



**Open government data: critical information management perspectives**

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## Open government data: critical information management perspectives

### Abstract

#### *Purpose*

Open government data and access to public sector information is commonplace, yet little attention has focused on the essential roles and responsibilities in practice of the information and records management professionals, who enable public authorities to deliver open data to citizens. The article considers the perspectives of open government and information practitioners in England on the procedural and policy implications of open data, across local public authorities.

#### *Design/methodology/approach*

Using four case studies from different parts of the public sector in England (local government, higher education, National Health Service (NHS) and hospital trust), the research involved Masters level students in the data collection and analysis, alongside academics, thus enhancing the learning experience of students.

#### *Findings*

There was little consistency in the location of responsibility for open government data policy, the range of job roles involved, or the organizational structures, policy and guidance in place to deliver this function. While this may reflect the organizational differences and professional concerns, it makes it difficult to share best practice. Central government policy encourages public bodies to make their data available for re-use. However, local practice is very variable, and perhaps understandably responds more to local organizational strategic and resource priorities. A lack of common metadata standards for open data, different choices about which data to open, problems of data redundancy, inconsistency and data integrity and a wide variety of views on the corporate and public benefits of open data.

#### *Research limitations/implications*

The research is limited to England and to non-national public bodies and only draws data from a small number of case studies.

#### *Originality/value*

The research contributes to the debate about emerging issues around the complexities of open government data and its public benefits, contributing to the discussions around technology-enabled approaches to citizen engagement and governance. It offers new insights into the interaction between open data and public policy objectives, drawing on the experience of local public sectors in England.

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1  
2  
3 the European partners in the InterPARES Trust (IPT), a multi-national,  
4 interdisciplinary research project (<http://www.interparestrust.org/>).  
5

6 Keywords: Open Government, Open Government Data, Information Management,  
7 Public Records Management, England  
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Records Management Journal

## Open government data: critical information management perspectives

### Introduction

Open government data and access to public sector information in the UK and across the world is in transformation and yet little attention has focused on the essential roles and responsibilities in practice of the information and records management professionals, who enable public authorities to deliver open government data to citizens. This article presents the research findings from [...], one of the European partners in the InterPARES Trust (IPT), a multi-national, interdisciplinary research project exploring digital records (<http://www.interparestrust.org/>). The article considers the perspectives of open government and information practitioners working in localities in England, set into an international academic research frame. It draws on practice experience across different types of local public authorities of the procedural and policy implications of open government data. It seeks to surface the significant but often-overlooked links between the effective management of information and the delivery of open government data.

Since 2013, [...] has run several linked projects that studied the role of the information and records management discipline in the context of new obligations on public sector bodies towards open government data (ie the proactive release of data by public sector organizations for re-use by third parties in the public benefit) and greater access to data for citizens. The research aims to develop a picture of implementation and compliance in the field outside central (national) government, using four case studies from different parts of the public sector in England. The lens through which it studied open government data was the professional discipline of information and records management, since these professionals have a critical but

1  
2  
3 under-recognised and hence often under-resourced role in the practical operation of  
4 open government data. It frames the findings from practice with a literature review  
5  
6 drawing on academic research into the intersection between open government data  
7  
8 and information management internationally. It concludes with implications for policy  
9  
10 and practice.  
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15 In the policy context, public authorities are responding to the European General Data  
16  
17 Protection Regulation (GDPR) which further constrains the requirements for  
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19 managing and sharing personal data. Regulatory agencies including the UK  
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21 Information Commissioner's Office (ICO, 2017b) propose additional administrative  
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23 data duties, such as the 'duty to document'. In addition, citizens demand greater  
24  
25 accountability and transparency in public processes. In this shifting climate, it is  
26  
27 critical that open government data policy is better understood and framed holistically.  
28  
29 Although related to freedom of information, access to public information and records  
30  
31 management, as suggested by Janssen et al (2012) and Zuiderwijk et al (2014),  
32  
33 open government data has distinct characteristics that merit investigation. For  
34  
35 example, the relationships between open government data, public records, freedom  
36  
37 of information, linked data and the role of information managers and data scientists  
38  
39 are complex, overlapping and not fully understood, as set out by Luna-Reyes et al  
40  
41 (2014), and Shepherd (2015, 2017). As government functions are increasingly  
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43 delivered by commercial and third sector bodies in partnership with the public sector,  
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45 issues of data provenance, guarantees of data standards and ownership need  
46  
47 exploration. The secondary use of open government data is a significant resource to  
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49 policy makers and for academic researchers, especially if datasets can be linked, as  
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51 Safarov et al (2017), and Sexton et al (2017), explore.  
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## 60 **Research methods**

