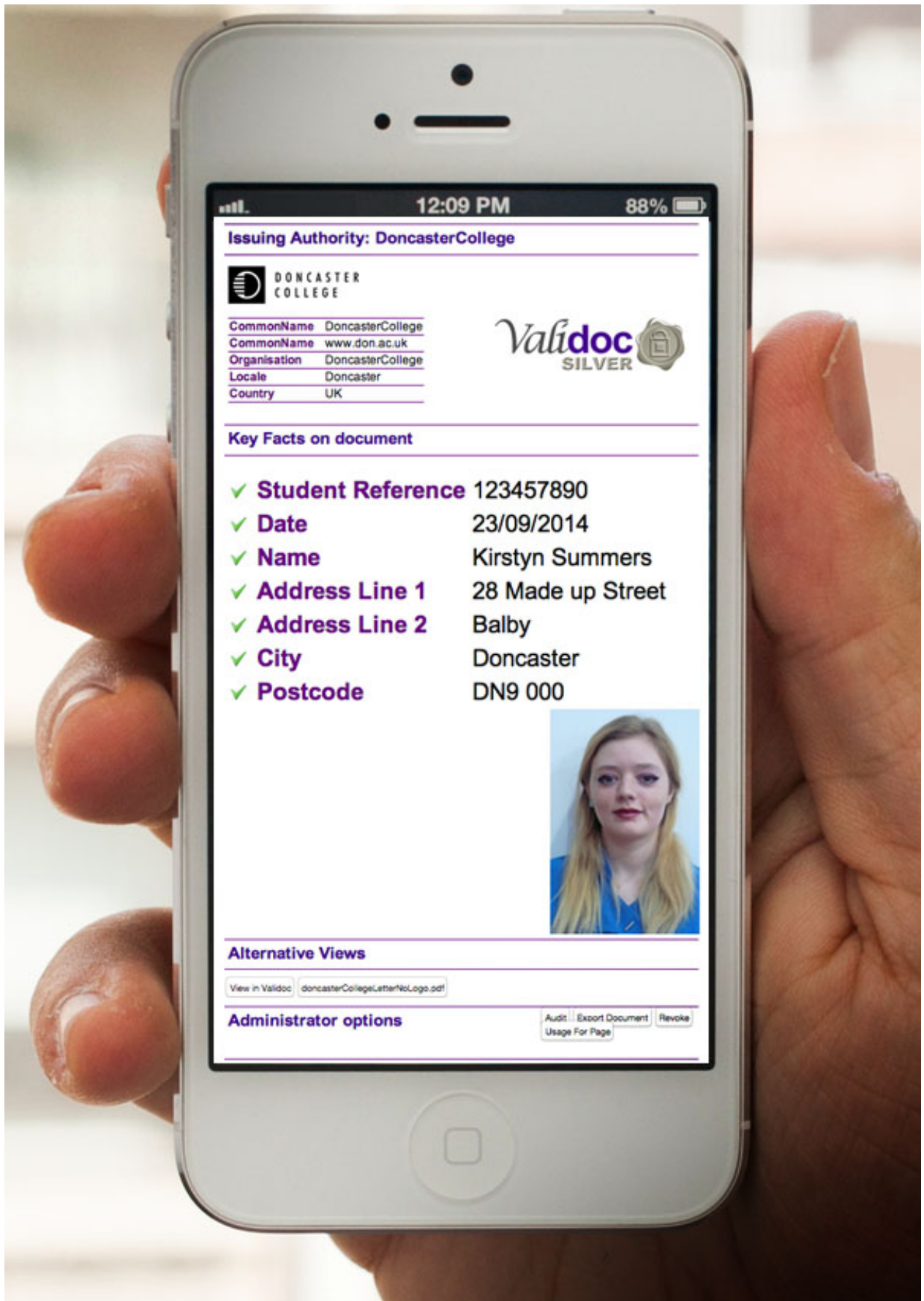
(This is an example of what the SYCU staff would have seen when scanning the QR code on the letter)

<u>VIDEO: Student registering at SYCU with enrolment letters. One letter was incorrect - used to test the technology (password: doncaster)</u>

User Journey 1: Members transacting with the SYCU

In advance of the transaction members presented their existing passbook to Validoc who took a photo of the user and linked that to their account data. A QR code was fixed to their passbook and a brief explanation of what the QR code would enable, was described to them.

For one afternoon the SYCU put on a dedicated counter for members with QR codes and also periodically "walked the line" of people queuing to see if anyone had a QR code and if they could help them. This was exceptional but it was also a plausible way the SYCU would segment and manage customers to improve processing times and reduce queuing.

The Waterdale Centre where the South Yorkshire Credit Union in Doncaster is based:

Usually SYCU members are required to present their passbook and another form of ID to get their transaction balance or withdraw money, or find out when they are next eligible for a loan (the three most popular transactions).

