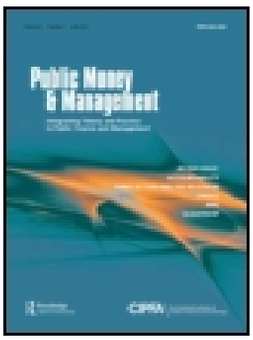

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Information-Intensive Government and the Layering and Sorting of Citizenship

John Taylor, Miriam Lips and Joe Organ

This article draws on case studies in identity management by the UK government, and illustrates emergent changes in the relationship between government and the citizen as a result of e-government. The authors explain what is now possible in terms of citizen identification and recommend further research about the nature of citizenship in the information-intensive polity.

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The league tables and benchmarking activities of what so rapidly has become the 'industry' of e-government now reach virtually every country in the world. In the southern hemisphere the push from this industry is mainly made manifest in tables of 'e-readiness' on the part of citizens, businesses and other organizations (for example UN, 2005). In the northern hemisphere, and particularly in Europe and north America, the push is increasingly towards the delivery of new forms of 'customer-centric' service (for example Accenture, 2005; Booz Allen Hamilton, 2005). Moreover, this latter push is towards levels of online service provision that go beyond the provision of information to citizens or the opportunity to download application forms etc., and towards transacting online and thereby completing in large measure the consumption of a government service through the internet.

In the UK, the government's *Transformational Government* papers (Cabinet Office, 2005, 2006), together with its abandonment of a separate domain of e-government, bear testimony to the strength of the pressure to improve international performance in the light of unfavourable reports such as that by Accenture (2005). The drive towards citizen-centric government service in Britain will no longer be technology-led, but technology-enabled. The content, cost and quality of the service will be paramount, with delivery channels enabled by various forms of information and communications technologies, including the internet.

The attractiveness to government of the internet remains strongest. As access to the internet increases (see OxIS, 2005), so the pressure to replicate its successful exploitation by business firms has become a goal of government. Offering forms of government service 24 hours a day, seven days a week has become a key objective, as has the massive cost reduction that this delivery channel appears to promise.

We know from evidence gathered during our current research, the urgency with which online transactional government has been and is being pursued. This urgency is all the greater because of the intense frustration that comes from resolving the identity management question:

- With what degree of certainty can governments know who is doing business with them online?
- How does government assess and reduce the risks of doing business with the citizen in ICT-intensive environments?

This article draws on two of our research case studies in identity management in UK government, and illustrates emergent changes in the relationship between government and the citizen in newly information-intensive environments.

Going Online for a Driving Licence—The Layering of Citizenship

A growing academic literature on 'social sorting' draws attention to ways in which government agencies are collecting, managing and applying new information resources so as to categorize or 'sort' citizens in a variety of service providing arenas (for example Lyon, 2003; Graham and Wood, 2003; Nettleton *et al.*, 2004; Burrows *et al.*, 2005; Taylor *et al.*, 2006). While much of this literature applies a surveillance perspective, arguing that government is increasingly able to construct an identity for the citizen based on

geo-demographic factors or ethnicity for example, our work suggests that surveillance is only one of a number of perspectives that can help us to understand and analyse why this social sorting is occurring. Across the spectrum of public services included in our research we have also found government agencies profoundly concerned to improve service to the customer or citizen, while at the same time looking at the citizen as a risk to be managed. The online application for a provisional driving licence shows how all three perspectives—surveillance, service improvement, risk-management, are equally important.

An applicant for a licence enters the 'Government Gateway', the managed environment for government online in the UK, almost certainly through first of all accessing the citizen-facing web-site Directgov. The applicant inputs standard identity data: surname, initials, date of birth and three-year address history (using postcode locator software as needed). These details are then electronically matched against existing driver databases. If this data matching does not produce a match (very likely in the case of an applicant for a provisional licence), the applicant continues the transaction and a new record is created. Equally, the applicant can proceed if a match is found (i.e. the applicant has been positively identified in the DVLA database) so long as these records do not preclude progression (for example he/she is not a disqualified driver). Having gone through this in-house matching system, the applicant's details are transferred instantly to the data management company Experian. Using name and address history in particular, Experian seeks to match the applicant's details against a host of public and private sector databases.

Experian is employed to validate, verify and authenticate the identity of the citizen making a licence application. Experian systems run personal information from the applicant against the Credit Application Previous Searches (154 million records) and Address Links (252 million records) databases, for example, seeking as they do so the agreed level of validation for the particular service that is being provided. In the case of an application for a provisional driving licence, three or more corroborations are needed for name and address and two or more corroborations on the date of birth or an equivalent combination of these factors. This is the validation aspect of the check.

In addition, a verification score is assigned to an applicant, which is an outcome of a further data matching exercise that seeks to corroborate biographical details that only the applicant is likely to know and which again are to be found in other databases, such as Mother's maiden name or some other 'secret'.

Finally, all of these data are distilled into an authentication index with each applicant receiving a specific 'trust score'. This final score, indicating the strength of the applicant's 'digital footprint', is heavily influenced by the perceived quality of the databases within which the matching process occurs. Customer databases such as those of the main clearing banks are given higher salience in the authentication process than those of mail order companies, for example. Only when the trust score reaches the pre-ordained level can the applicant proceed to a successful conclusion of their online application. The trust score arrived at is not therefore a judgment of creditworthiness but a risk assessment attaching to the degree of certainty that the identity of the applicant is an accurate one.