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3 The foundation of the research was a literature review in two phases, on open  
4 government data broadly and then focusing more closely on the related privacy  
5 issues. The primary data about open government data in practice was collected in  
6 four linked case studies, over a period of three years 2014-2016, in four different  
7 local public sector settings: a local government authority, NHS England, a hospital  
8 trust, and a university.  
9

### 16 17 *Literature Review*

20 The literature review identified key literature about open government data and the  
21 recordkeeper's role. The second stage of the literature review focused more  
22 specifically on the implications for information management of moves to extend open  
23 government data and access to public sector information, including medical records  
24 and patient data, in the context of data protection and privacy regulations in the UK  
25 and EU. It analysed legislation, policy documents and research literature on the re-  
26 use of public sector information, data protection, and use of medical records and  
27 patient data. The focus was predominately England, but also looked outward to  
28 legislation and policy in the devolved nations of the UK, as well as internationally.  
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### 41 42 *Case Studies*

45 The research method adopted was a qualitative, instrumental case study, extended  
46 to four cases, each with some similarities and some differences, following Stake's  
47 (1994) typology. Stake identifies three main types of case studies (intrinsic,  
48 instrumental, collective) although all have the characteristics of setting out the  
49 historical and contextual background, information about the respondents and the  
50 nature of the case. Through the collective case study, the researchers aimed to  
51 provide insight into an overall research aim: to investigate the impact of open  
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3 government data requirements in local public authorities in England, through the lens  
4 of the practice of information and records management. Each case studied how  
5 open data were managed within one public authority, explored the reality of practice,  
6 and where the roles and responsibilities lie. These case studies enable comparative  
7 work, analysing the open government data policy setting, and how it interacts with  
8 information management roles. The research explored the role of the information  
9 and records manager in practice in an open government environment, given that it is  
10 a critical actor in the delivery of open government data to citizens (Thurston, 2012).

11  
12 The geographical scope was England, bounded by the specific legislative and  
13 government policy requirements. First, a local government authority in the South  
14 East of England responsible for providing services to 1.5 million residents, directly or  
15 with commercial and third sector bodies, including transportation, schooling, social  
16 care, housing, environment, planning, libraries and culture. Secondly, NHS England  
17 which leads the NHS, nationally, regionally and locally, by setting strategy and  
18 priorities and implementing policies, distributing £100 billion annually, commissioning  
19 contracts for health services, and contributing to public debates on health care.

20  
21 Given the unique size and role of this body it was not possible to anonymise this  
22 organization. Thirdly, an NHS hospital trust which delivers clinical services to a large  
23 urban population, as in-patients and in the community, from several hospital sites.

24  
25 This case is published by Chorley (2017). The fourth case study was a multi-faculty  
26 university employing about 1800 staff, undertaking research, higher education  
27 teaching of 20,000 students and knowledge exchange, funded by public and private  
28 funds. These four organizational settings had significant differences from each other  
29 in terms of size (number of employees, budget), organizational priorities and culture,

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3 leadership, government policy context for core service functions, and client groups.

4  
5 See **Table 1** for brief details.

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7  
8 [insert Table 1]

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11 In each case, the specific research objectives were (1) to identify the governing  
12 legislative and regulatory open government and open data frameworks; (2) to  
13 investigate existing organisational practices and job roles in delivering open  
14 government data and complying with public obligations; and (3) to develop better  
15 understanding of the critical information management issues, policies and guidance,  
16 relating to open government data. The research process was the same for each  
17 case. UCL research ethical approval and data protection registration was obtained  
18 for the IPT project overall, 2013-2018. Consent required the anonymisation of  
19 interview participants and the organizations, except for NHS England, retaining  
20 contextual data, including job titles and organizational type.

### 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 *Data Collection*

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38 Research data was collected through a series of fifteen individual semi-structured  
39 interviews (40-60 minutes in duration) with information, records, data, governance  
40 and other professionals. The interviews were organised on a series of common  
41 themes drawn from the literature and designed to explore the research objectives.

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46 See **Table 2** for example questions. Data collection focused around guidance and  
47 regulations, implementation approaches, roles and responsibilities, recordkeeping  
48 and users of open government data. We did not specifically seek data about  
49 individual datasets, but rather the policy and operational context in which they might  
50 be made open. Interviews were usually audio recorded and then selectively  
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3 [insert Table 2]  
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6 Documentation supplied by interviewees, including internal policies and procedures,  
7 organization charts and manuals, was also analysed. Data coding and analysis was  
8 carried out using the pre-coordinate themes which framed the data collection (ie.  
9 role, responsibilities and job context; governing regulations, institutional policies and  
10 guidance for information governance, open data, information and records  
11 management, freedom of information and data protection; institutional practices for  
12 open government data, information and records management, staff awareness and  
13 training; future developments), extended by the findings of the data collection. An  
14 initial summary report of data was shared on the IPT project intranet  
15 (<https://interparestrust.org/>).  
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### 30 **Literature Review**

