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Information & Records Management and Blockchain Technology: Understanding its Potential

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Abstract

Information & Records Management and Blockchain Technology:

Understanding its Potential

This MSc dissertation researched the extent to which Blockchain technology is or might become a useful tool for information and records management (IRM).

In undertaking this research, I had three aims in mind. Those were:

- To explain the state of knowledge and use of Blockchain technology currently being employed within IRM around the world;
- To investigate why Blockchain technology was or was not being used in the IRM community/profession; and
- To explore whether there is potential for further use of Blockchain technology in IRM.

This topic was selected because there is very little academic or practitioner writing on the role of Blockchain within an IRM context. The aims of this research are investigated through quantitative research methods via an online questionnaire to survey IRM professionals about their knowledge and use of Blockchain and the drivers and obstacles to such knowledge and use or their lack of such knowledge and use.

My research found that Blockchain technology is a little used tool as very few people actually work with it or have experienced it as a records management tool. At this point in time it is too early to draw definitive conclusions about the degree to which Blockchain is or might become a critical tool for IRM.

1 INTRODUCTION

This dissertation contains the results of my research into the use of Blockchain technology in information and records management. It is submitted for the Information and Records Management MSc course at Northumbria University.

In this introductory section, I will set out the topic I have researched. Some basic definitions are given. I will also explain why I chose this topic for my research. Then I will explain the structure of the rest of this dissertation.

1.1 My research topic and some definitions

1.1.1 The topic I have chosen to research relates to the degree to which Blockchain technology is or might become a useful tool for information and records management (IRM). In thinking about this topic, I became interested in establishing the extent to which it is understood and used within IRM, where it has been adopted, and what explains why it has or has not been introduced.

1.2 Blockchain technology

1.2.1 But what is Blockchain and why choose it as a research topic? Blockchain technology with its underlying applications is a new disruptive technology (Hiesboeck 2016, Rosic 2016, King 2016, Lubin 2016) which has emerged recently: it has excited a lot of people because of its '*potential to transform everything*' (Tapscott 2016, p6).

1.2.2 There is no agreed single definition of Blockchain. However, most attempts at definition share certain similarities. For some, it is a '*shared electronic database in which the data records are immutable and encrypted*' (Shaw, iDisrupted, 2016). Or it is a '*distributed ledger that provides a way for information to be recorded and shared by a community*' (Deloitte 2016, p.81). Tapscott (2016, p6) calls Blockchain '*incorruptible*' and explains that it can be '*programmed to record not just financial transactions but virtually everything of value*'. Gharib (2017) refers to it as being an '*online database that's*

considered to be secure, private and generally hackproof'.

1.2.3 How does this new technology work? Fundamentally, a Blockchain is a distributed ledger of all transactions, which are recorded into discrete blocks and linked together, in a chain. Each block contains private data (also known as transactions) and a public header, which is used to link to the next block on the chain. The blocks are sequentially linked and cryptographically secured such that only the owner of data in a block can unlock it using their private key. Anyone can see who owns each block, however, via its public header information. Anyone can follow the links through the entire chain right back to the first block. The Blockchain is stored in a peer network of nodes, where each node contains a copy of the entire Blockchain and has the ability to add new blocks to it (Bauerle, 2017; Blockgeeks, 2016; Straw, 2016; Monroe & Adriano 2010).

1.2.4 Therefore, we can see that Blockchains are essentially databases which, rather than being maintained centrally, are duplicated across a network in such a way that every change to each database is recorded and approved on each node on the network, following an exacting process of cryptographic verification (W.E.F. 2017).

1.2.5 Where is this technology used? The financial sector was the first to investigate this technology and has since embraced it (Trautman 2016, Perez 2015, del Castillo 2016). Other industries such as Telecoms (Rizzo, 2016) and Insurance (Higgins, 2015), amongst others, are quickly catching onto the potential of this '*Megatrend*' (W.E.F. 2015).

1.2.6 Blockchain is clearly gaining momentum and has potentially far-reaching uses. Indeed, Gartner goes so far as to proclaim that it '*can fundamentally change the society in which we live*' (Gartner 2016). It can be assumed that this necessarily should affect the way IRM is and will be configured and delivered.

1.2.7 Yet, despite this assumption, it appears that little academic research has been conducted into Blockchain technology, with practically nothing in the IRM field (Lemieux 2016). My own experience working in IRM roles within both the

public and private sector confirms such a lack of engagement with Blockchain, in the operational field at least. This brings me to why I selected this research topic.

1.3 Selecting a topic and identifying research questions

1.3.1 My own interest in Blockchain was aroused by reading a book review of Tapscott's *The Blockchain Revolution*, a book I subsequently read. I became fascinated to discover more about this new technology whose advocates promised so much for it. I began to do my own informal online research about the topic. In the context of undertaking this MSc course, I also began to wonder about whether Blockchain was being examined within the IRM field.

1.3.2 The answer to that question became clear when I checked Northumbria University's online library to see what relevant material existed about this topic. Those searches did not return anything useful. The results of those searches are set out in Appendix M.

1.3.3 With this background in mind, the idea was born to undertake research for this dissertation into the current and future role of Blockchain within IRM. I decided on a working title, which was *Information & Records Management and Blockchain Technology: Understanding its Potential* and began to plan my research.

1.4 Research Aims

1.4.1 In undertaking that research, I had three aims in mind. Those were:

- To explain the state of knowledge and use of Blockchain technology currently being employed within IRM around the world;
- To investigate why Blockchain technology was or was not being used in the IRM community/profession; and
- To explore whether there is potential for further use of Blockchain technology in IRM.

1.4.2 This dissertation contains the results of my research, which was guided by those aims. I will now explain how those results have been organised within

the rest of this dissertation.

1.5 The structure of this dissertation

1.5.1 This dissertation has four sections other than this introduction. The second section sets out the methodology I used to conduct my research. As will be seen, this had three principal components: (1) a review of the existing literature in order to draw out relevant themes from such secondary sources and to develop hypotheses to test; (2) the design and delivery of a primary source to produce data to test those hypotheses, in the form of a survey of IRM professionals around the world; and (3) my analysis of that data to produce conclusions.

1.5.2 The subsequent sections of this dissertation follow this approach. Section three contains the results of my literature review. The hypotheses derived from that review in the context of the research aims set out above are:

- Hypothesis 1: *Blockchain technology is both an under recognised and little used tool within the IRM community*. This tests the apparent lack of academic and practitioner engagement with the topic I identified at the outset of my research.
- Hypothesis 2: *IRM factors do not explain why organisations use or do not use Blockchain technology.* This tests why this technology has been rolled out in the sectors I identified above but not apparently within IRM.
- Hypothesis 3: *Blockchain technology has significant potential to improve and enhance existing IRM practices*. This tests the belief of its advocates that this technology can bring about fundamental change.

1.5.3 Section four of this dissertation sets out the data derived from the results of the survey I conducted, a survey designed to address the research questions I developed. I conclude in section 5 with my final analysis and consideration of initial lessons I have learned from conducting this research.

2 METHODOLOGY

2.1.1 I explained in the introduction what my research topic was, why I chose that topic, and summarised the approach taken in this dissertation. In this section, I will describe the methodology I used in planning and conducting my research.

2.1.2 From participation in other modules in this course, and from my previous experience, I was aware that there are a range of different approaches and tools available in the field of research methods. I considered those in the context of the apparent lack of existing research in the IRM field which I identified in the introduction to this dissertation. My primary motivation was thus seeking ways to fill gaps in existing knowledge in this field, once that knowledge had been set out.

2.1.3 Section 3 of this dissertation sets out the results of my research into the existing knowledge about Blockchain technology in an IRM context, derived from a literature review. In undertaking this, I was guided by my three aims: to explain the state of knowledge and use of Blockchain within IRM; investigate why Blockchain was or was not being used in the IRM community/profession; and explore whether there is potential for its further use in IRM. As explained in the introduction to this dissertation, from that review I developed three hypotheses which form the research questions for this dissertation.

2.1.4 But how to address those questions? I established that I would need to select a method that was appropriate in the particular context of my research topic. I first considered whether it would be possible to undertake tailored qualitative research by conducting detailed interviews with relevant people with knowledge and experience of Blockchain in IRM. I soon discounted that approach. Identifying those people would not be straightforward, as there was little information available about who was using Blockchain in IRM and where. This was precisely one of the drivers for my research, along with *why* the technology had or had not been adopted.

2.1.5 There were also other potential problems with such a qualitative approach, including cost and other resource constraints and the fact that engaging those

IRM professionals who *used* Blockchain was unlikely in itself to help explain the apparent *lack of use* of the technology within IRM and might also be very limited in scope. I thus began to consider quantitative approaches.

2.1.6 I decided to create an online questionnaire to survey IRM professionals about their knowledge and use of Blockchain and the drivers and obstacles to such knowledge and use or their lack of such knowledge and use. I also decided to adopt a hypothesis-driven approach to my research questions. Pickard (2014, p.9) refers to such an approach as the '*methodological stance*' of positivism.

2.1.7 This approach had three advantages: it would be less intensive, potentially saving time and financial resources; it would be possible to cover a larger data-set of more people drawn from a large geographical area; and it offered anonymity to participants, thus increasing the likelihood of obtaining accurate information. In making these decisions, I bore in mind the possible disadvantages of such an approach. Those include '*survey fatigue*' (Wilson, 2013, p.34) in the sample that I would be targeting and that such surveys are '*notorious for their low responses*' (Kumar, 1999, p.249). There would also be little or no opportunity to clarify any issues should any arise. Nevertheless, I believed the advantages outweighed these possible disadvantages.

2.1.8 Having decided on the broad approach I would use, I proceeded to plan and design the survey. This required me to scope out and to resolve three principal issues: (1) who would be the target audience for my research; (2) on what platform would the survey be delivered; and (3) the design of the questionnaire itself.

2.1 Target audience(s)

2.2.1 As for selecting a target audience, I decided to adopt a purposive sampling method, as opposed to another method (McBurney 1998). Given the topic I had chosen, it was clear that the core group should be IRM professionals, in order to deliver relevant results. However, in practice I knew from personal experience that many organisations combine responsibility for IRM with other sectors, such as data protection, or label IRM functions as being part of

Archive or Library functions.

2.2.2 I also originally planned to restrict the geographical scope of the target audience to residents of the UK and Ireland. However, I decided not to place such a geographical restriction on the target audience, bearing in mind the dangers of a small survey response rate which might make the data produced statistically irrelevant, in the context of the potential limitations to the survey method which I summarised above.

2.2.3 Bearing both of the above issues in mind, I decided to choose platforms which would reach the most relevant people regardless of label or location.

2.3 Platform(s) and standards

2.3.1 Drawing on personal knowledge of the IRM community, I decided to concentrate on two target groups when releasing my questionnaire: (1) membership of the LinkedIn group for the Information and Records Management Society (IRMS)[1]; and (2) membership of the Records Management, Archives, and Data Protection mailing lists identified with the Education and Research Communities Tool (Jiscmail 2017).

2.3.2 In addition to using such indirect methods, I also undertook a direct messaging campaign of LinkedIn members with apparent responsibility for IRM on their profiles. Further information about my approach to targeting is contained in Appendix N.

2.3.3 I also needed to choose an appropriate online survey service, bearing in mind issues such as data protection and being hosted on servers in the E.U. Northumbria University's own recommendation was to use Bristol Online Surveys, for which it had a licence for students to use. Another major factor in

[1] The IRMS is a professional association for information professionals. Based in the UK, but with members in over 30 countries and territories, the IRMS now has 1,200 members and 6,000 followers in all sectors of the business world, both public and private (IRMS 2017).

selecting this particular survey tool was its facility for incorporating respondent anonymity (BOS 2017) which would contribute to compliance with the ethical standards that I set.

2.3.4 Key to those ethical standards was that all research would be undertaken with respect for the greatest levels of integrity and transparency. Adequate information would be provided upfront to let prospective respondents become aware of what would be required so as to enable informed decisions about participation in the questionnaire. The questionnaire itself would be completely voluntary with no coercion to participate. The seeking of express consent on the survey form for the authorised use of any responses provided would be clear. No sensitive information would be required and the possibility of causing harm to participants would be non-existent. Finally there would not be any Ethnography. The research would therefore be designed so as to comply with Northumbria University Ethics Guidance (Northumbria University, 2017).

2.4 Questionnaire design and testing

2.4.1 Having decided on the target audience to whom the survey would be issued and on what platforms and with regard to what ethical standards it would be delivered, I set out to design the questionnaire itself. In doing so, I bore in mind that questionnaire design is a complex process (Dillman, 2009; Nemeth, 2004). At the outset, it was important to remind myself of the purpose of my data collection – to understand the knowledge, experience, attitudes and opinions of a professional community and to gather particular attributes and facts to help me analyse their responses.

2.4.2 In focusing on the content and order of my questions, I took onboard advice from Dillman (2007, 79) to '*keep questions short*', and from Bailey (1978, 100) to '*always use simple and everyday language*'. I also tried not to '*use ambiguous questions*' (Moser and Kalton, 1989, 319) whilst avoiding '*biased questions*' (Wilson 2013) and sought to phrase my questions positively (Akiyama, Brewer & Shoban, 1979). I also decided to use both open and closed questions and Likert scales.

2.4.3 As for ordering the questions, I understood that this was complex and would impact on the relative success of my research. As Dillman (2000) noted, what the early questions are in a questionnaire can have an impact on responses to the later questions. Wilson (2013) offered three general approaches for ordering questions: a funnel approach; an inverted funnel approach; and the logical order approach. My questionnaire followed the funnel approach.

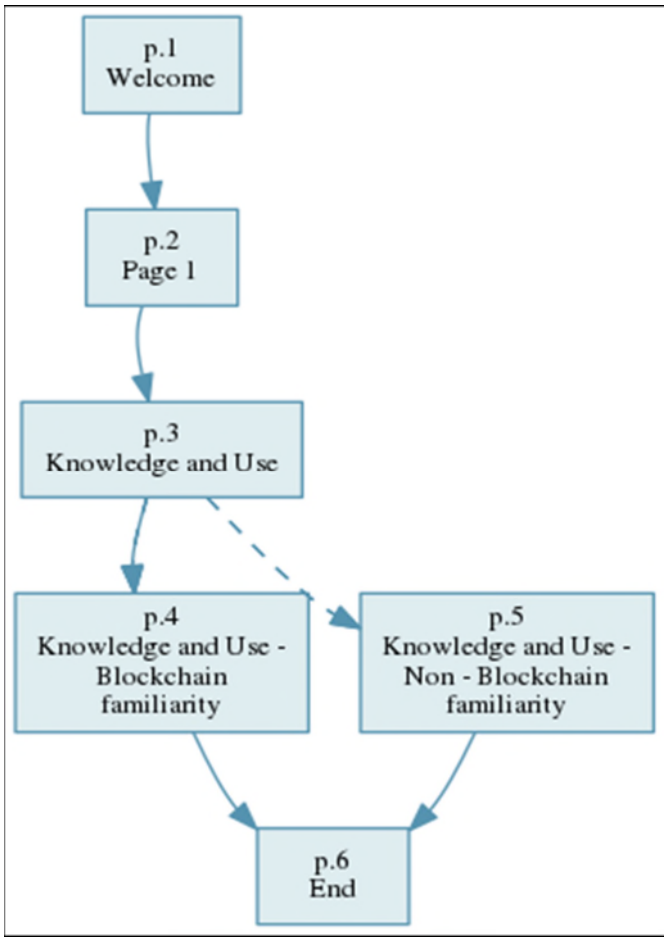
2.4.4 The outcome of my design work was as follows. The questionnaire begins with '*general, but relatively simple and non-threatening questions first*' (Wilson 2013, p.63). The first five questions were closed questions under the title '*About you*'. These asked about the role of the person, the type of organisation they worked for, and if they had IRM responsibility. They were designed to ease the respondent into the questionnaire, yet to also elicit some information that could be used later to aid analysis of later responses.

2.4.5 The first substantive question was question 6 – see Figure 1 – which, despite being closed, led directly to routing.

Figure 1 - Question 6 Are you familiar with Blockchain technology?

2.4.6 Routing, also known as skip-logic or branching, allows survey administrators '*to direct a respondent through a survey based on the answers that they give*' (BOS 2017). The advantage of routing is that it helps to gather relevant results for more accurate analysis and prevents respondents from being forced to participate in questions they cannot answer. If they were forced to participate in all questions, then they might abandon participation and, given the potential disadvantages of this method summarised earlier, this was to be avoided. The routing used in my questionnaire is illustrated in Figure 2 below.

Figure 2 - Questionnaire Route Map



(p = page)

2.4.7 The first route – Familiar - focused on people who knew about and/or used Blockchain technology. The second route – Non Familiar – was aimed at those who were not too familiar with Blockchain and focused on more general terms such as '*new technologies*'. Essentially though, both sets of questions in each route were structured the same; asked for the same information; but just used different terms to reflect the answers given to earlier questions by each respondent.

2.4.8 Other issues I considered when designing my questionnaire included survey length and content validity. Dillman (2000) noted that the greater the length of a questionnaire, the greater the likelihood of a decreased response. Yet he also noted that short questionnaires were viewed as being not very

meaningful by respondents. I bore this in mind. My questionnaire consisted of thirteen questions and took four minutes to complete, facts which I publicised when issuing the questionnaire.

2.4.9 '*Content validity*' was particularly important in my design, as I wanted to ensure that the questionnaire included content that was relevant to meeting my research aims: if it did not include such content, little value would be added by my primary research. Andres (2012, p.115) explains that any information collected via a survey mode can only be considered valid to the extent that the following criteria are met: (1) it produces information that answers the research questions; (2) it accurately describes the samples or population used; and (3) it can be extended to individuals beyond the participants of the study.

2.4.10 I sought to ensure such validity by linking the survey questions to my aims and objectives by way of a matrix. This matrix can be seen in Appendix I.

2.4.11 Once the survey had been drafted, I piloted it in order to test whether it was ready to launch. This was done by sending it to ten former and current colleagues. Eight are currently working as information professionals, with two working in a legal environment. I value the ability of all ten people to offer honest and constructive criticism. In seeking feedback on the draft, I particularly sought to test the clarity and precision of each question and their logical sequence. The response was largely positive, highlighting only linguistic and other minor issues. I was therefore satisfied that, once those minor issues were resolved, the questionnaire was ready to launch.

2.4.12 The final version of the questionnaire can be seen at Appendix A. It launched on 10 April 2017 and closed on 22 May 2017. As will be seen, the total number of respondents within that period was 337, which I considered to be a success in a context of potential survey fatigue and low response rates.

2.4.13 Informed consent to participation was secured on the welcome/opening page of the questionnaire, saying: '*By voluntarily completing this survey you consent to the information provided contributing towards a MSc Dissertation paper and other, not yet defined, published material.*' There was no incentive

for people to participate except for what Wilson (2013, p.73) calls an '*information incentive*': the cover note stated that I would write a short article for the IRMS Bulletin newsletter, and also would publish my findings through my LinkedIn account as a way of thanking them for their support and of explaining my results.

2.4.14 Having explained the methodology I used to design and conduct my research, I will now turn to set out the results of the first stage of that research: a review of existing literature about my research topic.

3 LITERATURE REVIEW

3.1 IRM Literature

3.1.1 In this section I set out the results of my review of existing literature which is relevant to my research topic. I first look briefly at the IRM literature to the extent that it is relevant to Blockchain and similar technological innovations. I will then explore the existing material about Blockchain. I have set out the results of my review bearing in mind the research aims I have identified.