In our work we have come to define the effect of this type of sorting based on trust profiling as one of producing 'layered citizenship'. As authentication processes such as the one described above become more commonplace, so the effect is to locate citizens differentially on their trust score. The 'top' layer will consist of those with high levels of validation and verification because of the consistency of their identity data in highly trusted data sources. Below that there may be several other citizenship layers where the trust profile assigned to the individual is scaled at the level determined by the authentication process. In the Experian methodology the highest possible trust score is 99. A citizen coming online to transact with government may appear in any of the deciles that this scale allows and will only succeed in any particular transaction if the trust score is at or above the level set for that transaction.

The E-Benefits Claimant—Vertical Sorting

Unlike in our first example above, in this second example of citizen sorting there is no involvement of any third party organization. Instead, internal data is used to assign a benefit claimant to a predetermined category against which there is an assigned risk score. The sorting process is not used 'horizontally' to assign a level of certainty to personal identity, as in the first example above, but to identify the level of trust that can be assigned to the claimant in respect of likely error or fraud in the claim being made on the basis of

various 'vertical' risk categories.

Since 2004 a unitary local government in England has been using an 'e-benefits system' in respect of claims for housing and council tax benefits. Here, claimants are visited by an official who conducts a face-to-face interview, usually in the claimant's home, to determine the level of benefit that can be claimed. The official uses a tablet PC loaded with specialized software; personal details are loaded onto the PC, as well as information about claimants' living arrangements, income, bank account details, savings, assets and other benefits being claimed. Once this data has been inputted, the software calculates the benefits that can be claimed. The claimant must also produce certain paper documents such as passport, driving licence and payslips as proof of identity. Both the claimant and the official sign off the claim using an electronic pen, and the document is then sent on to the government office via a wireless network as an email attachment. This offers considerable advantages to both the claimant and government, through reducing time and work effort involved in claim processes.

Following this initial registration and successful acceptance of the benefits claim, the claimant is then assigned into a particular 'social' category by the Department for Work and Pensions (DWP) at national government level, a categorization that determines the frequency and intensity with which the claim will be reviewed. These 'social sorts' are derived from matching between a database containing details of detected overpayments of £5 or more 'due to claimant error or fraud' and housing benefits data from the particular local government. In building up the sorting model, the characteristics of the claimants who had overpayments were then compared to the characteristics of claimants without overpayments. From that data matching process, an approach that the DWP refers to as 'logistic regression', a risk score is produced for the claimant that is used as a predictor of the likelihood of error or fraud in the claim. The lowest risk categories are in the pensioner groups and the highest risk categories are in working age claimants, with a specific subset of single parents living in private landlord accommodation being the highest risk of all. These citizen sorts are sent to the local authority with recommendations attaching for their claim review regime. DWP data suggest that where a claimant is in a risk category of more than 10% chance of error or fraud, the number of positive 'hits' from the review process is 25% compared to those in low-risk categories (less than 5% chance of error or fraud) where the positive hit rate is 3%. Thus it is assumed that the local authority will place highest priority within its claim review process to citizens from within the highest risk categories. Indeed, local governments responsible for conducting this process of claim review are subject to a performance management regime that determines the level of central financial support for the administration of the service being provided.

The DWP example is one of what we have termed 'vertical sorting'. The initial capture of personal data from the citizen enables a sorting process that places them in socio-demographic groupings based on a combination of factors such as age, housing type and labour market position. That citizen is then matched into a risk category that derives from the logistic regression statistical method of the DWP. The citizen-claimant is thereby placed in a risk category in terms of the degree of likelihood of error or fraud attaching to their claim for benefit. As evidence-based risk assessment processes like this become more commonplace so the effect is to locate citizens differentially on the trust that can be assigned to them as claimants.

To explain this further, we can envision what is described above as a continuum of risk assessment with the category of the single parent living in private landlord accommodation on the left-hand side (the highest risk of fraud or error) and the aged pensioner in long-term receipt of benefit on the right-hand side (the lowest risk of fraud or error). In between these two extreme points are other social categories with varying degrees of risk attaching.

Conclusion

These examples of social sorting are drawn from research we have conducted on personal identification and identity management in forms of electronic government. Like banks and retail companies, government agencies need to authenticate the identity of the online citizen. We have seen this process in action in the case of a driving licence application. Equally, in the case of benefits transactions, we have seen how the risk of error and fraud is being shown statistically to vary between different socio-demographic groups. As a consequence, the claim of the citizen in a high-risk category is the subject of more

frequent scrutiny than those in lower risk groupings.

Citizen-government relationships, both online and in other equally information-intensive settings such as in benefits claims, might come to produce a 'matrix effect'. The rows of the matrix are the trust scores assigned to the online citizen. The columns of the matrix are formed from the social sorting approach deriving from evidence-based service provision concerned with the reduction of the risk of fraud and error. The cells of such a matrix can be seen as offering government the future prospect of a designation of the citizen based on a combination of horizontal sorting, or layering, deriving from a personal trust score, and vertical sorting based on socio-demographic risk groupings.

We have identified empirically the development of layered citizenship deriving from trust profiling of an online applicant. Equally we have detailed the way in which social sorting categories have been developed in welfare benefits. We have no evidence that these scores and assessments are being drawn together in matrices such as the one discussed above, though we can see how such analysis could in principle be undertaken, particularly as more and more services are made available online. In its search for service improvements, cost reductions and risk-managed service delivery government becomes increasingly aware of the profile of the citizen. Whether this creates a greater propensity than hitherto for higher levels of 'citizen surveillance' should be the subject of further research as should the nature of citizenship in the information-intensive polity. ■

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