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32 The literature review framed the research by drawing on academic research into  
33 open government data. The literature also helped to establish the themes which  
34 were explored in the data collection.  
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40 Novais et al (2013) provided a literature review of open government data studies  
41 from 2007 to 2012, in which they indicated the need to broaden the geographic  
42 coverage of open government data research and to improve the quality criteria for  
43 assessing open government data, including to ensure the trustworthiness of data  
44 (Ceolin et al, 2014; Léveillé and Timms, 2015). Novais et al suggested that the term,  
45 open government data, began to appear in 2007, following the publication of the  
46 original eight open data principles, which stated that open data should be complete,  
47 primary not aggregated, timely, accessible, machine-processable, non-  
48 discriminatory, non-proprietary and licence-free  
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3 ([https://public.resource.org/8\\_principles.html](https://public.resource.org/8_principles.html) ). These principles framed much of the  
4  
5 subsequent discussion but many technical, managerial, organisational and cultural  
6  
7 barriers remain in delivering open data. Kitchin (2014) surveyed the data landscape,  
8  
9 including big and open data, and in Chapter 3, considered the consequences and  
10  
11 difficulties of moving from traditional, closed, access to data to more open data  
12  
13 access. He provided a clear historical account of the open data movement,  
14  
15 discussed further below.

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18 Work on models and methods for evaluating open government data and  
19  
20 benchmarking, includes Kalampokis et al's (2011) stage model of open government  
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22 data and the Open Data Institute (2015). Kalampokis et al built on models proposed  
23  
24 to assess the progress of eGovernment, to incorporate open government data more  
25  
26 fully, by outlining two dimensions (organizational & technological complexity and  
27  
28 added value for data consumers) and four stages (Aggregation of Government Data,  
29  
30 Integration of Government Data, Integration of Government Data with Non-  
31  
32 Government Formal Data and, Integration of Government and Non-Government  
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34 Data with Social Data). They hope that the model will should improve benchmarking  
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36 and the construction of roadmaps for open government data. The information and  
37  
38 records management community began to engage with open government data in  
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40 early 2010s, encouraged by the development of records management guidance in  
41  
42 the Open Government Guide (2015), an online resource developed by international  
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44 civil society organisations to support governments in developing commitments for  
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46 Open Government Partnership (OGP, <http://www.opengovpartnership.org/>), national  
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48 action plans and by growing professional awareness of the importance of the  
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50 management of the underlying data to the effective delivery of open government  
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52 data to citizens. The UK and USA governments were among the eight founding  
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3 countries of the OGP in 2011 committed to fostering 'a global culture of open  
4 government that empowers and delivers for citizens, and advances the ideals of  
5 open and participatory 21st century government', based on access to information,  
6 citizen engagement, fiscal transparency, and income and asset disclosure (Herrero,  
7 2015). The influence of OGP action plans on practice and on research was  
8 considerable. For example, the UK government (2016) national action plan for 2016-  
9 2018 developed in collaboration with civil society organisations included  
10 commitments to engage with data users about their needs and to gain their views on  
11 priority areas for the development of the open data agenda, and to develop  
12 <gov.uk>, the website for government publications, to make it more open and  
13 accountable.

14  
15 Privacy and data protection are often seen as problematic in an open data context,  
16 inhibiting the public good in sharing data. Whilst sharing data may lie at the heart of  
17 the open government data agenda, from a privacy perspective the right to limit the  
18 sharing of identifiable personal information is cast as a fundamental human right. A  
19 number of overlapping legal measures exist to protect privacy, including privacy  
20 rights, which guarantee freedom from interference; data protection, which controls  
21 the processing of personal data; and duties of confidentiality, which protect against  
22 unauthorised or unreasonable breaches of confidence (Nuffield Council, 2015).

23  
24 There is recognition that personal privacy is not always in the public interest if it  
25 impedes other fundamental human rights and interests. For example, there is a  
26 public good in the use of medical records and patient data to support advances in  
27 medical, health and scientific research. However, there is also a public good in  
28 respecting and protecting privacy, maintaining confidentiality, and limiting the use of  
29 medical records and identifiable patient data. Balancing these public goods (the  
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3 public good in enabling research and the public good in protecting data) is  
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5 increasingly challenging given the rapidly evolving mechanisms open to researchers  
6  
7 and others to re-use and link data (Caldicott, 2013).  
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## 10 11 12 **Research Results and Discussion**

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15 This section presents and discusses the main practice findings, illustrated by  
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17 quotations from the interviews, referenced by case study and interview (eg 1:1) as in

### 18 19 20 **Table 1.**

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22  
23 *Who is responsible for open government data in public authorities?*