3.1.2 Technological innovation has always been a key challenge for IRM. The move from paper-based systems such as index cards towards the digital management systems with which we are now familiar was never painless. As Duranti summarises, one of the '*greatest challenges*' which digital systems present for IRM is '*the creation and maintenance of reliable records and the preservation of their authenticity over time*' (2010 p78). Yeo (2013) continues this school of thought by noting that, where records are concerned, '*documentation of provenance and context forms a basis for enhancing their transparency and thus for evaluating their trustworthiness*'.

3.1.3 Trust is a key issue for the management of records. Duranti and Rogers (2012 p. 552) concisely define trust as something that '*involves willingly acting without the full knowledge needed to act. It consists of substituting the information that one does not have with other information that supports confidence in the action*'.

3.1.4 IRM has developed not just away from paper-based systems in a context of a need for trust. International standards, such as ISO 15489, have been developed. This standard establishes the core concepts and principles for the creation, capture and management of records.

3.1.5 The characteristics of authoritative records (regardless of form or structure) are '*Authenticity', 'Reliability', 'Integrity'* and *'Usability*' (ISO 15489 - 5.2.2). The characteristics of records systems are set out in section 5.3.2 of the standard and can be summarised as being '*Reliable', 'Secure', 'Compliant', 'Comprehensive'* and *'Systematic*'.

3.1.6 Blockchain technology within an IRM context is a technological innovation. If it is used, or might become used, as a tool within the IRM profession, regard must be had to the existing standards concerning both authoritative records and of records systems. How does existing material about Blockchain address these challenges.

3.2 Blockchain material

3.2.1 In order to address this, I identified relevant material about Blockchain, and sought to identify what it said about the potential for its use within IRM. However, as noted in the introduction to this dissertation, this technology is so nascent that the current literature surrounding it is mostly derived from contemporary technological stakeholders and writers. Whilst many examples of its use and potential use are offered, IRM is, at best, a secondary consideration and the academic IRM viewpoint is largely missing from the available material.

3.2.2 Yet there is a small amount of academic research on Blockchain. Yli-Huumo et al (2016), using secondary research techniques, attempted to understand the current research topics, challenges and future directions regarding Blockchain technology from a technical perspective. The majority of research, they found, had been focused on revealing and improving limitations of Blockchain from privacy and security perspectives. None dealt with IRM.

3.2.3 The only academic paper dedicated to understanding the impact of Blockchain technology on IRM is from the Canadian academic Lemieux, who produced the reports entitled '*Help or Hype: Blockchain Technology for Record Keeping'* and *'Trusting records: is Blockchain the answer?*', both in 2016.

3.2.4 Lemieux's key message, gained through her research, is that Blockchain is a '*record keeping technology*'. She goes on to say that '*many current and proposed applications of Blockchain technology aim to address recordkeeping challenges; they offer a new form of generation use, storage and/or control of records*'. Yet, crucially, claims associated with the use of Blockchain

technology for recordkeeping are '*overhyped*'. Finally, Lemieux noted that there was '*relatively little research focused on the record keeping implications*' for Blockchain and that collaborations between academia and industry regarding the application of Blockchain for record keeping '*are mostly absent'*.

3.2.5 To say therefore that there is a paucity of academic research, away from technical perspectives, is an understatement. Yli-Huumo et al further identified a '*research gap'*, reflecting the low number of high quality journal-level publications containing research, with most of it presented at conferences, symposiums and workshops. This reinforces the need for, and a growing reliance on, contemporary social media, technological magazines and newsletters. This is reflected in the rest of this review.

3.2.6 In the introduction to this dissertation, I gave a brief definition of Blockchain technology as being a distributed ledger system. I will now give more detail about its main attributes, and then point towards its uses and limitations.

3.2.7 The three main attributes of Blockchain are decentralisation, trust and immutability. I will now explain briefly what each means.

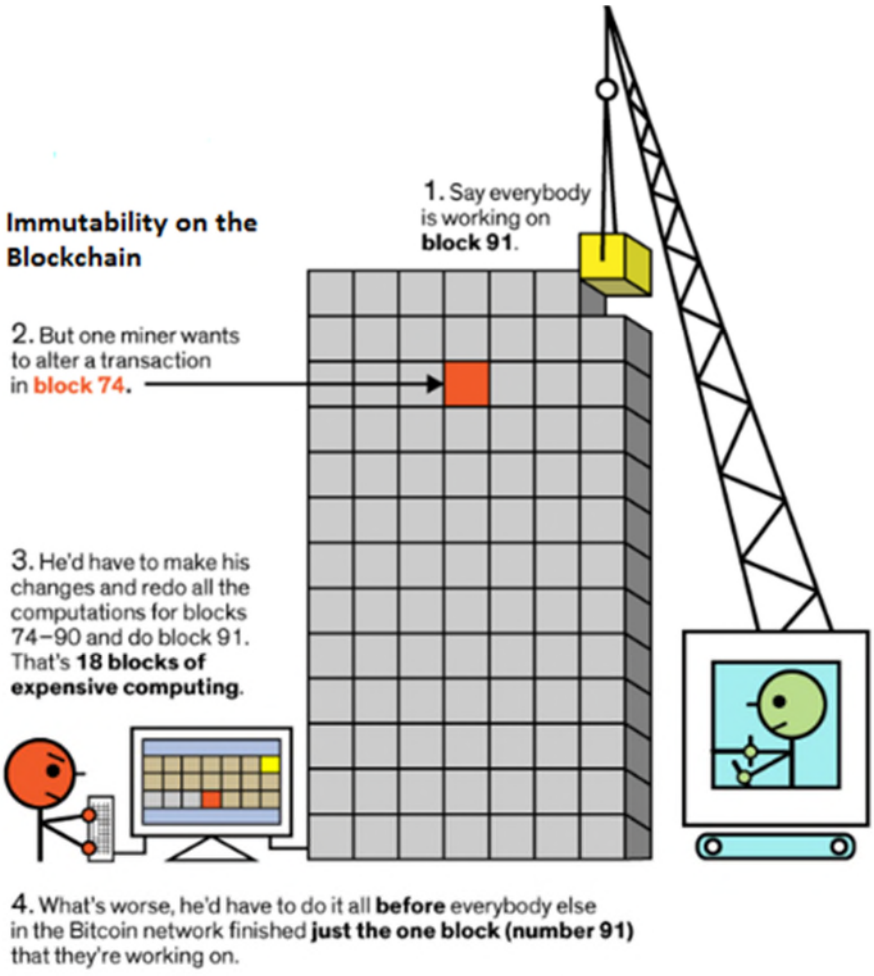
3.2.8 Decentralisation: Blockchain means the network operates on a peer-to-peer basis (Blockgeeks p9 2016) and works by linking all participants in a market place without intermediaries, such that each transaction is transparent to all the participants in the network. It has been described as '*a value network*' (Umeh 2016), where parties can transfer custody of valued assets in an auditable manner without relying on intermediaries (Straw, 2016; Wouters 2017; Morgan, 2016).

3.2.9 Trust: Conceptually, Blockchain is about trust (Monroe & Adriano 2016) and has emerged as a new type of trust for global services – particularly financial services (Trautman, 2016). It is a '*machine for creating trust*' (Economist 2015). Blockchain relies on existing technology to solve an old problem: how do two parties conduct a transaction without knowing or trusting each other and without a trusted third party intermediary? Despite relying on encryption, Nakamoto, in his seminal paper, mentions the word '*trust*' fourteen times and he concludes that he is essentially proposing '*a system for electronic*

transactions without relying on trust' (2008 p8).

3.2.10 Immutability: The other key element of Blockchain technology is its immutability. Once data or transactions are appended and accepted/ confirmed by the nodes on the Blockchain, it is close to impossible to change or alter it. The Blockchain is essentially an append-only data store (no deletes or edits allowed), hence why this technology has its '*capability/suitability as an unimpeachable record keeper*'. (Umeh 2016). Figure 3 below demonstrates how this immutability works (For permission to use diagram see Appendix K)

Figure 3 - Immutability on the Blockchain



3.2.11 Such are the key characteristics of Blockchain. But what of its potential uses and limitations? As society is now moving towards becoming a digital and '*collaborative generation*' (Yeoh, 2017), Blockchain technology has the

capacity to transform the delivery of private and public services (Probst et al, 2016) through new applications. Government-operated registries that contain such details related to owned houses, land, vehicles, and patents could easily be recorded on a Blockchain (Shelkovnikov, 2016), thus eliminating legal uncertainty surrounding ownership.

3.2.12 Shin (2017) and Rizzo (2017) promote this as a way to help to prevent insecure land registries, thus reducing fraudulently entering title transfers. This then affords new opportunities for individuals to keep their own records (Findlay 2017) whilst also allowing people the potential of controlling access to personal records and to know who has accessed them (Zyskind et al 2015).

3.2.13 Blockchains can be enhanced to support not just transactions, but also pieces of code known as smart contracts. A smart contract is a programme that controls assets on the Blockchain – anything from cryptocurrency to patent rights – in ways that guarantee predictable behaviour. A smart contract may be viewed as playing the role of a trusted third party '*Whatever task it is programmed to do, it will carry out faithfully*' (Juels & Eyal, 2016).

3.2.14 The material reflects a search for solutions to some basic questions. Many commentators, such as Mearian (2017), Das (2016), Scott (2016), have all made reference to Blockchain technology as being a catalyst for change. Molteni (2017) admits it will be '*messy*' but very '*doable*'. Scott (2016) advocates the potential role of Blockchain technology as a digital record-keeping system, as the means of accelerating the progress of electronic medical records innovation.

3.2.15 Despite such positivity, some limitations have been identified. Iansiti & Lakhani (2017), and Earls (2016) have voiced concerns about seeing Blockchain as a panacea for every problem in the world. They are not alone, as attested to by the work of Ametrano (2017), Gharib (2016), Watters (2017), and Dahan & Casey (2016).

3.2.16 Due to the technology's relatively early stage of development, there are also considerable technical limitations such as those described so vividly by Swan (2015) and Walport (2016). These include low transaction speeds and

scalability and high energy consumption and the computational power required.

3.2.17 Cultural adoption is another limitation, simply because Blockchain represents a complete shift to a decentralised network which requires the buy-in of its users and operators. There is also a perception that Blockchain is somehow linked with various scandals ranging from Mt Gox (McMillan 2014) to the now defunct Silk Road website (De Filippi, 2014).

3.2.18 Regulation is another key limitation. Yeoh (2017, p.200) highlights how financial systems operate through a combination of technical and (more so) by legal codes. His research found that the EU and the US had adopted a '*smart regulatory hands-off approach*' for future innovative contributions of Blockchains. This was particularly beneficial in the financial services and related sectors and toward enhanced financial inclusiveness (2017, p.196). The EU's current message is that premature regulation might stifle innovations and applications in Blockchain (Patrick, 2016). Regulators in the US are of a similar view to the EU, despite concerns of potential security risks with such a nascent technology (Riley 2016).

3.2.19 The flip side to the issue of regulation is not how to regulate Blockchain technology and cryptocurrencies, but how to enforce external jurisdictional regulations that may impact on it. For example, the right to be forgotten is enshrined in EU law, but difficult to apply to the immutable datastore of a public Blockchain. Another concern is that Blockchain technology does not currently conform to any international standards. There are also cyber-security concerns that need to be addressed before the general public will entrust any data to a Blockchain. Lemieux (2016) highlights numerous examples in her paper on Blockchain and trusting records.

3.2.20 It is clear from all of the above that Blockchain is an innovative technology with some wide-ranging potential uses and also some critical possible limitations. But is Blockchain any different from other such innovations in these respects? The material seeks to address this by examining its scope for disruption, and by looking at it through the prisms of organisational innovation, technological adoption, and management decision-making.

3.2.21 Since being released as a paper by the pseudonymous Satoshi Nakamoto describing the protocol behind Bitcoin (2008), Blockchain has been viewed as being a disruptive technology (Hiesboeck 2016, Rosic 2016, King 2016, Lubin 2016). This places it in a wider context. For example, McLeod & Hare (2010 p29) list various technologies that could be considered as technological '*turning points'* which require yet further information creation before knowing how to manage them – Blockchain can now be considered in a similar disruptive vein.

3.3 Organisational material

3.3.1 Organisational innovation, according to Camison & Villar-Lopez, despite being '*poorly understood*', is '*the introduction of new organisational methods for business management in the workplace*' (2014 p.2892). Various organisational cultures can stimulate or hinder innovation (Glor 1997). Martins & Terblanche believed that '*there is little agreement on the type of organisational culture needed to improve creativity and innovation*' (2003, p.69). They refer to Lock & Kirkpatrick (1995) when they say that an organisational culture which is '*supportive of creativity encourages innovative ways*' (p.68) to find solutions to problems. Khalili echoes this sentiment through referring to Scott and Bruce (1994) when he says the '*workplace environment is a key element for supporting or restraining creativity and innovation*' (2016, p.2281). Establishing a supportive climate within an organisation will encourage creative and innovative performances from staff (Cerne et al 2013) who in turn will feed ideas upwards to the decision makers, including the adoption of new technology such as Blockchain.

3.3.2 There are a considerable number of theories regarding change, innovation, and technology adoption. There are many similarities in these theories and traditions such as the characteristics of the innovation, the adoption decision maker, and the social system where the adoption occurs (Jun & Weare 2010 p.497). However, they differ in relation to application conditions, focus of analysis, and distinguishing key factors (Van Wart 2017 p.530). Van Wart asserted that one particular theory that was '*tailored to, rather than adapted*

for, technology settings', and which Obal called the '*most widely used model for technology adoption*' (2013, p.902), is the Technology Acceptance Model. This model essentially focuses on two key attributes for self and organisation: the perceived usefulness – how using the new technology would increase the user's performance; and perceived ease of use – how little effort was needed by a user. (Davis et al 1989). Despite some criticism for failing to take into account other social factors (Bagozzi 2007), this model might help explain the context in which Blockchain is considered for adoption.

3.3.3 Another key framework that can help to explain organisation technological adoption is Rogers' influential theory '*Diffusion of Innovation'*, which attempted to explain how and why new technologies spread. Rogers' analysis would go on to '*provide the foundation for those using his theory in technology settings*' (Van Wart p.530). Straub called it '*the basis for understanding adoption*' (2009, p.630).

3.3.4 Rogers' theory focused on the perceived attributes required for an innovation which would help to foster technology adoption. Remarkably, these same attributes could also be seen as the factors that would form barriers to adoption (2003, p221). Those attributes were: relative advantage over the incumbent by having an innovation that is '*better than the idea it supersedes*' (p.229); compatibility with users and current products that are '*consistent with the existing values, past experiences, and needs of potential adopters*' (p.240); complexity – ease of use and its '*relative difficulty to understand and use*' (p.257); observability – the visibility which is the '*the degree to which the results of an innovation are visible to others*' (p.258); and finally, trialability – the opportunity to experiment '*on a limited basis*' (p.258).

3.3.5 Relative advantage is arguably the most significant attribute, with numerous studies showing that to implement new technologies within an organisation they must offer superior and tangible benefits when compared to current technology (Chong et al., 2009; Tarofder et al., 2013; Teoh et al., 2013). Complexity is another important factor because if a technology is too complicated then studies have shown (Chong et al., 2014; Mosbeh and Soliman, 2008) that this creates a negative perception in the mind of potential

consumers and they then become reluctant to embrace and use it. Finally, observability, which can be summed up as being the tangible and successful outcome of investment. Hart et al (2011) concluded that the greater the observed technological benefits then the better the adoption rate will be.

3.3.6 All of the above is the context in which managements make decisions. Effective strategic decision making is important to organisations so that they ensure that action is taken, resources are committed and new ways of working can occur (Dean and Sharfman, 1996). Cignaek argued that, whichever method was employed to unearth a new and innovative technology that might add value, it was expected that their IT function should enable them '*to exploit new opportunities relatively quickly as well as react to unanticipated changes in the business environment*' (2014, p.279). In an organisational context, Tarofder et al claim that the decision-making process is for technology adoption is totally reliant on '*Top management support*' (2016, p.33). Managerial support, especially from senior/top management, is also central to allocating resource support (Ada, 2008; Yean et al 2006), and pushing through action (Psomas et al., 2010; Mosbeh and Soliman, 2008).

3.4 Identifying themes and hypotheses to test.

3.4.1 The main conclusions I would draw from the review of existing literature I have summarised above are the following:

- That there is very little academic or practitioner writing on the role of Blockchain within an IRM context, with the exception of Lemieux's research. Does this follow through to the real world of IRM practice? What is the state of existing knowledge and use of this technology in the IRM community and what has been the experience of its use?
- That Blockchain is a potentially disruptive technological innovation with particular attributes which pose a challenge both for IRM standards and practice and for organisations considering adopting it. Does this set it apart from other technological innovations, and can existing models,

such as Davis's Technology Acceptance Model, explain why it has or has not been adopted?

- That the perceived advantages and limitations of Blockchain have not been fully tested in the IRM field – whether due to lack of research or adoption. Does this lack of understanding or use mean that the many benefits that advocates of Blockchain proclaim have not been realised within IRM?

3.4.2 My research aims to answer these questions. It will do so through testing three hypotheses based on the above. First, that Blockchain is both an under-recognised and little-used tool within IRM. Secondly, that factors specific to IRM do not explain why organisations use or do not use the technology. Thirdly, that Blockchain has significant (so far untapped) potential to improve and enhance existing IRM practices. I will now set out the results of that research

4 QUESTIONNAIRE RESULTS AND ANALYSIS

4.1 Structure

4.1.1 In the previous section of this dissertation, I summarised the results of the literature review I conducted into the role of Blockchain in IRM. That was the first element of my research.

4.1.2 In this section, I will set out the results of the questionnaire I devised and issued as part of my research for this dissertation. I will also analyse those results in order to test the hypotheses which I developed and which I have set out earlier. This section therefore combines the second and third elements of my research.

4.1.3 I have structured this section by first providing information about the responses to my questionnaire and about those who responded to it. I then set out the answers to the substantive survey questions, giving my analysis in order to establish whether each hypothesis in turn is verified by those answers.

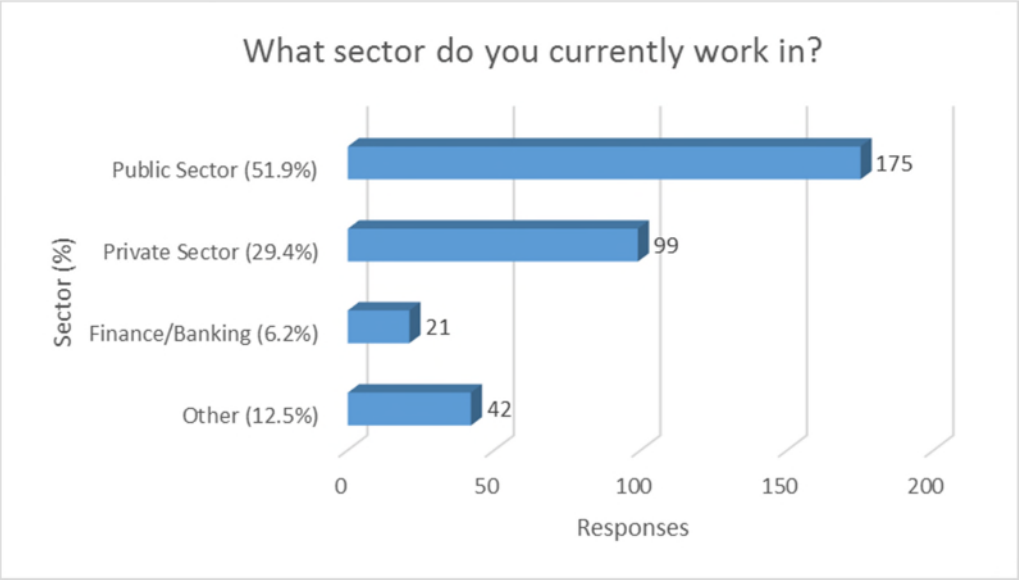
4.2 Responses to the questionnaire

4.2.1 As noted in paragraph 2.4.12, I received 337 responses to the questionnaire. The first six questions asked respondents to provide information about themselves. This aimed to do three things: (1) to ease respondents into the questionnaire by first asking questions which they would have little or no difficulty answering; (2) to elicit information about the respondents which would aid my analysis by enabling the correlation of specific features of respondents against their responses to the substantive questions; and (3) to enable me to verify that the questionnaire had reached its target audiences.

