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Dear Ms Hawkins,

Thank you for your suggestion we should give successful EUSS applicants an option to receive a status document containing a 2D Barcode (one form of which is a QR code), as an alternative means of proving their UK immigration status. We welcome any suggestions to improve our services and have carefully considered your proposal.

We believe any method of sharing immigration status information must adhere to certain basic principles:

- It must be secure in terms of storing people's data
- There must be an easy and secure method for people to verify a person's status when it is shared with them, to reduce fraud and abuse, and give people confidence in the status information
- It must be easy to share information by a variety of means, including phone, email and in person, to make the system simple and accessible for both people who need to share information about their status and people who need to check it
- Only as much personal data as needed for the checking purpose should be shared and should only be accessible for as long as is required, to avoid unnecessary sharing of personal information
- The data must always be up to date, so any status check reflects the person's current status
- The solution must be cost-effective for applicants and taxpayers
- When using images of person, these must be shown at the highest definition possible, so that the status holder is at no risk of misidentification by a person checking their status

We have used these principles to evaluate your suggestion.

Before considering the merits of the proposal, it is worth noting that using a 2D Barcode in the context of demonstrating vaccination status is not equivalent to using a 2D Barcode to show immigration status. The implementation of the 2D Barcode method of proving

vaccination status varies across the nations of the UK, but people are not generally given a document without an expiry date. In England, the vaccination status letter is valid for 30 days before it expires – the same duration as our immigration status share codes currently have. Vaccination certificates increasingly have more than one barcode due to the limitations in data that can be stored in a 2D barcode. The NHS certificate has one barcode per vaccination dose for this reason. Once a person has received a dose of a vaccine, the fact that they have been given that dose, on a particular date, cannot change retrospectively.

In contrast, a person's immigration status under the EU Settlement Scheme or under another immigration routes can change, for example, a person's status can change from Pre-Settled to Settled, or from Student to Graduate to Skilled Worker. Each change would entail a difference in the person's conditions of stay in the UK. Status can also expire, for example a visit visa after the 6 month validity period or if a person's leave under a non-EU Settlement immigration route expires. It is critical that our services present a real-time, up to date view of a person's immigration status, as per the principles listed above, in order to fully achieve their benefits to combatting immigration fraud, ensuring people receive their correct entitlements while in the UK, and protecting UK security.

Turning to the evaluation of the 2D Barcode proposal against the principles set out above, we have considered your central idea that a 2D Barcode could be added to a document as a security feature to validate it, and the 2D Barcode could contain encrypted details of the document owner and their immigration status without the need for any online checks. The central record of people's immigration status would still be securely held digitally by the Home Office so the 2D Barcode proposal would not affect the means of storing the data. Creating an app to scan 2D Barcodes which had to access the datastore may however introduce a new potential means of attempting to attack or inappropriately access the data and would also require every person who is required to check a person's status via the barcode, to have an applicable device, and have downloaded the app.

For the 2D Barcode proposal to work as proposed, the 2D Barcode would have to verify the document to which it was attached was genuine, the status shown on the document was correct and the person presenting it was the rightful holder of the document. Whilst a 2D Barcode could be used as a security feature to verify a document was genuine, it would be much harder to also use it to verify the identity of the holder. There is an upper limit on the amount of data a 2D Barcode can contain, which is why vaccine certificates now have multiple 2D Barcodes. We are grateful for the information you have shared regarding images in 2D Barcodes, however, our research has indicated the largest 2D Barcodes can contain 3KB of data[1] and this is insufficient to encode a high-resolution image of the person with status. Given it would not be possible for a 2D Barcode to store a viable face image, a printed document with a 2D Barcode attached could not be used to verify the person presenting it was the rightful bearer.

By contrast, the *View and Prove*, *Right to Work* and *Right to Rent* online services do present a high-resolution image of the person to the checker which they can compare to the person sharing their status. The presence of a clear facial image is essential for the checker to confirm the person's identity. The relevant legislation requires employers and landlords to verify the photograph presented to them by the person, whether it be an image on a physical biometric residence permit (BRP) or a digital image in the online

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[1] See for example: https://www.qrcode-tiger.com/qr-code-data-size

checking services, matches the individual who is sharing their status. This check is necessary to provide them with a statutory excuse against liability for a civil penalty.

The image presented to a third party checker using the online service is of higher resolution than the image on a BRP, and a BRP image resolution is in turn higher than the resolution of an image it would be possible to encode into a 2D Barcode. We have had positive feedback that third party users find the higher resolution images available through the online checking service useful when checking a person's identity because they make it easier to confirm a person's identity. This in turn cuts down the risk a person can fraudulently use another individual's status to gain access to work or services to which they are not entitled or the genuine person may be misidentified.