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26 Our first question sought to understand where responsibility for open government  
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28 data sat organizationally and the professional groups and units that led on the issue.  
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30 We were particularly looking for evidence that records and information managers  
31  
32 were explicitly involved and their information skills acknowledged as relevant to open  
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34 data. As might be expected, given that the four case study organizations  
35  
36 had very different core mandates and significant differences in size and structureies,  
37  
38 there was little consistency in the location of responsibility for open government data  
39  
40 policy, the range of job roles involved, or the organizational structures in place to  
41  
42 deliver this function. That each case study took such radically different approaches  
43  
44 to delivering the same open data function was perhaps unexpected. As this was a  
45  
46 fairly new area of work, the local authority had established an Open Data Working  
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48 Group in its Business Intelligence Team to develop policy, including governance and  
49  
50 law, information governance, information access and records management. An  
51  
52 operational team for Information Transparency had responsibility for data protection,  
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54 freedom of information, data sharing, data security and environmental information,  
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3 but open data was not yet part of its functions. The authority sought to 'make the  
4 data we are creating as an authority, as part of our daily business, available for more  
5 general use' (interview 1:3) and equated open government data with  
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7  
8 'transparency...being able to give data to the public when they ask for it and being  
9  
10 open about it...being open about what we spend our money on' (interview 1:1). This  
11  
12 authority seemed to have well established teams to deliver existing information  
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14 functions, and the cross-functional Working Group was making progress in defining  
15  
16 and identifying the policy aspects of open data as a preliminary step towards making  
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18 the new function part of an operational team.  
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24 In the NHS hospital trust, responsibility for open data was not yet established and no  
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26 job titles referenced that role directly. As in many health settings, the overarching  
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28 function was information governance, following the Caldicott Principles (2013) for  
29  
30 handling patient information across the NHS (2016). A traditional line management  
31  
32 structure for information governance sat within the directorate of corporate affairs.  
33  
34 Information governance and internal corporate records functions were fairly  
35  
36 traditionally conceived as having a primarily corporate focus, rather than external  
37  
38 obligations for openness and transparency, although with responsibility for freedom  
39  
40 of information requests. One interviewee anticipated that when the hospital trust  
41  
42 formally adopted an open data function, there would be a separation between policy  
43  
44 and operations:  
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49  
50 I would expect to see it coming to Corporate Affairs and the stuff that's around  
51  
52 releasing data, IG and FOI would probably come our way, but some of the  
53  
54 stuff probably more about policies, about how the Trust runs itself would  
55  
56 probably sit with the Trust Secretary. (3:1)  
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3 But that in practical terms existing staff would 'just do it as we go along' (3:1).  
4