4.2.2 Those first six questions asked respondents about the sector they worked in, the size of the organisation they worked for, their duration in their current role, whether they had responsibility for IRM, the level of their role, and the degree to which they were familiar with and used Blockchain. All respondents answered those six questions.

4.2.3 Figure 4 shows the answers given to the question about which sector respondents worked in.

Figure 4 - Sector of Employment



4.2.4 It can be seen that just over half were employed in the public sector – 51.9% or 175 people. The next highest group - the private sector - accounted for 29.4% (99 people), while 6.2% (21 people) worked in finance and banking. A fourth group selected the option for 'other', representing 12.5% of respondents (42 people).

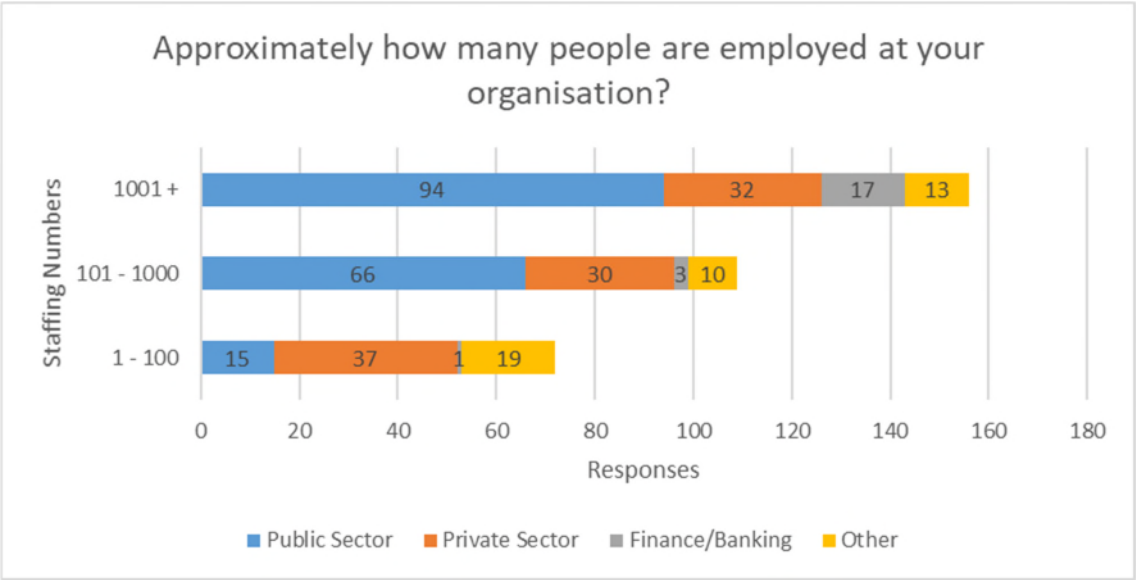
4.2.5 Further analysis of the 42 answers in the 'other' group shows that they can essentially be categorised into eight sub-groups. Figure 5 shows those sub-groups, from which it can be seen that these respondents are mainly consultants or those in the 'third' or 'not-for-profit' sector. That sector includes academics, charities and religious groups, amongst others (http://www.thirdsector.co.uk/about-third-sector 2017).

Figure 5 - Roles categorised within the Other Sector

Role Type	Number	% of other
Academic/Education	10	23.81%
Charity/Altruistic	11	26.19%
Consultant	8	19.05%
Government	1	2.38%
Other	5	11.90%
Religious	2	4.76%
Research	3	7.14%
Unemployed/Retired	2	4.76%
Grand Total	**42**	**100.00%**

4.2.6 Figure 6 shows the answers given to the question about the size of the organisation respondents worked for, by reference to the number of employees it has. I have cross-tabulated these answers with the sector data in order to give a fuller picture of any correlation between sector and organisational size.

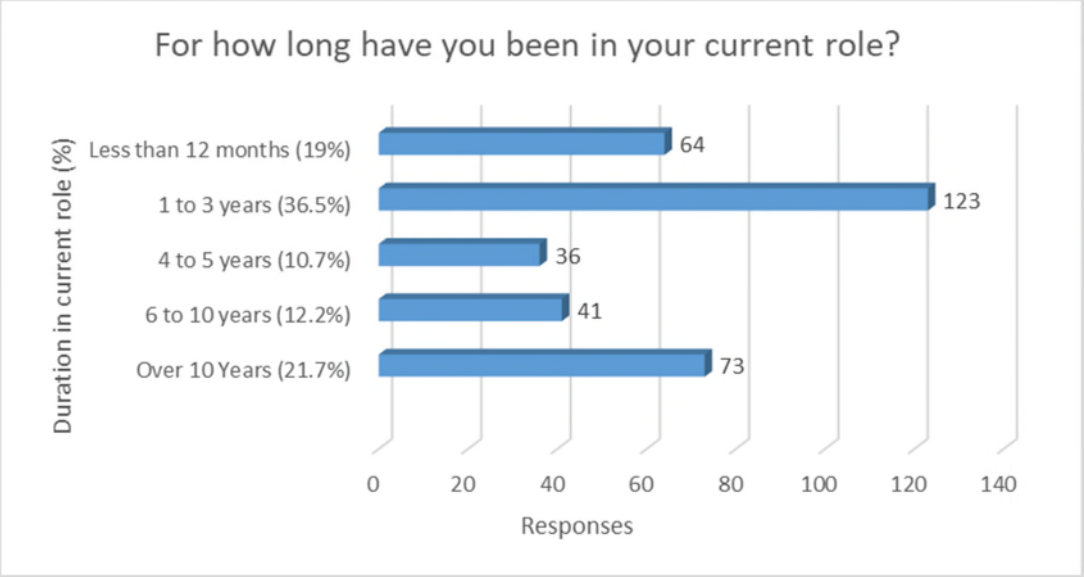
Figure 6 - Organisational staff numbers by sector



4.2.7 It can be seen that nearly half of respondents - 46%, or 156 people - worked for larger organisations with more than 1000 employees, with many of these (60%: 94 people) being public sector workers. People working in Finance/Banking selected this option the most, with 81% or 17 of the 21 respondents selecting it. 32%, or 109 respondents, came from the mid-sized organisational option containing staff numbers between 100 and 1000, with the public sector again weighing heavily here with 61% (66 people). The final option was for relatively small organisations which employed less than 100 staff. 72 people selected this option, accounting for 21.4% of the overall sample. The private sector was dominant here, accounting for 51% (37 people).

4.2.8 Figure 7 shows the answers given to the question about how long respondents had been in their current role. There were five options available, reflecting periods of less than 1 year to more than 10 years.

Figure 7 - Duration in current role



4.2.9 It can be seen that the most common selection was between 1 and 3 years in their current role, with 36.5% or 123 people. The second and third most popular selections were, respectively, the longest serving staff with more than 10 years' service (21.7%: 73 people) and those with the shortest service (19%: 64 people). The two middle durations followed, with 12.2% (41 people) being in post for 6 to 10 years and 10.7% (36 people) for 4 to 5 years. Put differently, 55.5% of respondents had been in their current role for less than three years, with 19% for less than a year.

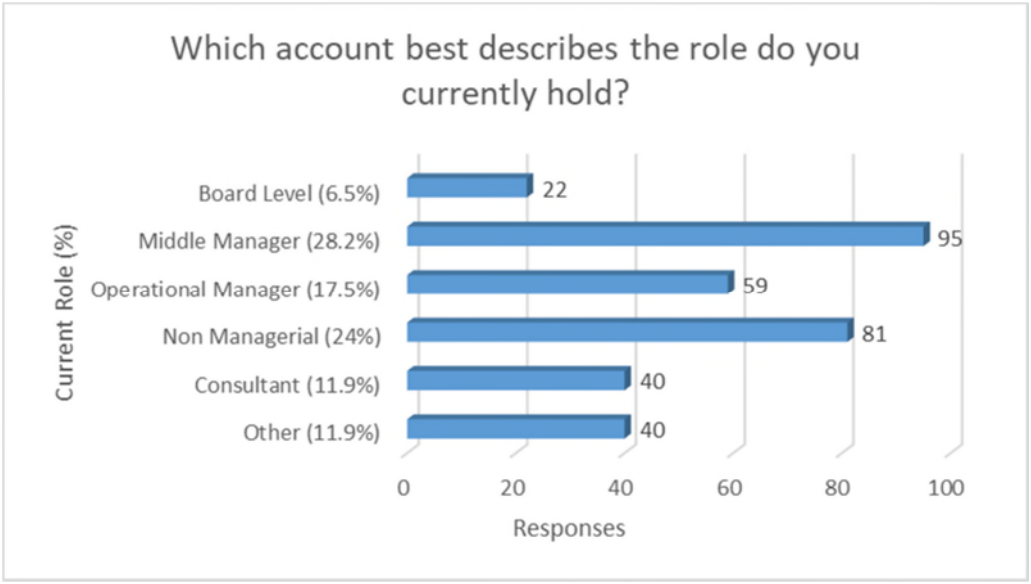
4.2.10 Figure 8 shows the answers given to the question about whether respondents had responsibility for IRM within their current role. I have explained, in paragraph 2.2.1, that responsibility for IRM issues does not always correlate with job titles or organisational 'home' or label, and so this question relied on *responsibility* rather than *job title*.

Figure 8 - Information and Records Management (IRM) responsibility

4.2.11 It can be seen that 257 people (76.3%) of respondents identified themselves as having IRM responsibility in their current role. 80 people, or 23.7% of respondents said that they did not have IRM responsibility in their current role.

4.2.12 Figure 9 shows the answers given to the question about the level of the current role of respondents. I selected six options, including an 'other' option so as not to be too restrictive.

Figure 9 - Current role



4.2.13 It can be seen that respondents came from the full range of levels, from key

organisational decision-makers, to those who advise, right down to those without any managerial responsibilities. The most commonly selected option was that of ‘middle manager’, with 95 people or 28.2% of respondents. This was closely followed by ‘non-managerial’, with 81 people (24%) and then ‘operational managers’ with 59 people (17.5%). Following these, were ‘consultants’ and those who responded as ‘other’. Both had 40 people (11.9% each). Finally, with 6.5% or 22 people, came board-level executives.

4.2.14 Analysing the 40 answers in the ‘other’ group shows that they can essentially be categorised into ten sub-groups. Figure 10 shows those sub-groups, from which it can be seen that the largest sub-groups among these respondents were from academia/education (22.5%) and the ‘various’ miscellaneous group (27.5%), which included a Chief Medical Officer, an entrepreneur, an intern and engineers[2].

Figure 10 - Roles categorised within the Other Sector

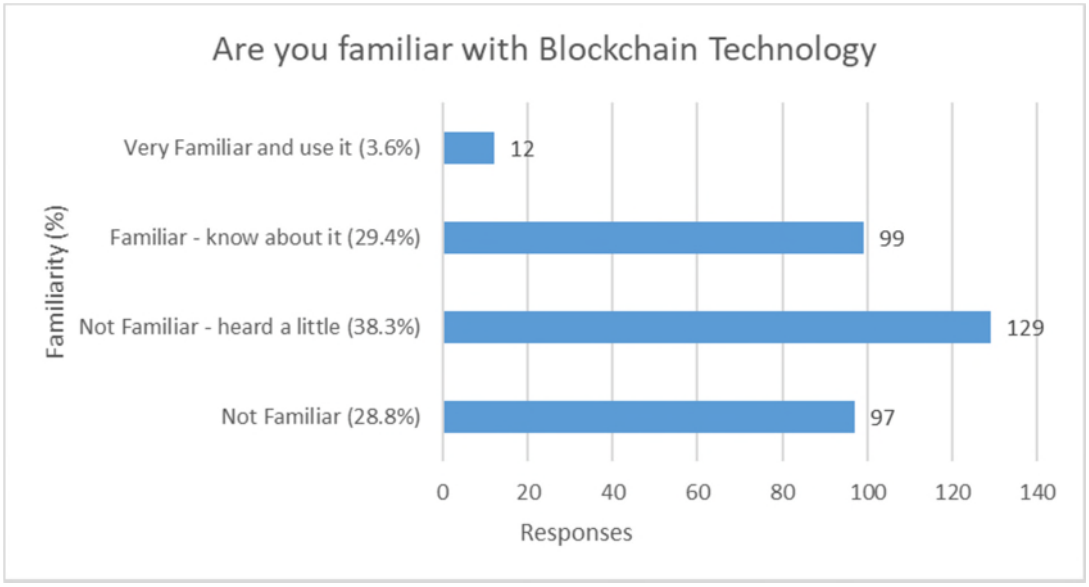
Row Labels	No. of ROLE	% of ROLE2
Academic/Education	9	22.50%
Board level	1	2.50%
Consultant/Specialist	4	10.00%
Government	1	2.50%

[2] It is worth noting that one quarter (25%) of those who selected other could have selected from the original options as shown in figure 5.5. as they were either senior, middle or operational managers; or non-managerial. Furthermore, 10% could have selected consultant instead of selecting other.

Middle Manager	3	7.50%
Non-Managerial	4	10.00%
Operational Manager	2	5.00%
Various	11	27.50%
Research	3	7.50%
Unemployed/Retired	2	5.00%
Grand Total	**40**	**100.00%**

4.2.15 Figure 11 shows the answers given to the question about the degree of familiarity which respondents had with Blockchain and whether they used it in their current role.

Figure 11 - Familiarity with Blockchain Technology



4.2.16 This data was critically important to the testing of my hypotheses, as it directly

deals with the degree of familiarity and use respondents have. It also determined which path each respondent would take through the rest of the questionnaire. This was the key 'funnelling' question – see paragraphs 2.4.3 to 2.4.7 of this dissertation.

4.2.17 One significant result was that 97 people (28.8%) responded '*Not familiar*'. A further 129 people (38.8%) responded '*Not familiar – heard a little*'. It can thus be seen that just over two-thirds of respondents were not familiar to any significant degree with Blockchain technology. Nevertheless, 99 people (29.4%) responded that they were '*Familiar*' with it, with 12 people (3.6%) saying they were '*Very familiar*' with Blockchain and used it.

4.3 Groups

4.3.1 The four options available to respondents were then grouped into two broad populations:

- ***Familiar*** – which incorporated those who responded '*Familiar – know about it*' and '*Very familiar & use it*'; and
- ***Non-familiar*** – which incorporated those who responded '*Not familiar*' and '*Not familiar – heard a little*'.

4.3.2 Correlating the results to this question with those for responsibility for IRM, respondents could further be categorised into four groups:

- ***IRM Familiar*** – the 75 respondents who had IRM responsibility and who were familiar with Blockchain technology;
- ***IRM Non-Familiar*** – the 182 respondents who had IRM responsibility and who were not familiar with Blockchain;
- ***Non-IRM Familiar*** – the 36 respondents with no IRM responsibility and who were familiar with Blockchain; and
- ***Non-IRM Non-Familiar*** – the 44 respondents with no IRM responsibility and who were not familiar with Blockchain.

4.3.3 Membership of the groups outlined above helps structure the rest of my analysis, which looks at the responses to questions specifically designed to

test my hypotheses. But what other conclusions can be drawn from these initial responses to my questionnaire? I would draw two main initial conclusions here.

4.3.4 First, the response rate of 377 people can be viewed as a success. Given general concerns about survey fatigue and low response rates, I believe that the number of responses received means that the data produced is statistically relevant. A second point, and linked to this, is the fact that over three-quarters of the respondents had direct responsibility for IRM within their organisation. This gives further credibility to the relevance of the data produced.

4.3.5 Both initial conclusions are key to judging the success of my research, based as it is on an analysis of the attitudes, opinions and experience of people with IRM knowledge in respect of Blockchain. I will now turn to set out the answers given to the rest of the questions in my questionnaire. Those will be structured in turn around the three hypotheses I developed.

*4.4 **Hypothesis 1***

4.4.1 My first hypothesis is that Blockchain technology is both an under-recognised and little used tool within the IRM community. I sought to explore whether this hypothesis was valid by asking in my questionnaire about whether respondents used Blockchain and, if so, what their experience was of it.

4.4.2 The first result to reinforce is that set out at paragraph 4.2.17 above, drawn from the initial questions. More than two-thirds of respondents (67.6%) stated that they were not familiar with Blockchain or had only heard a little about it. This would mirror the state of knowledge about the technology which is apparent from the literature – see paragraphs 1.3.2 and 3.2.5 above.

4.4.3 The results from three parts of the questionnaire are relevant to exploring this hypothesis further: (1) the responses to questions 7 and 14, which asked about the ways in which respondents developed their knowledge of Blockchain; (2) those to questions 8 and 15, which asked about their use of Blockchain and other new technologies; and (3) those to questions 12 and 19, which asked about their experience of such technologies.

4.5 Developing knowledge

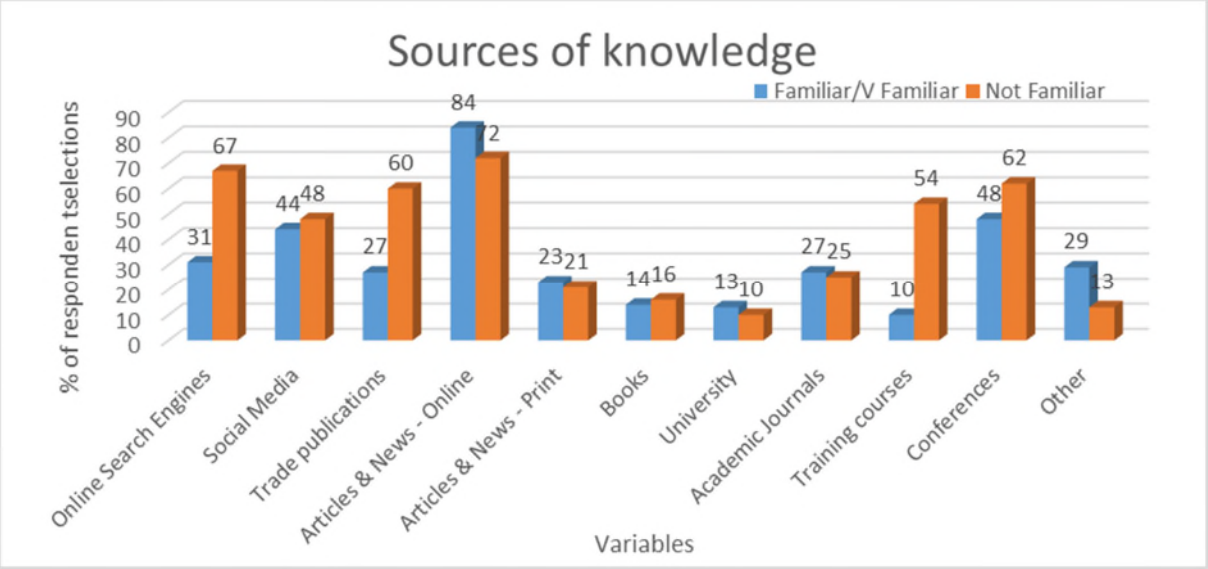
4.5.1 Respondents were asked where their main familiarity or knowledge of Blockchain or new technologies came from in questions 7 and 14 of the questionnaire. Those questions used 11 general potential sources of information with an option for ‘other’. Please see Appendix C for statistics related to Knowledge.