The traditional SYCU Pass Book without QR code
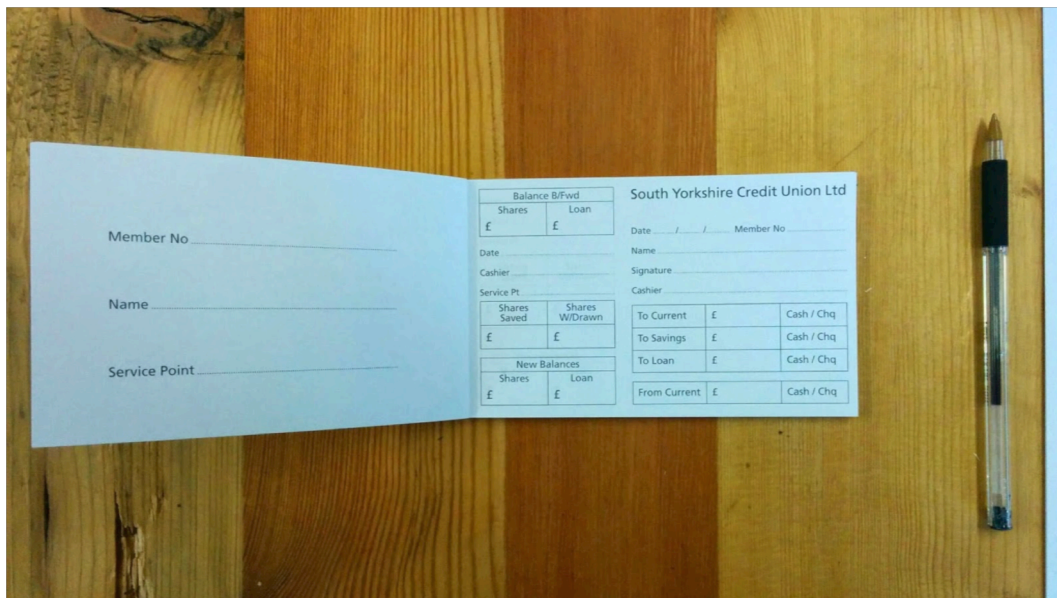
By putting a QR code on the passbook with a photo of the member Validoc enabled the SYCU to use just one form of ID to validate members.

<u>VIDEO: Processing a SYCU transaction using the QR code in the paying in book (password: doncaster)</u>

Nine out of 10 members found the experience to be better than their usual experience of transacting with the SYCU and all stated that it was simple and efficient[7]. Part of the reason for this was that no alternative ID was required but the process was also quicker especially when the SYCU staff went to "walk the line" allowing people who just wanted to see their balance or transaction history to do that without having to queue for a cashier.

Additional Benefits to Issuing Authorities and Service Providers

There are two key benefits to the 'processors' in the user journeys:

1.   Efficiency gains in time taken to prove identity

2.   Reducing risk of documents being misused "in the wild"

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[7] See the worksheet SYCU:
https://docs.google.com/spreadsheets/d/1YHvo5djHNiuj_fsBnblGM4_0qumtzdI6I__5gEBpz38/edit?usp=sharing

The first benefit is described by Kat from South Yorkshire Credit Union in the below video:

VIDEO: Kat talks about the issues of time wasting caused by the lack of identity documents (password: doncaster):

The Validoc QR process was also appreciated because it required no proprietary technology / hardware to be used and didn't require a significant change to their existing practices. The SYCU staff have already begun to work with Validoc to understand how they can improve customer service to reduce waiting times and offer ancillary services using the QR code to prove ID (such as partner services).

The second benefit is around reducing the risk of documents being misused and also reducing the cost of validating documents from third party requests.

Forgeries are often presented to the SYCU, especially when applying for loans, in order to prove a better income or cash flow and these can be hard to detect and time consuming. The Validoc process should make forgeries redundant as both the document and the data in the document can be authenticated. This process allows the SYCU to comply with PRA regulations and be covered should any fraud be used on the account (having followed the processes of due diligence).

Kat from the SYCU explains the problems of forgeries (password: doncaster):

Doncaster College also highlighted a related problem of document authenticity. Rather than the document being forged, however, it was that documents such as staff cards or student IDs can be rescinded, for example when staff or students leave college, and they may continue to be used. If there was a way for third parties to check the document was still valid it could reduce potential misuse. Here, Natalie, the Head of Student Welfare at Doncaster College, explains:

VIDEO: Natalie from Doncaster College describes the issue of identity documents being rescinded but still able to be used (password: doncaster).

5. Conclusion

This project looked at the user journeys using paper documents, in this instance with QR codes provided by the Validoc technology. It also looked at how the technology used could help identity assurance by enriching existing documents produced by Issuing Authorities enabling documents to be validated more easily and hence be more useful in getting thin file groups to LoA2.

The research findings show that using enriched paper documents to validate thin file identities seems to be effective. There are two key reasons for this:

1.   **Easier to transact to provide identity assurance**

The process made it easier for people to transact and for identity to be validated. It also made the process far easier for 'processors' to process identity documents. The majority (over 80%) of participants in the research found it easier to use the Validoc QR process than alternative processes[8]. What the responses indicate is that where people have use of a good identity document and have had few issues validating their identity the Validoc process is valued about the same as alternatives. This process is appreciated more by those that struggle to prove their identity or have had had to endure time consuming registration processes to get their identity validated.

2.   **Reducing risk by enabling third parties to easily validate documents**

Whilst not impacting directly on the Identity Assurance process, the fact that Issuing Authorities see a value in using the system (reducing risk and reducing costs in validating documents on request themselves) means they would be likely to use the technology.

Recommendations for next steps

Research self serve and online IdP online registration process with the Validoc QR technology. This project looked at offline, paper documents (enrolment letter). It would be helpful to see what issues existed in trying to use the QR technology for self-serve identity processes, such as registering with an IdP online.

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[8] See the questionnaire responses:
https://docs.google.com/spreadsheets/d/1YHvo5djHNiuj_fsBnblGM4_0qumtzdI6I__5gEBpz38/edit?usp=sharing