5 Another interviewee thought that open government and open data were not yet high  
6  
7 priorities for the hospital trust (3:2). This position is somewhat at odds with the  
8  
9 picture given by NHS England, guided by its obligations under the Health and Social  
10  
11 Care Act 2012. At the time of the case study in 2015, NHS England had a policy unit  
12  
13 to develop policies around information standards, open data and patient care data  
14  
15 which sought to be a centre of expertise, acting as a 'think-tank for NHS England'  
16  
17 and learning actively 'from the best across the UK and internationally' (2:3). NHS  
18  
19 Digital collects, manages and publishes health and care data, under the direction of  
20  
21 NHS England and the Department of Health (2:4). Our case study hospital trust  
22  
23 noted that it reported large amounts of data to NHS England: much of the hospital's  
24  
25 open data is effectively published by a third party. However, the responsibility for  
26  
27 open government data is not always completely clear in large and complex public  
28  
29 services. Sometimes it is not clear how variants of datasets relate to each other, or  
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31 who should publish which ones.  
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38 In the university case study, there was evidence of a very active approach to  
39  
40 business intelligence, data assurance and responsive provision of personal data and  
41  
42 corporate information, partly driven by the requirement to provide data to the Higher  
43  
44 Education Statistics Authority (HESA) as a condition of grant funding. One  
45  
46 interviewee from the strategy and planning unit admitted, however, 'I'm not that  
47  
48 familiar with the open data stuff', which she saw as an external issue about access to  
49  
50 data for academic research, rather than a corporate issue (4:1). The university  
51  
52 records manager's role had expanded rapidly from managing corporate records and  
53  
54 information to include information assets, audit and compliance, and information  
55  
56 governance. In order to deal with this changing environment,  
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3 We set up an Information Governance Group, ... more involved in information  
4 security and information assurance. What we've had to do is to bring together  
5 representation from across the HEI including security, IT, academics, our  
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10 Research Information Manager who handles research data management  
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12 (4:2).  
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15 Our case studies suggested that proactive individuals could make progress in  
16 encouraging a public authority to develop policy and practice in open government  
17 data by bringing a group of interested officers together in a focused, short-term way,  
18 such as on a policy working group, with the longer-term aim of embedding the new  
19 function in an existing unit. The corporate environment could help or hinder such  
20 initiatives.  
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30 No one professional group routinely took on open government data functions: it  
31 depended more on the interests of individual staff taking advantage of corporate  
32 opportunities rather than yet forming part of formal role descriptions. Directors of  
33 Governance and Law, Information Governance specialists, Information Access  
34 officers, Data Sharing specialists, Corporate Communications officers, Business  
35 Intelligence officers, Heads of Data Policy, Freedom of Information and Data  
36 Protection Officers and Corporate Information and Records Managers. Post holders  
37 had backgrounds in law, ICT, information and cyber security, informatics, education,  
38 social sciences, media and communications, as well as records management. The  
39 research reflected a shift in some organizations to information governance as the  
40 overarching corporate function for open government data. Information and records  
41 managers often have the skills needed to manage and deliver open data, but in  
42 practice, their employing organisations did not always exploit these skills for public  
43 benefit.  
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3 *What policy and guidance on open government data exists in public authorities?*  
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6 Part of the explanation for the variation of approaches to the management of open  
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8 government data discussed in the previous section might be found in the varied  
9  
10 Policy and guidance context from central government or national bodies varied from  
11  
12 one part of the local public sector to another. All of our case studies were subject to  
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14 FOIA 2000, and the Data Protection Act (DPA) 1998, replaced by the GDPR and  
15  
16 DPA in 2018. Although there is no open government data legislation, there is central  
17  
18 government policy directed at public bodies encouraging them to make their data  
19  
20 available for re-use, including the Open Data White Paper and Open Public Services  
21  
22 White Paper (UK government, 2011, 2012). The Open Government Partnership  
23  
24 promotes the open government agenda through action plans: the UK issued its third  
25  
26 action plan including open data commitments in 2016. The requirement to publish  
27  
28 certain data to fulfil the government's transparency agenda at <<https://data.gov.uk/>>  
29  
30 facilitates central agencies in publishing data.  
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37 However, considerable local and sectoral variation in policy can be found in our four  
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39 case studies. Some sectors are much more highly regulated, in particular in two of  
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41 our case studies in the health sector. NHS England, including NHS Digital (2017),  
42  
43 has a responsibility for improving the quality of health and care data and publishes a  
44  
45 number of national guidance and policy documents. NHS Records Management  
46  
47 Code of Practice for Health and Social Care (2006) forms part of NHS Digital's  
48  
49 guidance and policies on information governance, including the Information  
50  
51 Governance Toolkit (2016). Several of our interviewees commented on the lack of  
52  
53 connection between records management and information governance in the NHS,  
54  
55 even though these policies ought to support each other. Records management was  
56  
57 described as 'not visible or vocal enough to be involved in open government data'  
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3 (2:3). Information governance, by contrast, was well developed and although the IG  
4 Toolkit was 'not directly mandated by legislation but it is...done without question'  
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7 (2:1). 'The idea of patient confidentiality is one that has been at the heart of doctor-  
8 patient relationship since time immemorial' (2:4) and data confidentiality is integral to  
9 information governance in the NHS. In the NHS 'the more open you get, the more  
10 nervous people get' (2:3) and 'already there are large numbers of people who do not  
11 want their identifiable data used for anything other than their direct care' (2:4), not  
12 least in the wake of failed data sharing initiatives such as care.data (Presser et al,  
13 2015; McLeod and Childs, 2018), and concerns over data sharing with commercial  
14 companies such as Google Deepmind (ICO, 2017a). Much of the data held in the  