4.5.2 Question 7 dealt with the *Familiar* group, who had been routed to this question, with those *Unfamiliar* having been routed to question 14. For the latter group, as they were not expected to have any familiarity with Blockchain, based on their answers to the original questions, they were asked about new technology more generally. Such technologies were not specified and respondents were expected to draw on their own experiences. Please see Appendix C for statistics related to Knowledge.

4.5.3 The answers to these questions are set out in Figure 12 below. The key findings which can be drawn from this are that:

- Internet-based methods of sourcing information were the most popular;
- Traditional methods fared poorly; and
- Blockchain technology is not well-known amongst respondents.

Figure 12 - Sources of knowledge



4.5.4 For both sets of Familiar and Non-Familiar respondents there was a clear favourite method of gaining knowledge: ‘Articles & News - Online’, with 84% of Familiar and 72% of Non-Familiar respectively selecting this. It overshadowed the more traditional method of ‘Articles & News - Print’ considerably (23% & 21), reflecting how the internet is the first port of call for information in society today. The second most popular means of learning came from ‘Conferences’, with 48% and 62% respectively. ‘Online Search Engines’ proved a lot more popular for Non-Familiar respondents (67%) than those Familiar (31%), whilst ‘Social Media’ polled well with both groups 44%/48%. This might suggest those familiar with technologies such as Blockchain have a better understanding of where to look for information by going directly to specific websites rather than searching. Social media use is also interesting, as it shows acceptance of turning to other members of the

profession when looking for useful sources of information.

4.5.5 Traditional methods of learning such as Books and journals etc, fared quite poorly in comparison with newer electronic methods. Interestingly, there was quite a distinction between the two groups' use of 'Trade Publications', with Non-Familiar people (60%) being more than twice as likely to source information in this manner than Familiar (27%). This could be interpreted as Non-Familiar respondents as waiting for information to be presented to them from industry instead of sourcing it themselves and self-educating. It could also suggest that trade publications are not future gazing enough and therefore not providing insight or timely commentary on particular technological advances which may impact on their profession, prompting people to look elsewhere in the first instance.

4.5.6 Counter to this is the fact that those in the Familiar groups referenced 'Other' [3] sources (29%) with examples such as actual use and through employment, more than Non-Familiar (13%) who referred to peer influence via '*Jisc Listserve*'.

4.5.7 In addition to these general trends, it is possible to dig deeper into the ways in which the different groups of respondents gained knowledge.

4.6 Internet based methods prove popular

4.6.1 Across all roles, regardless of duration in post or sector of employment, 'Articles & News – Online' was the clear leader with 83% of the 75 IRM Familiar respondents selecting it as one of their main sources of information. 'Social Media' (43%) also scored highly across each role type, whereas 'Conferences' also polled well (41%) across the board especially with Board level respondents (57%), showing perhaps a link whereby professional bodies

[3] Other' will be explored in greater detail in the sections below.

advertise their newsletters and conferences through social media, or that this group, using their authority, are possibly more likely to attend more conferences.

4.6.2 Similar to IRM Familiar, ‘Articles & News – Online’ was the top selection with the 182 IRM Non-Familiar respondents (73%) – consistently spread across each role type and sector albeit with slightly lower averages than the IRM Familiar group. This was followed by ‘Conferences’ (68% or 123 selections) in second place also with an even spread across ranges. The surprisingly third popular method was ‘Trade Publications’ with 121 selections (66%), with a heavy emphasis from people in their role between ‘1-3 yrs’ (68%) and over 10 yrs (72%). It was also popular with the three Board level respondents (100%). ‘Social Media’ fluctuated in popularity, Board level scoring it 0% whilst 65% of consultants selected it, possibly reflecting how consultants use all tools at their disposal to keep abreast of the latest technological trends.

4.6.3 Among the 36 Non-IRM Familiar respondents, ‘Articles & News – Online’ continued the trend of being the most popular (86%) sources of information – evenly spread across all groups. Sources of information such as ‘Social Media’ (47%), ‘Online Search Engines’ (53%) & ‘Conferences’ (61%) were all used by each role type in some capacity, especially so for those in post for less than 12 months or over 10 yrs. ‘Trade Publications’, so highly regarded by the IRM Non-Familiar group, did considerably less well here (22%) polling low throughout and ignored by those in post for less than 12 months as well as Board members and the ‘other’ respondents.

4.6.4 Finally, ‘Online search engines’ proved the most popular method of gaining knowledge about new technology for Non-IRM Non-Familiar respondents (75%).

4.6.5 Overall it is clear that online sources of information are increasing in popularity and that generally the people more familiar with Blockchain technology are more switched on to the possibilities and ways in which knowledge can be gathered from online sources.

4.7 Traditional methods on the decline

4.7.1 Some of the more traditional methods of learning were hardly recognised by IRM Familiar respondents with ‘Articles & News – Print’ (25%), Books (12%), University (12%) and Training Courses (7%) all ignored at some point by various roles and durations.

4.7.2 The least popular methods of sourcing information for IRM Non-Familiar respondents were ‘University’ (18 selections – 10%) and ‘Books’ (24 selections – 13%) with no technological book selections in the 4-5 yrs group. Again, for Non-IRM Familiar and Non-IRM Non-Familiar respondents it was also traditional methods such as books, journals etc that fared poorly.

4.7.3 With online sources seeming so dynamic is it any wonder that traditional sources of knowledge can seem to be declining in popularity? Professionals relying on more traditional sources of information are more likely to find themselves lacking key knowledge unless those sources become more current and future facing, and can be distributed easier and quicker.

4.8 Other methods

4.8.1 Those in the ‘other role’ group of the IRM Familiar respondents were a diverse selection which included associate professors, government advisors and project managers. The ‘other sources’ mainly identified employment - predominantly Board & Consultant level in post for over 10 years - and cited reports as key sources to learn about Blockchain. This is interesting as it shows that people familiar with Blockchain are either learning ‘*on the job*’ or using their experience to ascertain knowledge from key industry players who produce reports. These same reports might not be IRM focused and thus overlooked by some IRM professionals.

4.8.2 The ‘Other’ (24 selections) also featured lowly for IRM Non-Familiar although the types of ‘other’ highlighted some form of collaborative working with JISC Listserve and ‘*Blogs/Posts from professional organizations - AIIM, ARMA’*.

4.8.3 The ‘other sources’ group for the Non-IRM Familiar respondents were reflected through employment eg: ‘*fintech startup’*, and discussions with ‘*peers*’ some ‘*with a techie interes*t’, whilst Non-IRM Non-Familiar

respondents relied on '*colleagues', 'peers'* and '*Jiscmail -email list serv*'.

4.9 Conclusion

4.9.1 The most obvious conclusion is that whilst both groups use a combination of both traditional and newer methods, there is a clear trend towards interactive and collaborative learning with internet based methods and towards Web 2.0 collaboration and information sharing. It may also reflect that key traditional methods such as books are, quite often, electronic these days.

4.9.2 One key point of note was that overall the Familiar seemed to gain their knowledge through employment. This reflects an understanding of where to look for Blockchain related information and/or by working for dynamic organisations that are at the front line of technological advancements.

4.9.3 Conferences are usually such valuable sources of learning and polled higher for those Not Familiar with this new technology Blockchain. It can be argued that these popular sources have been overlooked by professional bodies as a means to facilitate discussions about such topics as Blockchain, otherwise they would have polled higher for those Familiar with it. Respondents with IRM responsibility use trade publications but, as the majority are unaware of Blockchain technology, there is clearly a lack of information on the subject within such publications.

4.9.4 Whilst there were very little differences between how people of differing employment durations identify sources of knowledge, one key point stood out with those who selected 'other'. Interestingly 'IRM Familiar' & 'Non IRM Familiar' respondents who were in post for less than 3 years (including less than 12 months), were quite likely to know about and use Blockchain, citing first-hand examples such as '*Hacking on them*'; '*bitcoin transactions*'; '*Blockchain Trainer*'; and '*part of the Nxt Blockchain community team*', rather than either of the Non-Familiar groups who relied on second-hand examples like '*Jisc Listserve*; *and email lists'*. Their familiarity does not just come from reading or talking about it but through actual use and application.

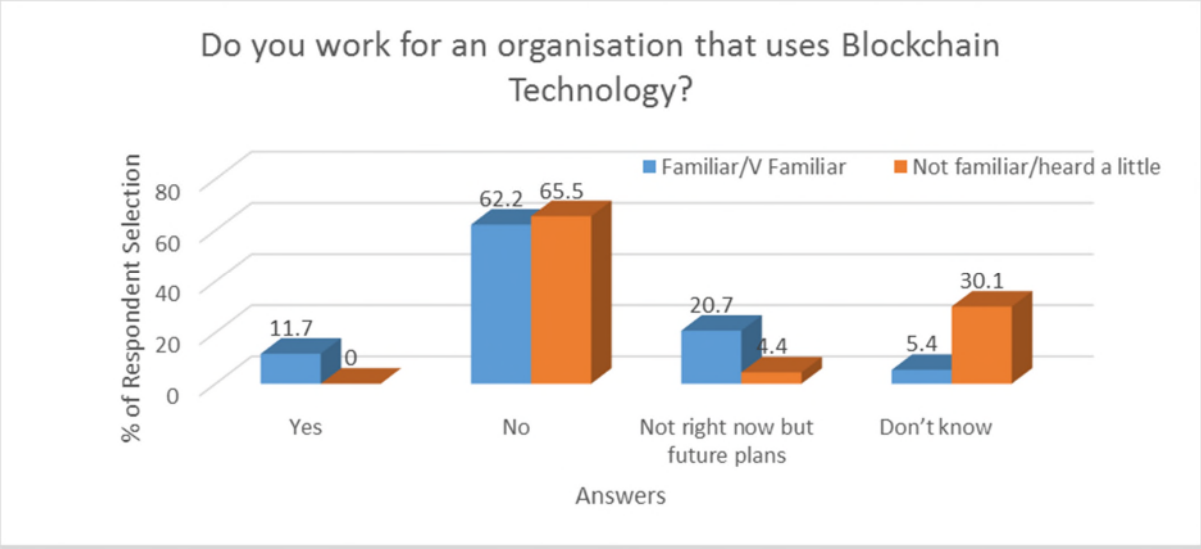
4.10 Use

4.10.1 Respondents were asked about their use of Blockchain or new technologies in questions 8 and 15 of the questionnaire. Those questions included four options: 'yes', 'no', 'not right now but future plans' and 'don't know'. This selection reflected the nascent nature of the technology: given its relatively early stage of development, lack of use now might not say much about whether the technology was being introduced for use. Question 8 was for *Familiar* respondents and 15 for *Non-Familiar*. Please see Appendix D for statistics related to Use.

4.10.2 The answers to these questions are set out in Figure 13 below. The key findings which can be drawn from this are that:

- Very few respondents work with Blockchain;
- Only respondents familiar with Blockchain work for an organisation using it;
- There is a lot of uncertainty regarding working with Blockchain; and
- Blockchain is a little used tool.

Figure 13 - Do you work for an organisation that uses Blockchain Technology?



4.10.3 It can be seen that the overwhelming majority of both the *Familiar* and the *non-Familiar* groups did not work for an organisation that use Blockchain. 11.7% of the *Familiar* group did work for such an organisation whilst none of the *Non-Familiar* respondents did so. Just over a fifth of the *Familiar* group

(20.7%) identified that there were future plans to use Blockchain as opposed to 4.4% of the *Non-Familiar* group. Overall, there was more affirmation from the *Familiar* as approximately a third of *Non-Familiar* respondents simply did not know if they were employed at an organisation that uses Blockchain. These initial results are further indications of the divide between those who know about Blockchain and where it is used now and in the future, against those who do not know about this technology.

4.10.4 In addition to these initial results, it is possible to dig deeper into the experiences of the different groups of respondents.

4.11 Use of Blockchain

4.11.1 There were 75 IRM Familiar respondents yet only 9 of the 75 (12%) worked for an organisation that uses Blockchain. Of those, there was a good spread across each sector although the majority were senior staff including 4 Board members. 6 of the 9 (67%) respondents were in post for less than 3 years increasing the likelihood that they work for a start-up, indeed one even said so - '*I'm CTO of an early stage startup'*.

4.11.2 None of the 182 participants that were IRM Non-Familiar were certain that they worked for an organisation that uses Blockchain; 68% stated their organisation did not use it, but a further 28% simply did not know whether or not Blockchain was used by their organisation. This mirrors two crucial points – the majority of people do not know about Blockchain and very few people use it. Simply put, these IRM professionals do not use Blockchain technology, and many of them are completely unaware whether or not their organisation is using it in any non-IRM capacity.

4.11.3 Of the 36 Non-IRM Familiar respondents only 4 of them worked for an organisation that used Blockchain and all of them were in the private sector - 2 of them were Board level. There was a general spread of duration in post. Only 2 people were unaware if their organisation used Blockchain.

4.11.4 Similar to those IRM Non-Familiar respondents, none of the 44 Non-IRM Non-Familiar respondents, participants worked for an organisation that used

Blockchain. Only 2, of different durations and role, believed that their organisation would incorporate and use it in the future. One of these was a lecturer so this may be tied in with some form of research. This is positive to see more academic research being done looking at Blockchain.

4.12 Uncertainty

4.12.1 Only 4 IRM Familiar respondents (5%) didn't know if they worked for an organisation that uses Blockchain and these were not concentrated in any one sector. It is worth noting that no Board level respondent or consultants were included in this group. Interestingly, of these 4, 2 had worked in post for over 10 years which possibly reflects the status of Records Management within their organisation. This could mean they were mostly working with paper and offsite storage, rather than having an information governance role.

4.12.2 Both Public and Private sector respondents were similarly matched with regards to not knowing if they worked for an organisation that uses Blockchain. This, perhaps, reflects general current attitudes across society in general.

4.12.3 51 IRM Non-Familiar respondents, or 28%, did not know whether or not their organisation used this technology. This shows a lot of uncertainty especially with people who are not managers and in post for less than 3 years. No Board level members responded with such uncertainty.

4.12.4 The majority of Non-IRM Non-Familiar respondents were split between not using it (25 or 57%) and not knowing (17 or 39%). Of those who were unsure, there were more public-sector workers (10 with 6 from large organisations) who were unsure if their organisation used it than those in the private sector 4 – all mid-size organisations). This, perhaps, could show that decisions are taken in large government departments without the consultation and communication with the majority of staff.

4.13 The Future

4.13.1 Eleven IRM Familiar respondents, or 15%, selected the option noting that

their organisation would be using Blockchain in the future with broadly similar numbers across sectors. Of these, 2 of them were private sector Board level respondent who were in post for less than 12 months, which suggests these are recent start-up companies, again reflecting the likelihood that new tech companies are on, or near, the front line of Blockchain technology adoption.

4.13.2 8 IRM Non-Familiar respondents, or 4%, stated that they worked for an organisation that had future plans to use Blockchain. Percentage wise, this is nearly four times less than the IRM Familiar group showing quite a divide between them. Of these 8 respondents, the majority were in post for less than 3 years, and worked in Finance/Banking, with one saying '*There is interest in blockchain smart contracts from legal at my organisation rather than its RIM uses*'. This statement is indicative of other organisational functions leading on the use of Blockchain technology ahead of IRM which, in turn, will have to play catch-up with regards to learning about the technology and how it impacts on the creation and management of records and information.

4.13.3 Half of Non-IRM Familiar respondents answered that they did not work for such an organisation. Of the 12 people (33%) who answered 'Not right now' interestingly 9 (75%) were in post for less than 3 years which included an 'entrepreneur' and a student. One public sector researcher gave an insight into an archival research project noting '*resistance*' was expected '*because it is so different and a lack of understanding of why it is different makes it look like another tech fad. However, we are taking a long view to the technology and using this project as an opportunity to understand how it may work in practice but also what are the challenges specific to our use case*.' This yet again reinforces the perception that people do not see Blockchain as an information management tool except from a potential archival perspective.

4.14 Use conclusions

4.14.1 Out of 337 people who responded to the questionnaire only 13 (4%) worked for an organisation that used Blockchain technology, which reflects how nascent and underused the technology is. Currently, there is not really a use case for Blockchain outside of digital currency and smart contracts just yet.

BitCoin and Etherium may be big, but wider uses of Blockchain are all smaller scale projects, or in very early stages (Land registry concepts). This reflects that IRM has never really been at the forefront of technological development, though this needs to change in the future (certainly in Europe) with increased focus on accountability through GDPR.

4.14.2 Generally, there was a good spread across sectors using it but overall the private sector leads the way with smaller and newer organisations, which quite possibly are start-ups. Overall though Blockchain is not widely used by many organisations. Most people do not use it, whilst quite a lot are not aware if their organisation use it or not reflecting either a lack of understanding or a lack of communication to rely such information. As quoted, Blockchain may be seen as yet another technological '*fad*' with many organisations watching with interest to see if it may assist them in the future as shown by the 33 people (nearly 10%).

4.14.3 The figures above clearly reflect the key message that people and organisations are simply not using this technology and of those who have future plans to implement Blockchain it would seem that the drivers are non IRM related, such as legal or financial, or they are projects looking to research the technology rather than truly implement it at this stage. This aligns with the key message from this hypothesis, and reinforces the emerging observation that Blockchain technology is both an under recognised and little used tool within the IRM community.

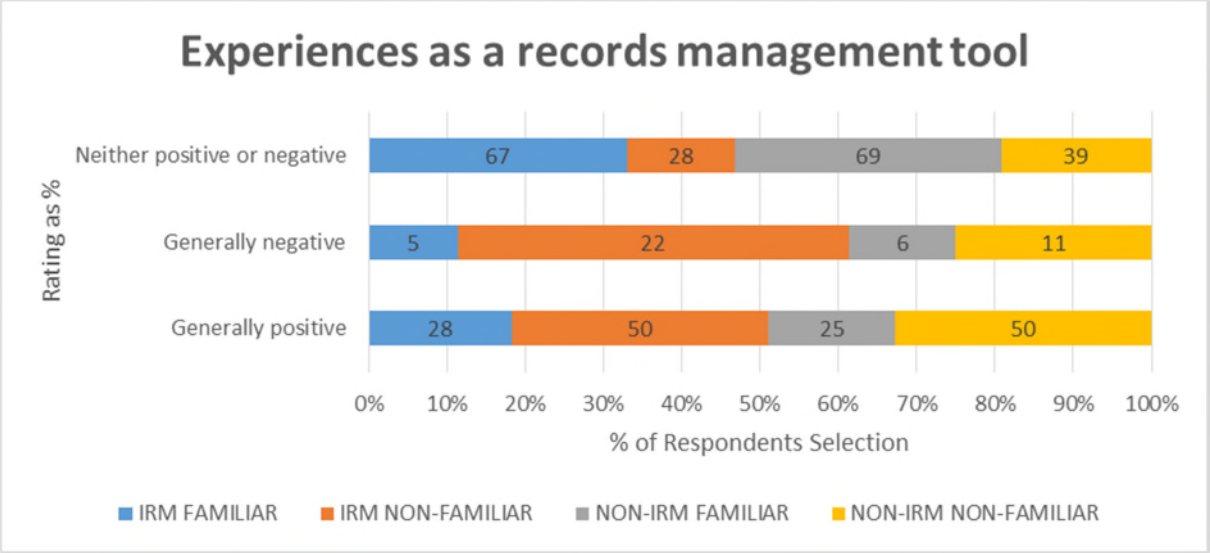
4.15 Experience

4.15.1 But what of respondents' experience of using Blockchain or new technologies? Questions 12 and 19 of the questionnaire asked about that experience – with question 12 for the *Familiar* group and 19 for the *Non-Familiar*. Respondents were given three possible options: 'generally positive', 'generally negative' and 'neither positive nor negative'. Respondents were also asked to provide more information in support of their view in a free-text box. Please see Appendix E for statistics related to Experience.