Nor would the 2D Barcode easily allow a person to choose which elements of their status to share. The right to work and right to rent checks simply confirm the relevant entitlement without sharing other unnecessary data. The 2D Barcode would not support the data minimisation principle. A person would have to share their whole status, even elements which weren't relevant to the check being made. While it may be possible to have multiple 2D Barcodes for different purposes, this may be confusing to users. In addition, any improvements to user experience or functionality of the online service can be released on an ongoing basis, and all users will benefit. With a more static 2D Barcode solution, such iterative improvements will be harder to deliver.

Where a printed 2D Barcode was presented to a third party in person, the third party wishing to check the holder's status would need to use a mobile phone with a bespoke app to scan the 2D Barcode. The app would need to connect to the internet to access the person's up to date online immigration status record, essentially in the same way the online record is currently accessed using a share code; this offers little advantage over the current process, and has the disadvantage of requiring the third party to obtain the app and a suitable mobile device to run it on.

Developing and maintaining the app would carry a cost to the taxpayer, while delivering no real benefit over the current process which supports checks on a mobile phone using a basic web browser and a share code. Apps would need to be developed for different types of mobile device, and here would be an ongoing cost to maintain and update the apps and to ensure they did not present any new security risks over time. While we will continue to invest in services and continuously improving them, we want to ensure such investments realise the greatest benefit for our end users and UK taxpayers.

If the app did not connect to the person's live immigration status record, the key principle that the person's current immigration status would be checked is lost. An app designed to work **without** checking a person's immigration status record would need to store an up to date record of all valid 2D Barcodes. The amount of data which would have to be stored, the necessity of constantly updating the stored data, and the security risk of storing the data of millions of individuals on a personal device, make your suggestion of adopting this approach unfeasible.

There is an additional consideration which is the 2D Barcode and app reader approach implies face-to-face contact between the individual and the third party wishing to carry out a check. Share codes can be easily generated and passed on by email, written down, or read out over the phone, minimising the face to face contact required – an important advantage given the current COVID19 pandemic. Passing on a 2D Barcode by hand or over the phone would be impossible, and 2D Barcodes are more difficult to add to an email than simply typing a code or using the share facility in the relevant checking service. If 2D

Barcodes did not have an expiry date, as proposed, once a person had a copy of a 2D Barcode, they could use it any time to check a person's status, even when they had no reason to do so. If 2D Barcodes expired after a set period, the 2D Barcode reader would need constant refreshing with the list of expired codes.

We also believe there are clear advantages to a person regularly logging into their UKVI customer account and checking the contact and status information held about them before sharing it. If the person spots any issues, they can resolve these by contacting the UKVI Resolution Centre before sharing their status. A person sharing a persistent 2D Barcode would not necessarily check their online records first. Therefore they may share a status they did not believe to be correct before having the opportunity to realise there was a potential problem and address it.

We acknowledge some users may find it harder to access their information online. In such circumstances they can call the UKVI Resolution Centre, to have their status information explained to them, and if required, a share code generated for them, which they can then pass on to a checking organisation. We believe this meets the need to provide a non-digital alternative for individuals who cannot access the online service, while maintaining the safeguards, including those against fraud or inappropriate data sharing, in the system design.

While there are some circumstances in which a person may find it reassuring to have a physical document which could be used as evidence of their immigration status, it does not present any real advantages in most circumstances. The online service is secure, protects personal data, gives checkers confidence in the status information, and protects against fraud. Overall, the proposal does not satisfy the requirements set out above.

We also considered whether the 2D Barcode could be used in a simpler implementation as a security feature to validate a document containing status information. However, unless the code also contains information about the rightful holder, there would be a risk of a genuine code being cloned onto a false document, or a genuine document could be obtained and used by a person who was not its rightful owner.

Finally, we considered whether the 2D Barcode could be used as a key to gain access to the online information about status, in a similar way to the share code. In this case the identity information would be presented through the web page rather than in the 2D Barcode which avoids the issue of the code having insufficient data storage capacity. However, this would not offer any advantage over simply using a share code, and it has the disadvantages of requiring an app to decode, being harder to share remotely and not offering any possibility of data minimisation without issuing multiple codes.

We recognise this will be a disappointing response but hope the reasoning set out above shows why we will not be taking the 2D Barcode idea forward. Please be assured we take such suggestions seriously and are committed to continuously improving our services based on feedback from users. As an example, based on feedback from users (both status holders and third party users of checking services) that share codes often expire before they can be used, the validity duration of *View and Prove my Immigration Status*, *Right to Work*, and *Right to Rent* share codes has been increased from 30 to 90 days. This will help reduce the need for third parties to contact the person to ask them to generate a fresh share code, whilst maintaining the principle that third party access to a person's immigration status should not be indefinite. We will continue to work to improve the user experience and will announce any further initiatives as soon as we can.

Yours sincerely

Simon Tomlinson

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