15 NHS is patient data and identifiable personal data cannot ever be open: such data  
16 will only be published if 'aggregated and anonymised' (2:4).  
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31 The national open data and transparency agendas of NHS England are not always  
32 reflected at a local level. Barriers to proactive publication of data, as one interviewee  
33 remarked, 'the culture is more around publishing as little as possible', 'partly the  
34 culture, partly a lack of awareness and also partly ...the technical capability' (3:2).  
35 For policy areas not governed by legislation, such as open government data, there  
36 was a considerable delay between policymaking at national level, and the filtering  
37 down of policy and associated practice to local level.  
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48 By contrast, the local authority case study approach to open government data was  
49 longer established, although in practice only a few specific datasets were routinely  
50 made open. The Local Government Transparency Code (2015), together with  
51 guidance from the Local Government Association, provided a framework which was  
52 overseen locally by elected Councillors. One interviewee (1:2) commented on the  
53 tension between, on the one hand, central government policy to publish as much  
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3 data as possible and rules requiring publication of certain local financial data with, on  
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5 the other hand, allowing the authority to decide which data was of interest to local  
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7 public audiences and prioritise their resources to select and process that data for  
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9 publication.  
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13 Problems with delivering open government data in practice were also identified,  
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15 especially an assumption that data and information are held in well-established  
16  
17 electronic systems. Local authorities were expected to meet at least level three of  
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19 the '5 Star' scheme when publishing data (a simple indicator of the 'openness' of a  
20  
21 dataset, such as its format and metadata, see <<http://5stardata.info/>>). In our case  
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23 study, the local authority records management systems were still predominately  
24  
25 based around paper-based records, while emails, HR and financial data were held in  
26  
27 separate digital systems. Many different formats were used for the creation and  
28  
29 business use of datasets, yet most of the data required re-formatting, additional  
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31 metadata and re-presentation to make it openly accessible. In order for the authority  
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33 to meet the requirements for opening up data, as well as assure data reliability and  
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35 quality of the data drawn from records systems, major changes in the way data and  
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37 records were managed and accessed might be needed.  
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44 While open government data remains unlegislated, it is largely at the discretion of  
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46 individual organizations whether they proactively publish datasets, what they publish,  
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48 and indeed for what purpose. Our university case study interviewees were mindful of  
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50 its statutory obligations to provide data to HESA and to comply with data protection  
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52 and freedom of information, but to go beyond that to 'publish large swathes of data'  
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54 which might have reputational risks and would cost scarce resources was not a  
55  
56 current priority. Since opening up data consumes resources, the corporate, individual  
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58 and public benefits needed to be balanced.  
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3 If more data is to be made open, then choices have to be made by the creating  
4 organization about which data to open. At present, these choices are not themselves  
5 transparent, nor are the reasons for them explained in public. Open data is generally  
6 not contextualised and users just see individual datasets: a proper understanding of  
7 open data might also require knowledge of which data was *not* opened.  
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15 Open government data as a policy-driven activity is subject to localised pressures.  
16 Resources, technical capabilities and strategic and local policy priorities tended to  
17 drive the choices about which data to open. Secondary data use is therefore highly  
18 dependent on local pathways and citizens and researchers are faced with highly  
19 variable open datasets from place to place, making re-use problematic and  
20 unpredictable. Our case studies suggested that consistent policies are lacking  
21 between different sectors, different organizations and indeed between different  
22 teams and units within one organization, leading to inconsistency and a lack of  
23 transparency. While a single common mandated approach would not necessarily  
24 serve the needs of diverse organizations and their clients, such a wide range and the  
25 lack of even a common set of principles leads to confusion about open data  
26 priorities. Under UK FOIA (2000), The National Archives (2009) published a Code of  
27 Practice on Records Management -providing core common requirements to  
28 support freedom of information, which individual organizations could adopt in a way  
29 suited to their own structure and mandate: no similar guidance exists for best  
30 practice in open government data provision.  
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53 *Publishing data is not enough: what else is required?*  
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56 As Dawes (2010) stated, 'publishing data is not enough', it needs to exist within a  
57 technical infrastructure and information context that renders it meaningful and usable  
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3 to the public. Our interviewees reported that since data was not created with public  
4 access in mind, a considerable amount of work was needed to ensure that data was  
5 re-usable, including perhaps requiring staff to change their working practices to use  
6 open data formats for 'business as usual' (1:2). They were also concerned about  
7 problems of data redundancy, inconsistency and data integrity. One records  
8 manager (1:3) explained her responsibility for guaranteeing protective markings on  
9 records containing confidential or personal data, and for ensuring the protection of  
10 personal data and privacy of individuals before data is made open. The Open Data  
11 Policy in this case study gave heads of service the responsibility to ensure 'that data  
12 published is as accurate and usable as possible', but the practicalities of  
13 implementing data checking processes systematically across the authority to ensure  
14 this were considerable, according to our interviewees (1:2, 1:4). Another interviewee  
15 (3:1) said that there was a need to rebut 'the misconception that publishing data  
16 would be easy and straightforward' and commented 'I'm sure the politicians do just  
17 think it's the click of a button, but it's not'.