4.15.2 The answers to these questions are set out in Figure 14 below. The key findings which can be drawn from this are that:

- The *Familiar* group gave generally neutral responses, with more opting for positive than negative amongst those expressive a view either way about Blockchain;
- Only 50% of the *Unfamiliar* group were positive about new technology;
- Blockchain is generally not experienced as a records management tool.

Figure 14 - Experiences as a records management tool



4.16 Positive Experiences

4.16.1 75 respondents were IRM Familiar and of those 21 people (28%) that responded positively towards Blockchain as records management/record keeping tool 52% were in the private sector which was considerably more than the public sector (29%). Supporting comments reference such favourable points as '*consistent auditable trail*' from a public sector middle manager, or that Blockchain is good for '*Maintaining security and integrity of records.cannot be hacked*' from a consultant. It '*embeds recordkeeping into business process; online and low overheads of traditional recordkeeping technologies*' was the summary from a private sector board member – high praise indeed, although none of these respondents actually worked in an

organisation that used Blockchain technology!

4.16.2 36 respondents were Non-IRM Familiar and 9 people, or 25%, referenced a positive experience of Blockchain as a records management/record keeping tool, with the majority working in the private sector although there were no respondents from Finance/Banking. The positive comments from a Board member who worked for an organisation that uses Blockchain reflected the '*governance/ opportunity*' aspects; It was also seen as a '*tool to check integrity of data/information/document*' from a law teacher whose organisation does not use Blockchain, and finally, by a private sector middle manager whose organisation has future plans to use Blockchain, to help '*in managing regulatory and compliance measures*'.

4.16.3 Of the 182 IRM Non-Familiar respondents the majority of experiences were positive with 109 people, or 49% coming a good spread of each role except Board level. Of these positive respondents 48, or 53%, came from the public sector. The private sector had 25, or 28%, positive respondents, with the 'other' group accounting for 14% or 13 selections.

4.16.4 The final group contained 44 Non-IRM Non-Familiar respondents and overall 50% identified themselves as having positive experiences of new technology as records management/record keeping tools, with only 11% showing any negativity. The rest were neither positive nor negative.

4.17 Negative views

4.17.1 Four IRM Familiar (5%) responded negatively and one of these respondents was an archivist who commented that '*In the context of RIM, Blockchain has very limited usage*' whilst another (academic) went further to argue that '*it is not a recordkeeping system. It is an authentication system and you still need to have a recordkeeping system for the records whose hash is in the blockchain*'. This comment suggests that there are indeed uses for the Blockchain in IRM but that it would need to be used in conjunction with current technology such as an Electronic Document and Records Management System (EDRMS). Neither respondent worked for an organisation that used

Blockchain.

4.17.2 For the Non-IRM Familiar group there were negative comments that came from the 'other' group (Education/Non-Profit & Public research lab) which noted Blockchain's lack of scalability, saying it was '*not scalable or fundable*' or that it lacked '*sufficient maturity and scalability for useful metadata (records) management*'. Neither respondent worked for an organisation that used Blockchain. Those that selected 'Neither' offered no comments other than they had no direct experience of Blockchain.

4.17.3 Unfortunately, from the IRM Non-Familiar the negative experiences were dominated by the public-sector respondents with 69% of those who answered. This was heavily led by Middle (38%) and Operational (27%) managers. Some cited a '*lack of understanding over RM requirements*', or the much encountered '*change resistance*'. Others flagged worrying habits such as when the IRM teams were '*not always consulted*' when technology innovations were in the planning stage in an organisation, or worse, '*storage is so cheap it is easier to buy more than sort out records management issues*' – this surely will be tested with the introduction of the General Data Protection Regulation.

4.18 Neither positive or negative

4.18.1 The largest number of responses from IRM Familiar or Non-IRM Familiar selected the 'Neither' option with the vast majority of comments stating that they '*Haven't used it ye*t' or have '*I no direct experience of Blockchain*'. Some comments did offer further detail to explain the neutrality, with one public sector consultant saying '*not enough practical applications out there yet to make a clear decision one way or the other*'; whilst a board member in the public sector viewed it as being '*still experimenta*l' and therefore not an option at this time.

4.18.2 Overall, the 'Neither' option was selected more frequently by those Familiar with Blockchain than those who were not. This is interesting as those Non-Familiar were quite keen to express satisfaction or anger with technology in

general rather than those Familiar with Blockchain who seemingly tended to be neutral and non-committal. This possibly reflects that people are still learning the capabilities of Blockchain and do not want to dismiss it nor hype it without supporting evidence.

4.19 Experience conclusions:

4.19.1 Most respondents were non-committal on whether their experiences were positive or not. This neutrality reflects the broad consensus of people not actually using it or knowing enough about it to comment either way. That said, of those who did proffer judgement it was certainly more positive than not.

4.19.2 Only 50% of Non-Familiar showed positivity towards the current technology deployed for records management which is relatively low. With this in mind one wonders how they might view a complex and nascent technology like Blockchain and can only imagine it to be even less favourable.

4.19.3 This was reflected in each sector, although there seemed to be more positivity emanating from the private sector possibly reflecting better morale and increased investment in technologies at a time of cutbacks in the public sector. Each sector was able to identify key attributes that appealed and worked for them, eg: compliance and auditability. That said, some respondents were forthright in their views that Blockchain was not a records management/record keeping tool.

4.19.4 Overall, there was considerable apathy towards Blockchain facilitating a positive experience as a records management/record keeping tool. Only 30 people actually described their experience as positive. This could be indicative of the fact that this nascent technology is still not understood – people are not really using Blockchain as a records management tool. Therefore people are cautious about overhyping an unproven solution.

4.20 ***Conclusion of H1***

4.20.1 From the evidence gathered from respondents regarding the current levels of knowledge, use and experience of Blockchain technology, my research

validates Hypothesis 1 - *Blockchain technology is both an under recognised and little used tool within the IRM community.*

*4.21 **Hypothesis 2***

4.21.1 My second hypothesis is that IRM factors do not explain why organisations use or do not use Blockchain technology. I sought to explore whether this hypothesis was valid by asking in my questionnaire about respondents' attitudes regarding the perceived barriers and drivers to the use of Blockchain technology.

4.21.2 What helps to explain the findings that Blockchain technology is a little-recognised and little-used tool in IRM? The questionnaire then sought to tease out some possible explanations.

4.21.3 The results from three parts of the questionnaire are relevant to exploring this hypothesis further: (1) the responses to questions 9 and 16, which asked respondents about barriers faced during the implementation of Blockchain and other new technologies; (2) those to questions 10 and 17, which asked about the drivers behind the implementation of Blockchain and other new technologies; and (3) those to questions 11 and 18, which asked about the organisational attitudes towards the adoption of new technologies, such as Blockchain Technology.

4.21.4 In designing the relevant questions, I bore in mind the various theories summarised in section 3 of this dissertation which seek to explain issues related to the implementation of new technologies such as Blockchain. Those focus on perceived barriers and drivers to implementation. I had specifically Rogers' theory (2003) in mind, as well as Treumann's work (2014) on the *'Top 15 Barriers to Adopting New Technology*'. Respondents were asked about those barriers, as well as about potential drivers for adoption. Please see Appendix F for statistics related to Barriers.

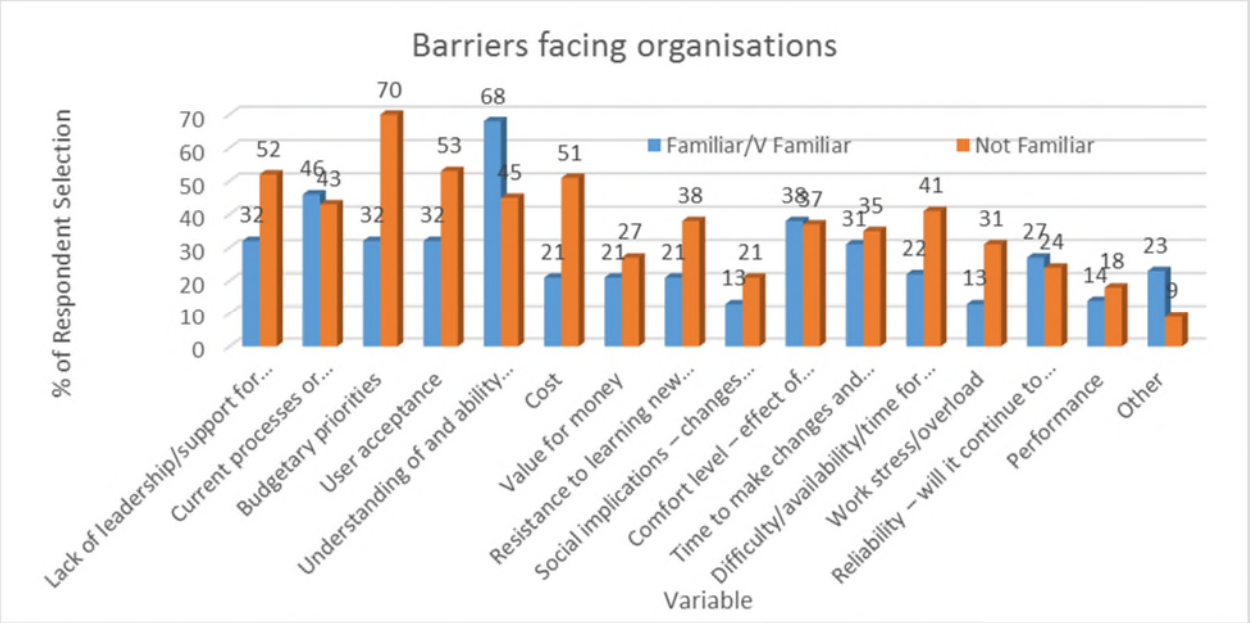
4.22 Barriers

4.22.1 The top level results from those both Familiar and Non-Familiar are set out

below in Figure 15. The main points are:

- There are some fundamental differences in opinions in the order of ranking of the barriers between those familiar with and those not familiar with Blockchain;
- Those respondents who were familiar with Blockchain focused on disruptive barriers such as the lack of understanding to implement such a technology;
- Those not familiar with Blockchain focused more on budgets and cost as the key barriers;
- Social considerations and implications for staff, such as stress, were not considered as barriers for either group.
- Regulatory restraints and usability were identified as additional key organisational barriers under the 'other' responses.
- IRM factors are not the reasons why organisations use Blockchain.

Figure 15 - Barriers facing organisations



4.23 Technical barriers

4.23.1 In terms of barriers to adoption, 'Understanding of and ability to implement' Blockchain Technology was the top selection (69%) from the 75 IRM Familiar

respondents. This was the clear leading choice from respondents in organisations of almost all sizes and every sector. The exception was those respondents from the Finance/Banking sector, where ‘Current processes or procedures’, was the most selected reason, by 75% of people. This was also the second highest choice for the other sectors. This reflects the knowledge that Blockchain is a fundamentally different technology than what has come before it and will require a certain amount of disruption for both the organisation wishing to implement and the user. This is the pattern across each sector and organisation size.

4.23.2 Compare these choices to those 182 IRM Non-Familiar respondents and it is clear to see different priorities emerge. ‘Understanding of and ability to implement’ is only the fifth highest selection (44% of responses), with ‘Current processes or procedures’ sixth (43%). Instead, monetary issues rather than functional ones seem to be seen as a more significant barrier; ‘Budgetary priorities’ (1st with 73%) and ‘Cost’ (4th with 53%) occupy two of the top four positions. With 109 of the 182 respondents (60%) coming from the public-sector, this may be indicative of the austere times and constraints that sector is operating under.

4.24 Organisational Barriers

4.24.1 An interestingly high selection was the perceived ‘Lack of leadership/support for innovation’ especially from people with IRM responsibility who placed it 3rd highest (37% IRM Familiar + 54% IRM Non-Familiar). For respondents familiar with Blockchain this issue was a greater concern when working in large organisations regardless of sector (40%). For respondents not familiar with Blockchain this issue was more pressing for public-sector employees in mid and large organisations.

4.24.2 At the other end of the scale was acknowledgement that the social implications of the adoption and implementation of technology was not a barrier. ‘Social implications – changes in collaboration communication styles’; ‘Resistance to learning new technology’ and ‘Work stress/overload’ all came towards the bottom of the scales only hitting mid-table at best for those not

familiar with Blockchain. This can be interpreted in two distinct ways – either staff's concerns are ignored, or organisations feel that the need for particular technologies outweigh the concerns (real or otherwise) of staff to effectively adapt. This may echo Tarofder's work on '*Top management support'* (2016, p.33) and is possibly not very considerate of those underneath. It is also worth noting the change management process isn't a barrier in itself, but a lack of support from staff (especially senior staff) for an effective change management programme is.

4.24.3 For respondents familiar with Blockchain two key barriers were consistently raised: regulatory issues and usability. Respondents from the Finance/Banking sector elaborated on their concerns of '*Current processes or procedures*' by noting that '*regulatory restraints will prohibit use of Blockchain for all financial services at this time*', reflecting an external causation beyond the remit of organisational control. Usability was, by far, the greatest concern with many people noting the '*uncertainty around potential benefit*' or the '*appropriateness of the technology for the functions of the organisation*', because they were '*not yet convinced that it is useful or that easy to deal with computationally*'. One simply asked '*is Blockchain the right tool in this environment*?'

4.24.4 Respondents not familiar with Blockchain echoed the sentiments above and noted regulatory issues and relevance with one citing '*a disconnect between the business justification and the purpose of the application*'. Others referenced a barrier as being the '*IT department workload and their ability to implement new tech*' or how some organisations are '*reliant on central IT policies which condemn us to outdated technology*'.

4.24.5 From an IRM perspective, whilst understanding Blockchain and integrating it into current processes and procedures were seen as problematic, the key barriers were fundamental and external. It was seen as an '*unproven and immature technology in the RIM/IG space*'. One consultant summed up the mood, saying '*there has not been enough development in this area for it to simply be implemented. A lot of work still needs to done on a wider collaborative scale - not internally by organisations*'. This can mean that there

is the need for some recognised standards to ensure proper governance and ensure enough trust in the Blockchain. These standards would have to be widely adopted or it won't suffice as an "*audit trail*" or similar for any wider legal/regulatory purposes.

4.25 Barrier Conclusion

4.25.1 Referring back to Rogers' theory of 'Diffusion of Innovation' is a helpful tool to make sense of the data presented. New technologies, Blockchain in particular, need to prove that they have a relative advantage over the incumbent technology and that they offer definite, tangible benefits to their users. The view from many respondents, especially those familiar with Blockchain, was that neither of these hold true at this point in time.

4.25.2 A key difference here between those familiar or not, seems to be that the Familiar group are focused on Blockchain, and therefore are wary of its utility given that it is largely unproven technology in many ways. However, the Non-Familiar group are drawing on their knowledge of barriers to implementing new technology, such as EDRMS, so they appear less worried about *is it useful?* because these are proven tools within the IRM profession – instead they are focusing more on the reasons their organisations opposed implementation - hence pointing out IT related barriers.

4.25.3 Coupled with this is the perception that Blockchain acceptance and usability generally is a larger external issue which needs greater collaboration and development. This is not viewed as something that cannot be remedied internally. Referring back to the knowledge section in hypothesis 1, which showed that the IRM profession overall does not seem to be giving much attention to Blockchain, it is hard to see at present where this sort of collaboration, in an IRM context, is going to come from.

4.25.4 Blockchain is currently seen as having too many barriers to effectively implement. There is a distinct lack of understanding of this technology and people struggle to see how it can be incorporated into their organisation. People are looking for use cases to help explain how it might benefit them and

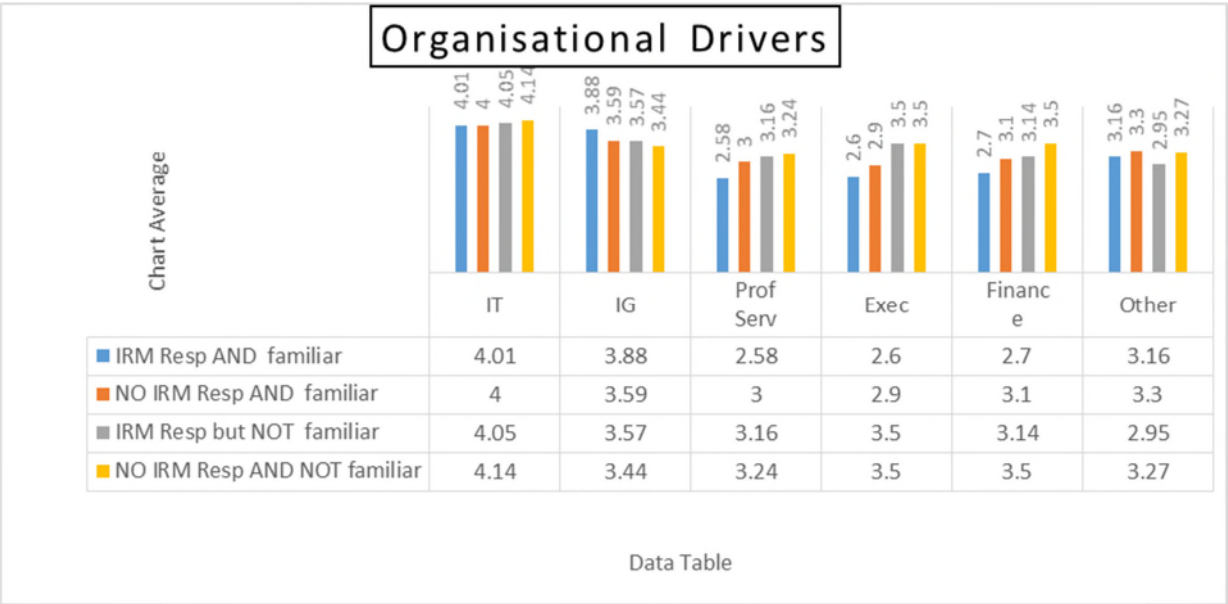
there appears to not be enough out there especially for those in IRM. IRM factors are not the reasons why organisations use Blockchain at this time

4.26 Drivers

4.26.1 What organisational features are perceived as being relevant drivers for the implementation of new technologies such as Blockchain? Five functions can be seen as standard, regardless of sector or size: Information Technology, Professional Services, Executive-Board level, Finance, and Information Governance. Question 10 asked about what business areas within an organisation were perceived as being the key driving forces behind the implementation of new technologies, including Blockchain. Figure 16 below shows the top level answers to those questions. I have selected the mean as the measure of central tendency, given that it is easily understood and the most stable method (Pickard 2014). Please see Appendix G for statistics related to Drivers.