18  
19 Complete and accurate metadata sets are needed to establish the connection of the  
20 dataset to its creating context and to assist with interpretation, but available  
21 metadata may be limited to that captured automatically, perhaps with some  
22 additional contextual information provided by data creators, according to one  
23 interviewee (3:2). Record creators and information governance staff were concerned  
24 with the accuracy of metadata, but the presentation and ease of use of the data and  
25 explanation of the metadata may be more important to the end user (1:2). A lack of  
26 common metadata standards for open government data and lack of standardisation  
27 of terminology hindered the publication and use of open government data, according  
28 to one interviewee (1:3).

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3 Denis and Goëta (2014) in their ethnography of open government data projects in  
4 French administrations noted three significant operations (exploration, extraction and  
5 rawification) needed in order to prepare open data for release. In our study, t~~The~~  
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10 quality of the data and the amount of work needed to make it open-also affected  
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12 access: cleaner data, for example without any personal data or in simpler formats  
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14 which are easier to reprocess, were more likely to be made open, simply because it  
15  
16 was easier to deal with. 'Trying to work out what can be published', as well as the  
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18 technical and resource problems, was complex. Even once a decision was made to  
19  
20 release data, 'when we say it's going to be open', is that 'just going to be for those  
21  
22 researchers who are asking for it' or something 'that we're going to stick on our  
23  
24 website that anyone can come onto and look at' (3:1)?  
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29 *What are the information management challenges of the open government data*  
30 *environment?*  
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34 The final issue which we sought to examine in our case studies was to draw out  
35 some of the information management challenges of open government data and the  
36 proactive release of government data, to consider how information managers might  
37 help their parent bodies to meet them. Our case study organizations trying to  
38 improve the proactive release of government data ~~faced~~ many information and  
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40 records management challenges, including the management of risk, privacy and  
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42 data security. Protecting personal data, especially sensitive personal data, from  
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44 inadvertent disclosure is important and risky if not done well. Cleaning up data  
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46 before proactive release is time consuming but essential to safeguarding data quality  
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48 and privacy.  
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3 If data is aggregated, linked, anonymised and released openly, data inaccuracies  
4 may be impossible to identify and correct and will affect the understanding of the  
5 data. Inaccuracies in the data can occur at many stages in the record creating  
6 process, through inadvertent or deliberate mistakes in recording, through inaccurate  
7 transcription and faulty re-processing. This risk can be mitigated by reliable internal  
8 procedures, including staff training, and well-established information management  
9 policies and procedures that help to ensure proper data management from creation  
10 to public access. The authors would argue that accurate data is essential for internal  
11 corporate uses of data, as much as for open data release.  
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24 Technical capabilities of staff and of the institutional infrastructures were identified as  
25 issues by the interviewees. For instance, the large quantities of data and large size  
26 of datasets to be delivered through websites posed technical challenges, leading to  
27 websites freezing or collapsing and disruption to other digital services. Many local  
28 public sector organizations do not have the resources to establish sufficiently robust  
29 and scalable web services to deliver open government data. So far, shared open  
30 data portals outside national government have not emerged in England. Universities  
31 could develop shared open data sources for administrative and research data on the  
32 shared national models seen in the past to develop computing infrastructure (JANET  
33 network) and some research data (eg UK Data Archive and Administrative Data  
34 Research Network) but at present, most open data development is localised.  
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50 Metadata standards for open government data are currently lacking in principle and  
51 in practice. Metadata provision is not resource-neutral as most data is coded and  
52 described for its original business purpose, rather than for re-use. At present the  
53 processing of data prior to opening is labour-intensive and, until technology-assisted  
54 routine processes are developed, is likely to remain so. The push to open large  
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3 quantities of data has to be balanced with the need to ensure data and metadata  
4 quality and with effective use of scarce resources.  
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8 Many of the skills needed to deal with open government data are similar to those  
9 needed to manage access to information, and many of the principles for managing  
10 open data mirror existing information and records management principles and  
11 standardized processes, such as provenance, functional classification, and creation  
12 of standard metadata and description. Information managers are, therefore, well  
13 placed to play a leading role in open government data. However, in order to fulfil  
14 these roles and responsibilities effectively and support the development of re-  
15 useable and reliable open government data, they need to develop greater  
16 awareness of open data, better technical skills in digital data and systems, improved  
17 expertise in information security, in routines for anonymisation for personal data, in  
18 data analytics, in digital curation, and in semantic web technologies. They need to  
19 deploy their skills in the assessment and management of risk, environmental and  
20 privacy impact assessment. Ensuring that information and records management  
21 skills are fit-for-purpose and used for the public good in an open government data  
22 setting is a critical challenge.  
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### 43 **Conclusion**