- IT is seen by each group as the main driving force within an organisation - slightly more so from those not familiar with Blockchain.
- Respondents with IRM responsibility and familiar with Blockchain had clear ideas about drivers.
- Other factors do not successfully explain any other key organisational drivers.
- A number of non-responses within each section.
- IRM factors are not the reasons why organisation use Blockchain.

Figure 16 - Organisational Drivers (Average score)



4.27 Popular Drivers

4.27.1 IT is seen by IRM Familiar as the main driving force within an organisation for the implementation of Blockchain. Respondents gave IT a 4.01 mean score out of five. Four out of five respondents in this group saw IT as being the most likely to drive/lead Blockchain Technology's implementation and use in their organisation. The second highest mean score with 3.88 was for Information Governance (IG) to be the main driver. This is interesting as the questionnaire was aimed at information professionals who possibly work within an IG team or department so there is an obvious bias here and also, many organisations may not have this function. This also supposes that Blockchain would be implemented at the behest of IG to serve some function.

4.27.2 Among the 36 Non-IRM Familiar respondents the majority worked in mid or large size organisations (80%) there was a good spread between sectors with the other respondents favouring IT as a driver (70%) ahead of the private (69%) or public sectors (50%). There were no respondents from Finance/Banking. The mean scores of this group mirrored those from the IRM Familiar groups by choosing IT and then IG as the main drivers. The fact that both groups familiar with Blockchain selected IT as the driver denotes a predilection towards a technical knowhow driving the implementation behind

such a technology as Blockchain.

4.27.3 177 of the potential 182 IRM Non-Familiar respondents also identified IT (mean score of 4.05) and IG (3.57) as the driving force behind new technologies being implemented within an organisation. Finally, the 44 people that did not have IRM responsibility and who are not familiar with Blockchain maintained the belief that IT are the driving force with the highest mean score from the 4 groups with 4.14 with IG dropping to fourth behind Executive and Finance, especially for those respondents working in large organisations.

4.27.4 Respondents across each group consistently did not give a 100% selection rate across each category as respondents were not compelled to rate all the drivers presented. 'Professional services' was the biggest unit which was ignored the most - 13% did not rate it at all. This could be the most ignored option for a few reasons: perhaps it was simply not considered important; the term professional services may be too broad; or if not all organisations use the term, people could have left it blank because they did not quite understand it.

4.27.5 The 'Other' option was used by 33 respondents familiar with, and 30 respondents not familiar with Blockchain to briefly explain their views or offer additional insights, though most of these also recognised the importance of the drivers already presented in the preceding questions. Two key themes emerged which feed into the understanding of what the drivers of implementation are: specific thematic internal drivers; and external influences. Those in the 'other' group who were familiar with Blockchain suggested internal drivers that transcended specific teams or departments, instead focusing on business need such as *'research*' or '*R&D Innovation*'; '*Policy and compliance*' and '*Audit and Regulation*'. External influences concerned '*commercial*' and '*legal issues*' or would be '*driven by business need*' or '*if the technology enhanced the organisations customer service*'. A consultant working in Finance/Banking supported this saying '*much will be driven by clients requests*'. Alternatively, if Blockchain is not an initial driver then '*consultants on discrete projects may recommend it*', or as a public sector board member suggests it could '*find its way into organisations via 3rd party*

services'.

4.28 Conclusions

4.28.1 It is worth noting that this section on barriers (and drivers) was largely focused on organisational / internal factors, but that these "other" responses are actually highlighting that external drivers such as regulations (GDPR, for example) could be more important. Whatever the actual driver is, the responses in the questionnaire all reinforce the argument from Wolfe (Wolfe et al 1990) that a business need must exist before looking for an innovative technology to assist. But one wonders what exactly is the business need now for Blockchain to assist IRM professionals? Perhaps Blockchain aims to make the process of capturing an audit trail easier to automate, and more trustworthy.

4.28.2 Cignaek argued (2014, p.279) that whichever method was employed to unearth a new and innovative technology that might add value, it was expected that their IT function should enable them '*to exploit new opportunities relatively quickly as well as react to unanticipated changes in the business environment*'.

4.28.3 The perception that IT must be the drivers of technology implementation seems to be a common view but is a wrong and lazy view. IT may assist in the actual installing and testing of new technologies, including Blockchain, because of their technical know-how but they should not be the driver. Each business area must be responsible for their own field of knowledge and it is they who should understand their own requirements and source technologies that can help themselves.

4.28.4 It is not surprising that IG polled highly as it was aimed at information professionals but questions must be asked regarding why a technology such as Blockchain would be driven by IG when there are so very few use case examples available to explain its use. The best examples given are related to research but even this is at an early stage and it is not yet known if Blockchain will prove to be a successful long-term solution to long standing IRM issues in

the digital age.

4.28.5 The responses from the questionnaire reflect a reliance from organisations on their IT departments to lead the way in innovation. Different businesses have different needs, and what fits for one organisation or one team might not fit for them all.

4.28.6 Understanding how a technology will assist the user, as well as the organisation, is essential and needs further examination but currently, with the exception of research, IRM drivers are not the leading reason why people are experimenting with, or using Blockchain, at this moment in time.

4.29 Attitudes

4.29.1 The data gathered here aimed to gauge the opinions of respondents about their views on some statements regarding how technological change is perceived within the organisations where they work. Five statements were postulated and respondents were required to described whether they agreed, disagreed, or neither agreed nor disagreed with them. To better explain the results, the analysis below has grouped the ‘Agree’ and ‘Strongly Agree’ responses together as Agree or referred to as those in agreement with the statements. The ‘Disagree’ and ‘Strongly Disagree’ responses were grouped as ‘Disagree’ or referred to as those not in agreement with the statements.

4.29.2 Questions 11.1 to 11.5 directly references Blockchain whilst questions 18.1 to 18.5 do not and instead focus on new technologies. The reason for this is because those who identified themselves as being ‘Not Familiar’ with Blockchain would not be able answer the question related to knowledge of Blockchain. Please see Appendix H for statistics related to Attitudes.

4.29.3 The five statements were that:

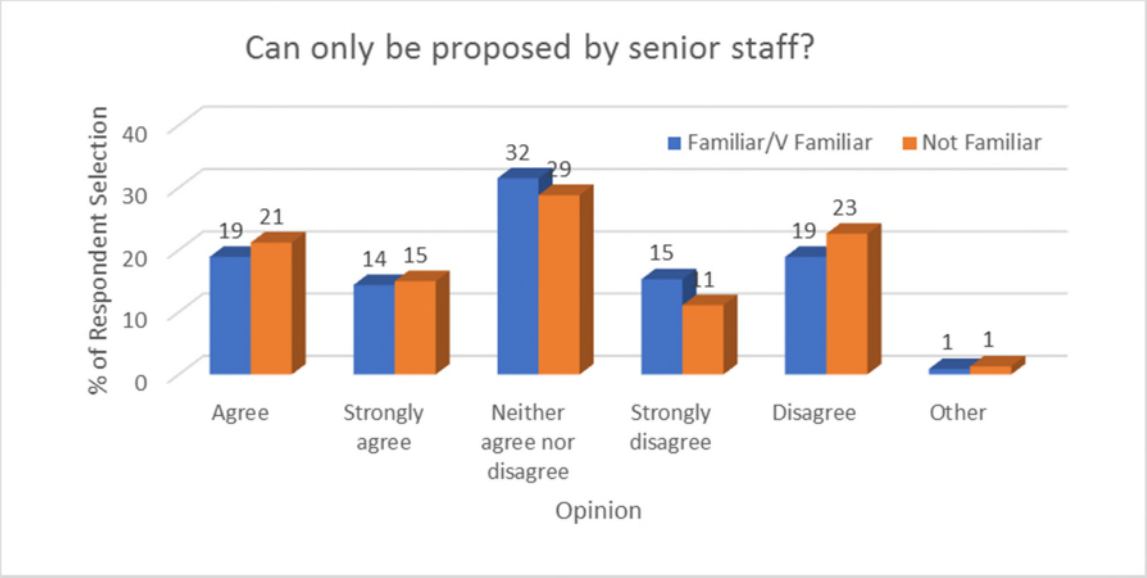
- Blockchain or New Technologies can only be proposed by senior staff
- Senior staff are open to new technologies
- There are means for all staff to raise innovative ideas
- Technological change is slow
- Technological innovation is not a priority

4.30 Can only be proposed by senior staff

4.30.1 The top level results are set out below in Figure 17. The key findings which can be drawn from this are that:

- Respondents spread across the sectors tend to agree with the statement.

Figure 17 - Can only be proposed by senior staff



4.30.2 Broadly speaking most respondents whether Familiar or Non-Familiar opt for the 'neither agree nor disagree' selection when asked if Blockchain or new technology can only be proposed by senior staff. There is also a slight inclination to agree with the statement but only by a little. These views will be investigated below.

4.30.3 The key point is that respondents, spread across the sectors and organisations of differing sizes, leaned towards agreement with the statement that Blockchain and/or new technology can only be proposed by senior staff. Admittedly there is not much difference between each group whether people have IRM responsibility or not, or whether they are familiar or not with Blockchain.

4.30.4 This is quite important as it reflects a distinct lack of inclusion when senior

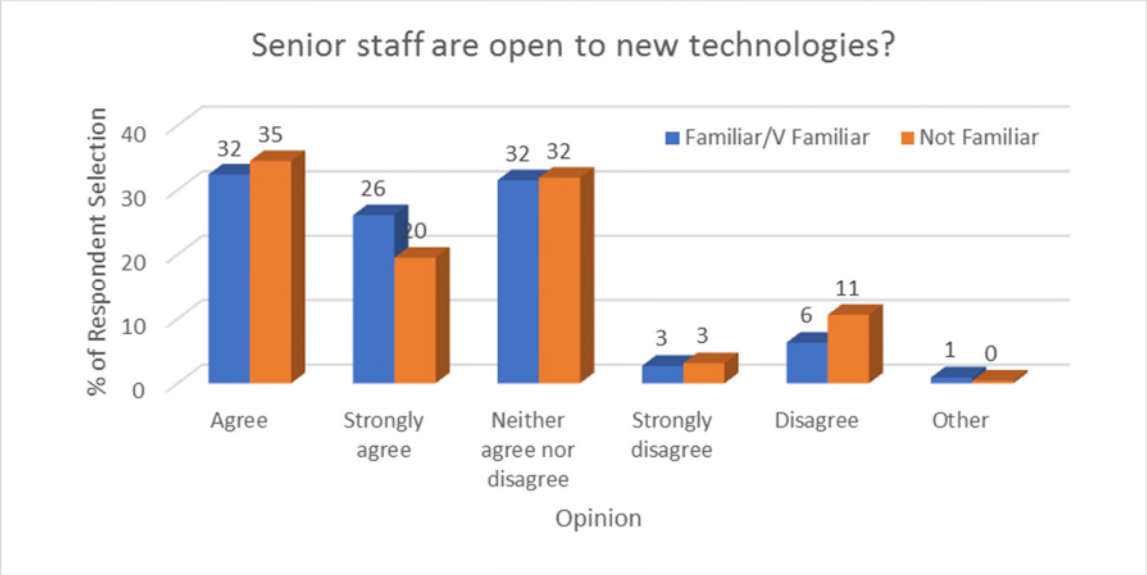
staff are considering the introduction of new technologies in general, and not just Blockchain. IRM considerations may be viewed as secondary or it may be that they have not been explained properly to senior staff. One non-managerial respondent with IRM responsibility who was familiar with Blockchain commented on this gulf by saying that '*Ideas for new technology can be proposed by teams, and these ideas can be raised up to the Executive level, but there is a lack of support for implementation at this level, especially for bigger technical solutions*'.

4.31 Senior staff are open to new technologies

4.31.1 The top level results are set out below in Figure 18. The key findings which can be drawn from this are that:

- Respondents with IRM responsibility (Familiar & Non-Familiar) were unanimous in agreement with this statement

Figure 18 - Open to new technologies



4.31.2 Despite there being a considerable number and percentage of respondents neither agreeing nor disagreeing with the statement that senior staff are open to new technologies, there is still a consensus from all respondents that they agree with this statement - 58% Familiar and 55% Non-Familiar. Interestingly

some people strongly disagreed and it is worth exploring why.

4.31.3 The key point here is that there is more uncertainty coming from the public-sector workers who have selected 'neither agree nor disagree' considerably more often than those in the private sector and Finance/Banking. Those in the private sector, and interestingly with IRM responsibility for both familiarity (72%) and non-familiarity (64%) of Blockchain, were unanimous in agreement that senior staff were open to new technology such as Blockchain. This positivity was also replicated across all organisation sizes with none disagreeing.

4.31.4 Of the 7 respondents with IRM responsibility that did disagree 4 of them came from the public sector with one middle manager conveying a complex system where '*there are many units within this university which develop technologies and new ideas. It is a bit of a free for all*'. Another public-sector respondent offered a reason for their disagreement saying that '*senior staff is open to new technologies but they don't know much about it and then, everything happens really slowly because of politics in the public service*'.

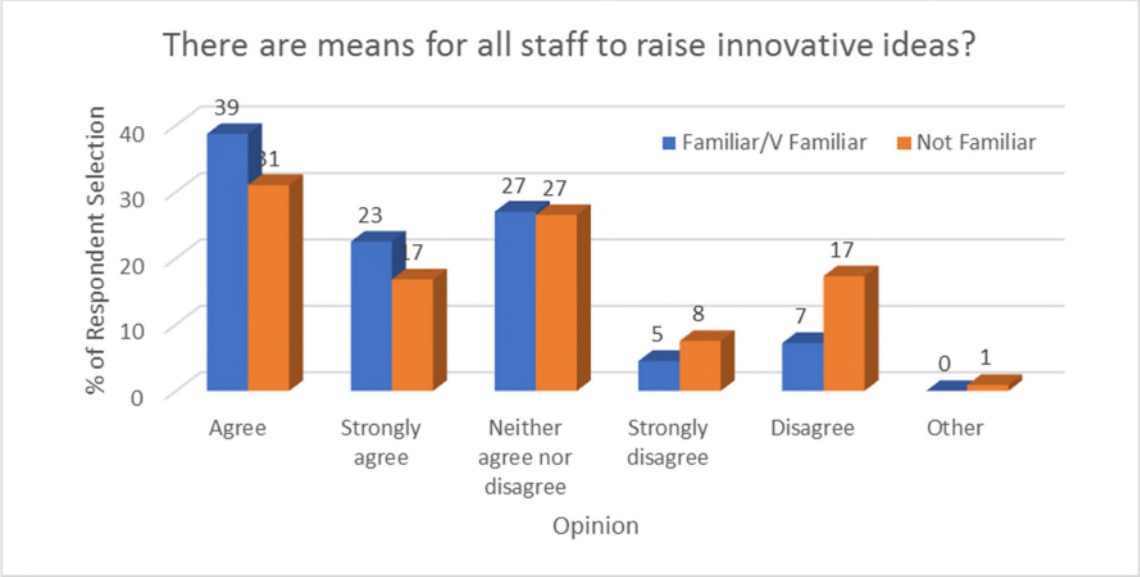
4.31.5 It is worth reflecting here on the Technology Acceptance Model by Davis (1989). No doubt many senior staff are governed by the perceived usefulness and the perceived ease of use of any technology. Blockchain is still so new that people possibly do not understand its uses yet, not how it might make life easier, or harder, for its users. I refer back to 'H1 Knowledge' whereby Blockchain has not really penetrated the IRM field yet.

4.32 There are means for all staff to raise innovative ideas

4.32.1 The top level results are set out below in Figure 19. The key findings which can be drawn from this are that:

- Respondents spread across the sectors tend to agree with the statement.

Figure 19 - Means for all staff to raise innovative ideas



4.32.2 Organisational innovation, according to Camison & Villar-Lopez, despite being '*poorly understood*' and hard to define, is '*the introduction of new organisational methods for business management in the workplace*' (2014 p.2892).

4.32.3 There was a greater consensus from respondents that there was a means within their organisations to raise innovative ideas. This was quite reassuring to hear as senior staff must rely upon those beneath them to keep them informed on the latest trends and technologies within their spheres of knowledge. There was still just over a quarter of people both familiar and non-familiar with blockchain who preferred not to offer an affirmative selection. There was also a slight increase in disagreement with this statement particularly from non-familiar people.

4.32.4 This statement was accepted by respondents from all organisations regardless of size. Of the 182 people who were IRM Non-Familiar there was a greater spread of selections (24% disagreeing and 26% staying neutral) although the statement was agreed with by 30% of respondents.

4.32.5 Of those that disagreed, there was a large number from the public sector and some offered comments explaining their thoughts. One person from a large organisation said '*You need a champion in the C offices*' referring to the need of patronage at executive level to fight their corner. Another respondent from

a small organisation wrote that '*non-senior staff are told to get on with the day-to-day work. Suggesting new ideas is seen as getting above ones station*'. This comment is completely at odds with Cerne's idea (Cerne et al 2013) that establishing a supportive climate within an organisation will encourage creative and innovative performances from staff who in turn will feed ideas upwards to the decision makers.

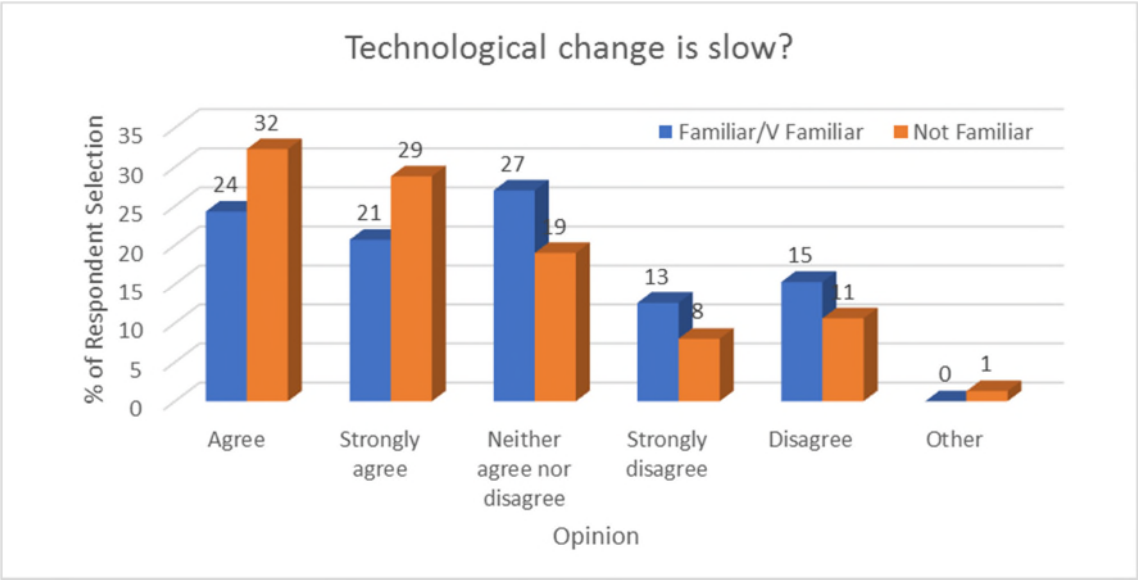
4.32.6 Despite this negativity there are positives to take away. There is generally a cross-sector support from senior management to at least look into new technologies and for staff to have a forum to raise new and innovative ideas upwards. What this suggests is that many organisations (over 50% at least) are prepared to look at what new technologies can offer – the willingness is there. But is there an IRM Blockchain product on the market to actually implement?

4.33 Technological change is slow?

4.33.1 The top level results are set out below in Figure 20. The key findings which can be drawn from this are that:

- Respondents tend to agree with this statement.

Figure 20 - Technological change is slow



4.33.2 Responses to this statement reflect a broader spread across the different sectors and organisations showing that the majority view technological change as slow whereas others do not.

4.33.3 29% of the IRM Familiar group disagreed with the statement; 25% of both non IRM responsible groups disagreed too, as did 17% of the other group that had IRM responsibility but were not familiar with Blockchain.

4.33.4 One public-sector consultant commented '*In a public-sector organisation it can be agonisingly slow to get agreement across all the different divisions and IT to start a new process like this*', reflecting the difficulty in getting consensus over what change is needed prior to implementation. Another non-managerial respondent from a large public-sector organisation summarised their view of that statement quite succinctly, saying '*technological change is not slow in terms of understanding the need for it, what is slow is implementation*', highlighting the difficulty of the implementation process itself.

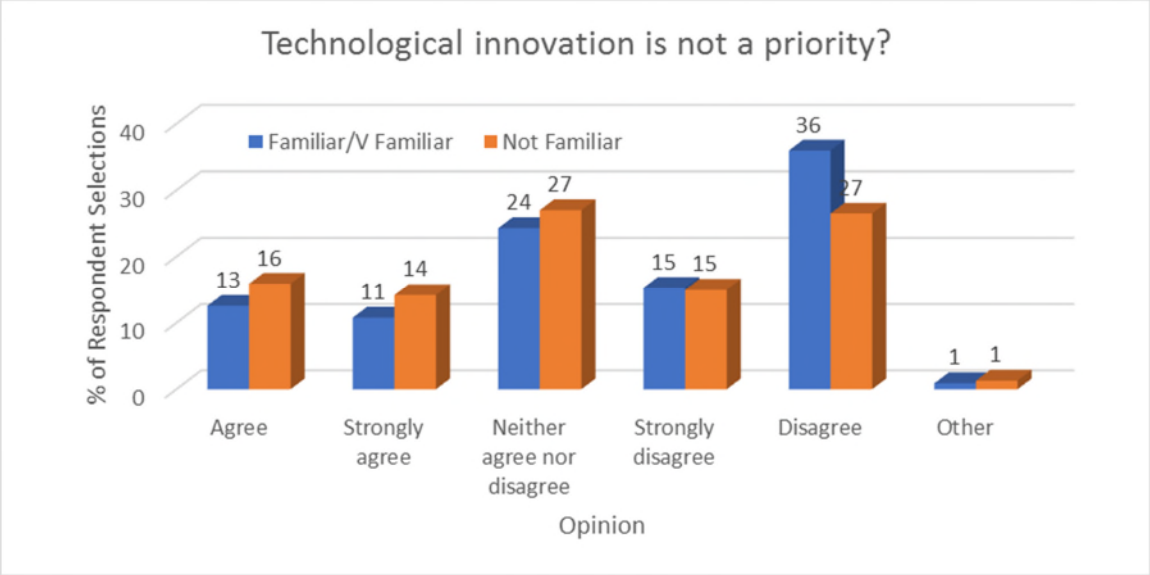
4.33.5 The key point from this is not that technological change is slow in itself but that cultural issues, especially in larger organisations where more consensus is required before decisions are reached, are in fact the reasons for inactivity or perceived sluggishness. This crosses all sectors and organisations, although there are greater indications of this from public-sector employees than private. Handling legacy systems can also play a part where much technology is tied to legacy investments. As one public-sector Board member explained, the '*biggest inertia isn't good ideas or unwillingness to adopt, it's that adoption isn't feasible if it means funding re-factoring of legacy systems*'. Essentially, some organisations may seem slow to move into something more sophisticated, when in fact they would like to but are constrained by the previous technology.

4.34 Technological innovation is not a priority

4.34.1 The top level results are set out below in Figure 21. The key findings which can be drawn from this are that:

- Respondents tend to disagree with this statement, in particular from Finance/Banking.

Figure 21 - Innovation is not a priority



4.34.2 Innovation might not be a priority for some, as the decision to adopt a new and innovative technology comes with risk and uncertainty (Rogers, 1983). This uncertainty increases when the technology is considered to be disruptive (Daneels, 2004).

4.34.3 This statement prompted a complete disagreement from those familiar with, and non-familiar with Blockchain. Even though there was a good spread of selections, there was no doubt that technological innovation not being a priority was refuted, although to some it was seen as something of a luxury.

4.34.4 Those working in Finance/Banking tended to disagree with this statement the most, closely followed by the private sector. Perhaps these two sectors view themselves as being more dynamic and need to be able to fight off more disruptive competitors whilst keeping shareholders happy. Some of the comments reflect this stance.

4.34.5 One private sector consultant in a mid-sized organisation clearly articulates his view of what the bottom line is: '*In business, innovation is not a goal in itself - profit is*'. Another consultant from the private sector says '*Innovation is*

core to our business but it has to add value to the customer experience'. This is echoed by a public-sector Board member whose technological focus is '*more on customer interface*'.

4.34.6 One very pessimistic view did come from a public sector middle manager who argued that although technological innovation was a priority for their organisation, '*it is often badly project managed, misplaced and/or dropped due to lack of engagement*.' This could be even trickier in a Blockchain world because of the need for so much computing power for it to function as intended – an additional point of potential failure.

4.35 Conclusions

4.35.1 There are many reasons to be optimistic looking at the views above. Despite some misgivings there seem to be opportunities for staff to raise ideas and for those ideas to be genuinely received by senior staff who can see them to fruition. Unfortunately, budgetary and cultural constraints along with outdated legacy systems and managerial styles can be roadblocks to such innovations. The questions above allow for black and white answers where in reality there are a variety of reasons and overlapping factors which can influence outcomes.

4.35.2 Blockchain technology is still so nascent that many senior staff might not be brave enough to implement it or even suggest this due to the length of time needed to agree and implement. Some organisations may have the capability to respond to an external disruptive threat but most do not. Others, echoing Wolfe (Wolfe et al 1990), possibly believe that a business need must exist before looking for an innovative solution. Interestingly, the customer focus is also where we find most movement towards Blockchain adoption. Perhaps the drivers for Blockchain are just as likely, if not more, to come from outside the organisation as from within.

4.36 ***Conclusion of H2***

4.36.1 From the evidence gathered from respondents regarding the perceived

barriers and drivers to Blockchain technology implementation, I validate Hypothesis 2: *that IRM factors do not explain why organisations use or do not use Blockchain technology.*

*4.37 **Hypothesis 3***

4.37.1 My third hypothesis is that Blockchain technology has significant potential to improve and enhance existing IRM practices.

4.37.2 In order to test this hypothesis, I will examine and analyse the key attributes of Blockchain within the context of the International Standard ISO 15489-1:2016 Records Management (ISO 15489/the standard) and Blockchain technology to determine whether Blockchain has significant potential to improve and enhance existing IRM practices. In doing so, I will also briefly describe three use case examples for the use of Blockchain in an IRM and archival setting.

4.37.3 Blockchain is increasingly being used by early adaptors and institutions for a variety of reasons such as a record keeping system for land registration (Shin 2017), supply chain management (del Castillo 2017) and for storing educational records (Melbourne University 2017). Yet it is essential that the records embedded within Blockchain are reliable and authentic so therefore it would make sense that this new form of record system must also be trustworthy and accessible.

4.37.4 ISO15489 states that records are: "*information created, received and maintained as evidence and as an asset by an organization or person, in pursuit of legal obligations or in the transaction of business*."

4.37.5 As I explained in section 3, the standard also defines the characteristics of authoritative records (regardless of form or structure) as having Authenticity, Reliability, Integrity & Usability (5.2.2). The characteristics of 'Records systems' (5.3.2) are defined as being Reliable, Secure, Compliant, Comprehensive & Systematic. I believe for Blockchain to improve and enhance IRM practices it must comply with ISO characteristics.

4.38 ISO Characteristics

4.38.1 *Authenticity:* This refers to the quality of any record so that it is what it purports to be. It should be free from tampering or corruption. Blockchain Technology is an immutable technology that relies on cryptographic keys to provide a powerful ownership tool that fulfils authentication requirements (Bauerle 2017). Lemieux (2016, p.128) sees authenticity as the '*major opportunity that this technology has to offer'*. Each record in the Blockchain is time-stamped and immutable – this is one of its key selling points. The Blockchain is append only and once something is added it cannot be removed thereby proving the authenticity of its content. The main issue here arises when an incorrect piece of data is added, be it maliciously or inadvertently, because it cannot be removed or edited.

4.38.2 *Reliability:* The standard refers to reliable records as those that '*can be trusted as a full and accurate representation of the transactions, activities or facts to which they attest*' (5.2.2.2.) preferably created during the course of normal business by the people involved in the activity. Blockchain's reliability stems from two key points: decentralised trust and immutability. Decentralised trust ensures that third parties are not relied upon to verify transactions, instead this is driven by miners for economic gain. Also immutability reflects that edits cannot be made to records on the Blockchain thus providing a path to data reliability. Again though the issue of data verification arises, as the Blockchain does not verify the accuracy of the data – instead it ensures it is not tampered with through the time stamping mechanism.

4.38.3 Integrity: The standard clearly states that '*a record that has integrity is one that is complete and unaltered*' (5.2.2.3). Essentially, records must be protected against unwarranted alterations, yet '*any authorized annotation, addition or deletion to a record should be explicitly indicated and traceable*'. Blockchain records are tamper-proofed by producing a unique mathematical property called a hash value. Any modification or alteration to transaction input, regardless of how small the change is, would result in a different hash value, which indicates compromised transaction input. Thus, the hash value can be used to confirm the integrity of the data/record.

4.38.4 *Usability:* A usable record, according to the standard, is one '*that can be*

located, retrieved, presented and interpreted within a time period deemed reasonable by stakeholders' (5.2.2.4). The metadata of such a record should also provide information or '*identifiers*' that may be needed to be retrievable. Participants require public and private keys to transact on the Blockchain. Identity is based on possession of a combination of private and public cryptographic keys and essentially creates a digital signature (Bauerle 2017). A person or organisation must know their private key to retrieve all records on the Blockchain as this is their identity written into their digital records. This is quite clunky and more user friendly use cases will need to be developed to gain traction with the general public, as if someone loses their private key they essentially lose their records and transaction.

4.38.5 Blockchain broadly conforms to ISO15489 by ensuring the key characteristics of what is a record. Blockchain, through its decentralised and immutable attributes, ensures authenticity, reliability and integrity of a record although it does not verify the actual transactional record. Also, the usability element seems non-user friendly although it does provide for an increased layer of security that other technologies lack.

4.38.6 Can Blockchain itself be seen as a records system and can it actually enhance IRM practices? As noted above, the standard defines the characteristics of '*Records systems*' (5.3.2) as being Reliable, Secure, Compliant, Comprehensive & Systematic. Nevertheless I believe that, to truly appreciate the potential of Blockchain, one must look beyond the confines of this international standard. Blockchain requires a paradigm shift to see how it can offer future benefits to the IRM profession. Findlay (2017) argued that people must '*imagine new models for recordkeeping*' that can also bring greater assurance of longevity and availability for records users, and offer new opportunities for individual-centric models for record keeping. Here begins the beginning of the paradigm shift. Before exploring this shift, it is worth briefly addressing the issues raised in the standard.

4.38.7 Blockchain's application to the standard can be summarised as follows: Blockchain is reliant on the internet to function, yet it can be seen as being as reliable as other record keeping systems. It authenticates and effectively

maintains the integrity of transactions and records therein. Blockchain, through its immutability, is secure. Its security is reinforced through the private key encryption mechanism. Blockchain uniquely does not comply with any international standard and does not conform to any regulatory requirements. Blockchain comprehensively and systematically records all transactions across the network regardless of format.

4.38.8 The questionnaire revealed two key trends: a lack of a use case to identify with, therefore creating uncertainty as to whether or not it was '*the right tool in this environment*'; and also a distinct lack of knowledge for, and use of Blockchain. As I showed when addressing hypothesis 1, over a quarter of respondents did not know about Blockchain technology. Of those who were familiar with Blockchain the majority had no direct experience of using it. As I showed when addressing hypothesis 2, IRM factors are not the reasons why organisation use Blockchain. Simply put, IRM professionals need a use case to demonstrate its potential. Three use cases recently have been proposed and explored to help understand its potential in assisting with IRM practices. One from Lemieux considers a real life test case, another from Findlay explores a hypothetical project, and finally The National Archives (TNA) in Britain undertakes a real research case.

4.39 Use cases

4.39.1 Findlay, selecting the case study of '*Children who experience out of home care*', presents an appraisal analysis to build a '*sustainable*' record-keeping and archiving system for children in care. Her appraisal analysis covers cultural and social-legal contexts where any record keeping may occur; understanding the recordkeeping requirements for each child and the stakeholders involved; and addressing the issues regarding the management of records such as access, use and usability. Findlay concluded that Blockchain '*might serve as a useful element in a record keeping solution*' through being a registry for personal records albeit linked to a distributed file storage platform. Other key attributes noted by Findlay were the use of smart contracts to facilitate the trustworthy exchange of information between child

and key stakeholders such as guardians or relatives. These records would be more assured and available, said Findlay, through the use of a decentralised system. The robustness of record keeping would protect the interests of the child and could be complimented by the inclusion of metadata linked to the personal context of the child.

4.39.2 Lemieux's research explored the value of Blockchain as a solution '*to creating and preserving trustworthy digital records, presenting some of the limitations, risks and opportunities of the approach*' (2016a p110). She evaluated the implementation of Blockchain technology for a land registry system in Honduras, using international record keeping and digital preservation standards as a frame of reference for assessment. Lemieux's research found that information integrity was addressed in the near to medium term, but that Blockchain had '*limitations*' as a long term solution for maintaining trustworthy digital records. (2016a p110).

4.39.3 The third use case is about maintaining long term trust-worthiness of digital records and relates to the Archangel project which is 18 month socio-technical feasibility study between TNA and the University of Surrey's Centre for the Digital Economy, and the Open Data Institute (EPSRC 2017). One of the key use cases of this archiving project will focus on the integrity of hash content. This consists of producing sets of hashes for research data held by universities in order to determine at a later date (when the data is potentially archived) whether the data has been tampered with or manipulated, or whether the content can be assured using the original cryptographic hashes.

4.40 Future implementation issues

4.40.1 Lemieux believed Blockchain to be '*fundamentally a record keeping technology'* which has given *'rise to new forms of records*' such a smart contracts, although how it is capable of responding to record keeping requirements '*is open to question*' and worthy of further exploration (2016a p.4). There are therefore quite a few issues related to Blockchain that are open to question.

4.40.2 Blockchain gets more computationally expensive to run the longer it exists. Organisations would need to seriously consider whether to buy into a system that becomes increasingly costly as each year passes. Quantum computing might help, but, if new quantum encryption methods are needed to protect the chain, these would be massively more complex to process again and could negate some of the gain. In light of this, could the public sector afford the processing power at all? A reported 90% of NHS trusts (in the UK) run at least one Windows XP device (The Register 2017) which means they would struggle to operate full copies of the Blockchain. For this to work under the current set up would require an IT revolution where computational power rises and costs drop dramatically.

4.40.3 Despite the questionnaire focusing on organisational and internal factors that act as barriers and drivers to technology implementation and adoption, one key external factor that was highlighted was the GDPR regulations. Within the European Union, GDPR requires that organisations manage their information much more effectively. Blockchain could help but issues around the ‘Right to be forgotten’ and retention and disposal of records could directly impact on adoption going forward. Interestingly, in places like the United States (US), Blockchain won't face these GDPR issues, so Blockchain might catch on in a big way in US organisations as part of the IRM toolkit. But it could be too hard to implement within the EU/UK due to conflicts with legislation. On top of that, if it is seen as a way for organisations in the US to keep your data forever, Blockchain may end up being viewed with suspicion by the wider population.

*4.41 **Conclusion of H3***

4.41.1 Through examining international standards and use cases, I partially validate Hypothesis 3 that Blockchai*n* technology has significant potential to improve and enhance existing IRM practices. Blockchain has some encouraging features, but there are currently too many outstanding issues that need further investigation and greater cross-sectoral collaboration between IRM professionals and Blockchain developers before it could claim to improve and enhance existing IRM practices.

5 CONCLUSIONS

5.1 Summary

5.1.1 I have set out the results of my research in sections 3 and 4 of this dissertation. In this final section, I will first summarise the key conclusions I have drawn from those results. I will then set out some lessons I have learned from conducting my research. Finally, I will point to areas in which I consider further work into my topic - the role of Blockchain in IRM - would be helpful.

5.2 Research Results

5.2.1 This research has addressed three hypotheses regarding Blockchain and IRM. The first hypothesis was that *Blockchain technology is both an under recognised and little used tool within the IRM community*. Three specific areas were tested – knowledge, use and experience – to ascertain the following key findings. Internet based methods of sourcing information are more popular than traditional paper based methods. Despite this Blockchain technology has not been widely discussed within the IRM professional community. Blockchain technology is a little used tool as very few people actually work with it or have experienced it as a records management tool. I believe that my analysis confirms this hypothesis to be valid.

5.2.2 The second hypothesis was that *IRM factors do not explain why organisations use or do not use Blockchain technology*. This focused on the organisational barriers, drivers and attitudes towards the adoption and implementation of Blockchain to ascertain the following key findings. A lack of understanding and the perceived disruption to current processes or procedures, coupled with regulatory restraints and usability were identified as key internal and external barriers. IT was seen as the main driving force within an organisation behind the implementation of new technologies, including Blockchain.

5.2.3 Despite agreement that senior staff were open to new technologies alongside the means for staff to raise innovative ideas, it was felt that only senior staff could propose technological change. Many also felt that technological

innovation was a priority for their organisation to succeed but that it happened at a slow pace. Taking everything into account IRM factors were not the reasons why organisations did or did not use Blockchain. I believe that my analysis confirms this hypothesis to be valid.

5.2.4 The final hypothesis was that *Blockchain technology has significant potential to improve and enhance existing IRM practices*. The key attributes of Blockchain and the International Standard ISO 15489-1:2016 Records Management were examined. My analysis was not able to establish fully whether this hypothesis was valid. This is partly due to the stage of development which Blockchain currently has got to: it is too early to draw definitive conclusions about the degree to which Blockchain is or might become a critical tool for IRM. I return to this point below.

5.2.5 Also relevant here, and perhaps linked to this first point, is the degree of cultural resistance within IRM so far to embrace Blockchain. As the answers to my questionnaire show, many people view this technology as yet another '*fad*', of short potential duration and thus little long-term utility. It appears to me that a change in culture - what might be termed a paradigm shift - is required before the opportunities which Blockchain presents for IRM can fully be appreciated, acted on, and embedded.

5.3 Lessons learned

5.3.1 I believe that my research has added value and will make a positive contribution to filling a gap in existing academic knowledge about the potential role of Blockchain in IRM. That gap was confirmed by the first element of my research, the literature review I conducted and which is summarised in section 3 of this dissertation. It was further underlined by the data produced by answers to my questionnaire, which shows the current state of knowledge and use of Blockchain within a sample of the IRM community, as well as attitudes among those respondents to this new technology. The hypotheses drawn from my initial research were validated by those results. I consider that this research was therefore a success. However, there has been a number of issues resulting from my research on which I have reflected. These can be

grouped into two broad areas of lessons I have learned from my experience: the first being about the scope of my research, with the second being about my approach to analysis.