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46 This study sought to investigate the impact of the open government data  
47 environment in local public authorities in England, through the lens of the  
48 professional practice of information and records management. In particular, it aimed  
49 to identify key legislative and regulatory open government data frameworks and  
50 principles, through a study of the literature, and to investigate existing organisational  
51 practices and job roles in delivering open government data through four case  
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3 studies. The research results showed that in practice in the public authorities in the  
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5 study, there was little consistency in the location of responsibility for open  
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7 government data policy organizationally, nor agreement about which professional  
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9 group should lead the activity, nor common approaches for the practical delivery of  
10  
11 open data. This finding is perhaps not surprising given the different governance  
12  
13 models adopted by the case study organizations and their different mandates. As a  
14  
15 fairly new area of work, many different professions were involved: governance, law,  
16  
17 information governance and records management, ICT, cyber-security and data  
18  
19 management. This highlighted some of the managerial and organisational barriers  
20  
21 which public authorities currently face. Although a single common approach would  
22  
23 not be appropriate for such a variety of public organizations, the lack of consistency  
24  
25 inhibits effective sharing of best practice. If public authorities shared good practice  
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27 and benchmarked across different domains and between different professional  
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29 groups, then the success stories could better inform authorities whose open  
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31 government data policy and practice was not yet fully developed.  
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39 A number of other barriers to open government data were identified. The technical  
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41 infrastructure needed to deliver open government data, website capabilities, storage  
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43 of data, metadata, and the long-term provision of access still need development.  
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45 This was a resource issue, both the costs of implementing improved technical  
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47 systems, but also in terms of ensuring the necessary staff competencies, re-training  
48  
49 and re-skilling staff on an ongoing basis. Other technical issues related to the  
50  
51 internal systems used to create data and records, which are not yet attuned to open  
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53 data as a business-as-usual issue. As a result, data needs extensive re-processing  
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55 before opening.  
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3 Cultural barriers still exist in organisations. Authorities did not agree about the  
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5 benefits of open government data, some saw it as an exercise in transparency and  
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7 accountability, others a means of ensuring internal data compliance and governance.  
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10 Few seemed yet to have considered the external needs of open data users, and this  
11  
12 is an area in which further research would be beneficial to guide policy. If public  
13  
14 authorities do not see the value to their business of making government data open,  
15  
16 then they will not allocate the necessary resources to ensuring that it happens.  
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20 This research suggests that the skills of information and records management  
21  
22 professionals could be better utilised to help public authorities to meet open  
23  
24 government data challenges. The management of risk, balancing privacy and the  
25  
26 public good in open data, against the reputational and individual risks of releasing  
27  
28 data inappropriately, is a critical skill. Ensuring data accuracy by enabling datasets to  
29  
30 be traceable to their original reliable data source and ensuring the data governance  
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32 systems which surround them is also critical. Information and records managers are  
33  
34 well placed to play a leading role in open government data, but they need to explain  
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36 their unique contribution more clearly in a crowded and confusing field.  
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41 This work makes three key recommendations:  
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- 44 • Open government data policy and structures should be supported by best  
45  
46 practice case studies and guidance. As public bodies implement open government  
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48 data functions they would benefit from the shared experience and models from best  
49  
50 practice.  
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- 53 • Designing information systems with the potential to support open government  
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55 data could be improved if public bodies co-developed shared templates for systems  
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57 requirements, including open government data metadata standards and standards  
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3 for the creation of current data. At present, developments seem to be highly  
4  
5 localised.  
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8 • The job roles and organisational structures for delivering open government  
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10 data initiatives should be clearly articulated and take account of the full range of  
11  
12 information expertise including, law, ICT, cyber-security, information governance,  
13  
14 and information and records management.  
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18 The development of a code of **best** practice for the management of open government  
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20 data across the public sector would enable these recommendations to be taken  
21  
22 forward.  
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Table 1: overview of case studies

Four InterPARES Trust case studies	Date of data collection	Research Assistant	Number of interviews/ job roles of interviewees
1. Local government	June-July 2014	Jessica Page	4 interviewees: 1. Information Access Officer 2. Business Intelligence Officer 3. Records Manager 4. Information Governance Officer
2. NHS England	June-July 2015	Emma Harrison	4 interviewees: 1. Senior Advisor, The National Archives 2. Senior Data Sharing Specialist 3. Head of Data Policy 4. Senior Information Governance Advisor
3. Hospital trust	June-July 2016	Katherine Chorley	3 interviewees: 1. Information Governance Manager 2. Corporate Records Manager 3. Assistant Records Manager
4. Higher education institution	June-July 2016	Sara Brimble	4 interviewees: 1. Senior Planner 2. Records Manager 3. Freedom of Information and Data Protection Officer 4. Research Information Officer



Table 2: summary of semi-structured interview questions

<b>Interviewee's role</b>
1. Please explain your role and the responsibilities of your department?
<b>Guidance and Regulations</b>
1. What OGD obligations and regulations are imposed by central government?
2. What OGD guidance is available?
3. What internal and external policies are used for publishing OGD?
4. Is 5-Star Scheme used?
5. Has OGD impacted on FOIA requests?
6. What metadata schema is used for OGD?
<b>Implementation</b>
1. What are your responsibilities for OGD?
2. What challenges are there OGD?
3. How is authenticity, reliability and accuracy of OGD guaranteed?
<b>Roles and Responsibilities</b>
1. Who is responsible for OGD?
2. Which departments publish OGD? What kind of data?
<b>Recordkeeping of open government data</b>
1. How do OGD and RM systems interact?
2. What functional classification is used for OGD?
3. Is OGD linked to other data? How?
4. What OGD publication formats?
5. How to ensure accessibility of OGD?
6. What OGD Policy training?
<b>Users of open government data</b>
1. Which groups use OGD?
2. How does OGD encourage public participation?
<b>End questions</b>
1. What are future plans for OGD?