5.3.2 One key limitation was that I may have been over ambitious in my scope of research. Concerned that not many people would know about Blockchain (this proved true), I included a set of questions (14 to 20) regarding new technologies. This created a second narrative and could have been a second thesis in its own right. My focus had to stay with the responses of those who were familiar with Blockchain to learn more about their views and experience.

5.3.3 The number of respondents who were familiar with Blockchain and used it was less than 4%. It was even smaller when only those with IRM responsibility were included. I felt that this size was too small to generalise and draw conclusions from yet I would have liked to 'drill down' further with this sample, possibly through interviews, to really try and understand how Blockchain was being used and how it might benefit IRM in the future. I did not use this group exclusively (eg: IRM Familiar Use) to convey results simply because it was so small. I include as an Appendix L the isolated findings from this group.

5.3.4 The structure of some of the questions could have been better. In particular I am referring to questions 10 and 17 - 'Drivers to implementation'. This was effectively 5 mini questions in one and produced a large amount of information to assess. This could have been 1 simple question, possibly in a scale format, which would have produced a more definitive conclusion and which would have been less onerous on the respondent. Also, this question may have been misinterpreted by respondents who may have confused the team with the technical knowhow to 'implement' technology within an organisation, eg: IT, as opposed to the team who required a technology like Blockchain, to aid them in the course of their work.

5.4 Future Research

5.4.1 These problems of scope and approach are lessons I have learned from

conducting my research. I believe I would be more realistic about the extent of subject matter I would attempt to cover if I were to conduct further research in future - and I would pay more attention at the design stage to possible problems arising from sample size and question wording too.

5.4.2 Nevertheless, as mentioned earlier in this conclusion, I believe the results of my research remain valid and make a positive contribution to existing knowledge about my topic. But I am very far from concluding that my research has answered the research questions definitively.

5.4.3 As explained above, perhaps its main contribution has been to confirm that significant gaps - in knowledge about and use of Blockchain - exist in the IRM profession. This would appear to be confirmed by other commentators. Lemieux firmly believed that she was only '*looking at the technology through one tiny lens*' (Good Rebels, 2017) and that there was much work yet to do to help resolve Blockchain issues attributed to IRM and the archival sciences.

5.4.4 I have concluded that an explanation for these gaps can partly be found in the technology's early stage of development and partly in the cultural and attitudinal context within the profession. But there are technical issues too. Validating records – a key concern for IRM professionals - remains problematic. Blockchain may be immutable but this does not mean all records are authentic in the first place. Ensuring long term trustworthiness and preservation is a challenge and it will be interesting to see how the TNA conclude the Archangel project.

5.4.5 I would therefore suggest that further work is needed both as the technology develops further and as exposure to it within the IRM community grows. That is beyond the scope of this research.

5.4.6 I would conclude with one question: would the results of an identical survey conducted in, say, five years' time produce a similar picture? The answer to that remains to be seen.

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Blockchain and IRM - Survey 2017

Welcome

Blockchain Technology - the Records Manager's friend?

Welcome to the survey.

It should take you no longer than 4 minutes to complete this mobile friendly and anonymous survey.

By voluntarily completing this survey you consent to the information provided contributing towards a MSc Dissertation paper and other, not yet defined, published material.

Please answer all questions and offer comments where appropriate. All comments really help to gain a better understanding of this and other technologies.

Enjoy

Page 1

ABOUT YOU:

What sector do you currently work in? ✱ *Required*

- Public Sector
- Private Sector
- Finance/Banking
- Other

If you selected Other, please specify:

Approximately how many people are employed at your organisation? ✱ *Required*

- 1 - 100
- 101 - 1000
- 1001 +

For how long have you been in your current role? ✱ *Required*

- Less than twelve months
- 1 to 3 years
- 4 to 5 years
- 6 to 10 years
- Over 10 years

Do you have responsibility for information and records management in your role? ✱ *Required*

- Yes
- No

Which account best describes the role do you currently hold? ✱ *Required*

- ○ Board level
- ○ Middle manager
- ○ Operational manager
- ○ Non Managerial
- ○ Consulant
- ○ Other

If you selected Other, please specify:

Knowledge and Use

Are you familiar with Blockchain technology? ✱ *Required*

- Not Familiar
- Not familiar but have heard a little about it
- Familiar – know about it
- Very familiar and use it regularly

Knowledge and Use - Blockchain familiarity

Where does your main familiarity/knowledge of Blockchain technology come from? (Please select as many as appropriate) ✱ *Required*

Please select between 1 and 7 answers.

- ☐ Online Search Engines
- ☐ Social Media
- ☐ Trade publications, eg: IRMS Bulletin
- ☐ Articles & News - Online
- ☐ Articles & News - Print
- ☐ Books
- ☐ University
- ☐ Academic Journals
- ☐ Training courses
- ☐ Conferences
- ☐ Other

If you selected Other, please specify:

Do you work for an organisation that uses Blockchain Technology? ✱ *Required*

- ○ Yes
- ○ No
- ○ Not right now but future plans
- ○ Don't know

What barriers did/could your organisation face during the implementation of Blockchain Technology? (Please select as many as appropriate) ✱ *Required*

Please select between 1 and 15 answers.

- ☐ Lack of leadership/support for innovation
- ☐ Current processes or procedures
- ☐ Budgetary priorities
- ☐ User acceptance
- ☐ Understanding of and ability to implement

- ☐ Cost
- ☐ Value for money
- ☐ Resistance to learning new technology
- ☐ Social implications – changes in collaboration communication styles
- ☐ Comfort level – effect of disruption
- ☐ Time to make changes and adjust
- ☐ Difficulty/availability/time for training
- ☐ Work stress/overload
- ☐ Reliability – will it continue to provide value
- ☐ Performance
- ☐ Other

If you selected Other, please specify:

Which business areas are/will be the drivers behind Blockchain Technology's implementation and use in your organisation? (5 being **most likely** to drive/lead and 1 being **least likely**) ✱ *Required*

Please don't select more than 1 answer(s) per row.

Please select at least 1 answer(s).

	5	4	3	2	1
Information Technology	☐	☐	☐	☐	☐
Information Governance	☐	☐	☐	☐	☐
Professional Services	☐	☐	☐	☐	☐
Executive	☐	☐	☐	☐	☐
Finance	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐

If Other please specify here:

Your answer should be no more than 100 characters long.

To what extent do the statements below reflect your organisation's attitudes to the adoption of new technology, such

as Blockchain Technology?

	✱ Required						
	Agree	Strongly agree	Neither agree nor disagree	Strongly disagree	Disagree	Other	If you selected Other, please specify:
Can only be proposed by senior staff?	○	○	○	○	○	○	
Senior staff are open to new technologies?	○	○	○	○	○	○	
There are means for all staff to raise innovative ideas?	○	○	○	○	○	○	
Technological change is slow?	○	○	○	○	○	○	
Technological innovation is not a priority?	○	○	○	○	○	○	

Feel free to offer any comments to further explain your choices. (Optional)

Your answer should be no more than 1000 characters long.

What are your experiences of Blockchain Technology as a record keeping/management tool? ✱ *Required*

More info

- ○ Generally positive.
- ○ Generally negative
- ○ Neither positive or negative

Please offer your reasons why

Please offer any other comments (Optional)

Your answer should be no more than 1000 characters long.

Knowledge and Use

Where do you look for information about new technologies that could have an impact on you professionally and personally? (Please select as many as appropriate) ✱ *Required*

Please select between 1 and 7 answers.

- ☐ Online Search Engines
- ☐ Social Media
- ☐ Trade publications, eg: IRMS Bulletin
- ☐ Articles & News - Online
- ☐ Articles & News - Print
- ☐ Books
- ☐ University
- ☐ Academic Journals
- ☐ Conferences
- ☐ Training courses
- ☐ Other

If you selected Other, please specify:

Do you work for an organisation that uses Blockchain Technology? ✱ *Required*

- ○ Yes
- ○ No
- ○ Not right now but future plans
- ○ Don't know

In your experience, what barriers has your organisation faced during the implementation of new technology? (Please select as many as appropriate) ✱ *Required*

Please select between 1 and 15 answers.

- ☐ Lack of leadership/support for innovation
- ☐ Current processes or procedures
- ☐ Budgetary priorities
- ☐ User acceptance
- ☐ Understanding of and ability to implement

- ☐ Cost
- ☐ Value for money
- ☐ Resistance to learning new technology
- ☐ Social implications – changes in collaboration communication styles
- ☐ Comfort level – effect of disruption
- ☐ Time to make changes and adjust
- ☐ Difficulty/availability/time for training
- ☐ Work stress/overload
- ☐ Reliability – will it continue to provide value
- ☐ Performance
- ☐ Other

If you selected Other, please specify:

Which business areas are/will be the drivers behind new technology implementation and use in your organisation? (5 being **most likely** to drive/lead and 1 being **least likely**)

Please don't select more than 1 answer(s) per row.

Please select at least 1 answer(s).

	5	4	3	2	1
Information Technology	☐	☐	☐	☐	☐
Information Governance	☐	☐	☐	☐	☐
Professional Services	☐	☐	☐	☐	☐
Executive	☐	☐	☐	☐	☐
Finance	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐

If Other please specify here:

Your answer should be no more than 100 characters long.

To what extent do the statements below reflect your organisation's attitudes to the adoption of new technology?

✱ *Required*

	Agree	Strongly agree	Neither agree nor disagree	Strongly disagree	Disagree	Other	If you selected Other, please specify:
Can only be proposed by senior staff?	○	○	○	○	○	○	
Senior staff are open to new technologies?	○	○	○	○	○	○	
There are means for all staff to raise innovative ideas?	○	○	○	○	○	○	
Technological change is slow?	○	○	○	○	○	○	
Technological innovation is not a priority?	○	○	○	○	○	○	

Feel free to offer any comments to further explain your choices. (Optional)

Your answer should be no more than 1000 characters long.

What are your experiences of technological innovations contributing towards record keeping/management? ✱ *Required*

- ○ Generally positive.
- ○ Generally negative
- ○ Neither positive or negative

Please offer your reasons why

Please offer any other comments (Optional)

Your answer should be no more than 1000 characters long.

End

That completes the questionnaire!

Thank you for taking part.

bos

Blockchain and IRM - Survey 2017

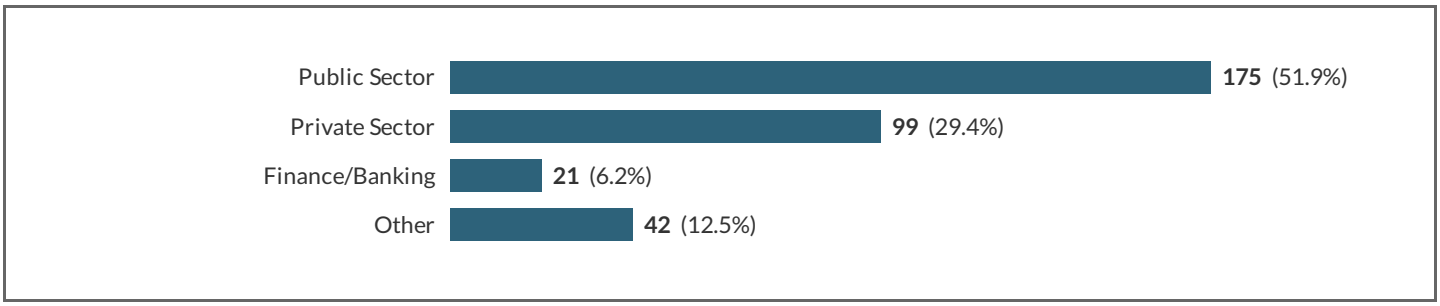
Showing 337 of 337 responses

Showing **all** responses

Showing **all** questions

Response rate: 33%

1 What sector do you currently work in?

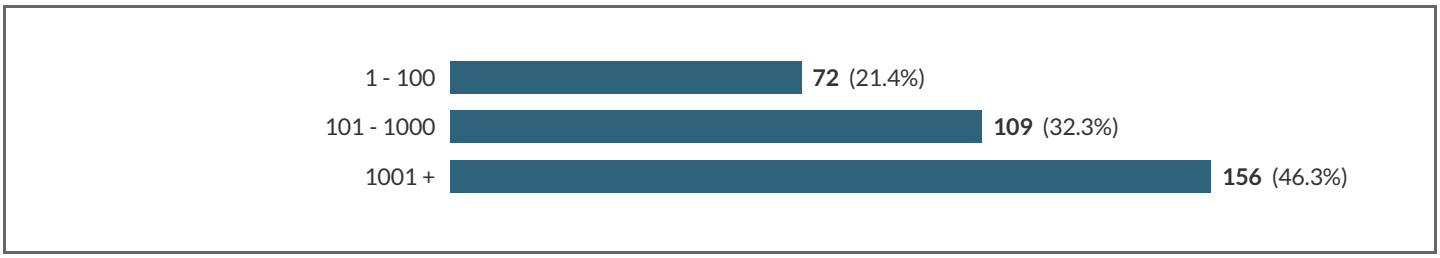


1.a If you selected Other, please specify:

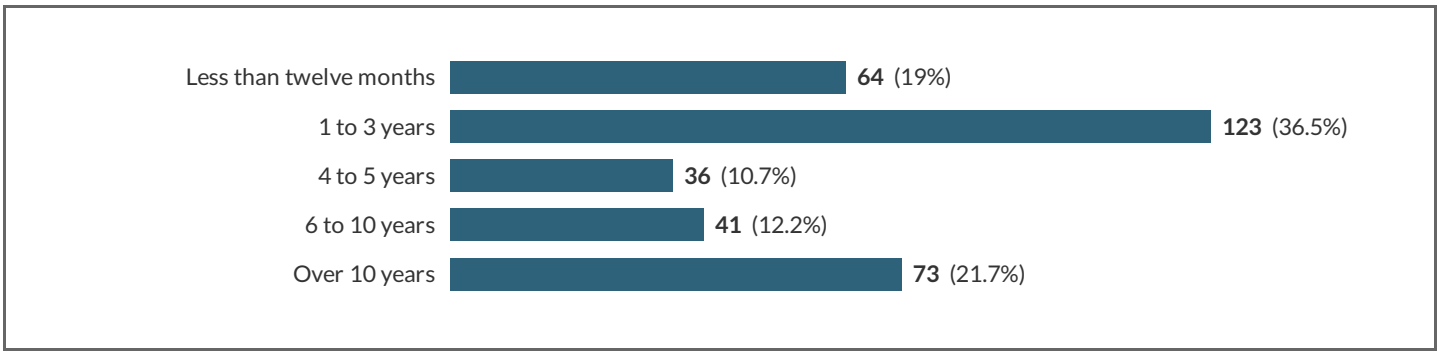
Showing all 42 responses	
Consultant	268514-268506-22328334
RD&I	268514-268506-22331344
Education	268514-268506-22567333
Housing	268514-268506-22632325
University	268514-268506-22635145
Charity	268514-268506-22678451
Charity/Heritage	268514-268506-22685535
academic	268514-268506-22687451
Religious congregation	268514-268506-22704373
IRM consultant serving mainly public/third sector	268514-268506-22830139
Consultant archivist working across all sectors	268514-268506-22835683
Charity	268514-268506-22861770
Student	268514-268506-22879021
University	268514-268506-22950704

Charity	268514-268506-22993444
consultant working in a range of sectors	268514-268506-23054487
Consulting	268514-268506-23091235
Between jobs	268514-268506-23098539
Not for profit	268514-268506-23313790
academic research	268514-268506-23327289
As an independent KM consultant I work across all sectors, mainly in public and charity	268514-268506-23335071
Consultant to international organisations.	268514-268506-23356960
academic	268514-268506-23362920
government	268514-268506-23363344
Retired from the public sector	268514-268506-23385885
Humanitarian	268514-268506-23392900
non-profit	268514-268506-23412579
International organization	268514-268506-23425104
University	268514-268506-23428981
consultant working for both public and private sector clients	268514-268506-23475120
Religious organisation (Uniting Church in Australia)	268514-268506-23500820
NGO	268514-268506-23503107
Not for Profit	268514-268506-23520794
Charity	268514-268506-23525796
charity	268514-268506-23529801
Education/Non-Profit	268514-268506-23544450
Archiving	268514-268506-23579136
Public research lab	268514-268506-23660175
Roads Infrastructure Construction	268514-268506-23673073
Research	268514-268506-23684102
Academic	268514-268506-23694423
Membership organisation	268514-268506-23776263

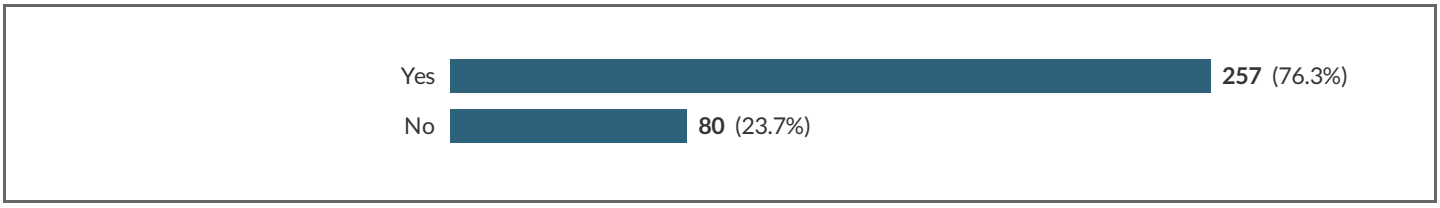
2 Approximately how many people are employed at your organisation?



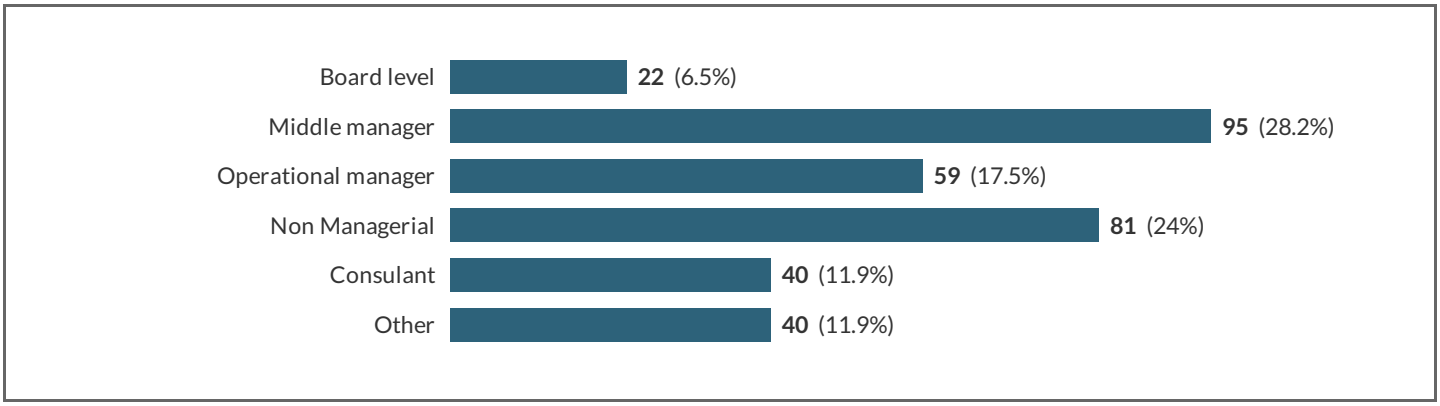
3 For how long have you been in your current role?



4 Do you have responsibility for information and records management in your role?



5 Which account best describes the role do you currently hold?



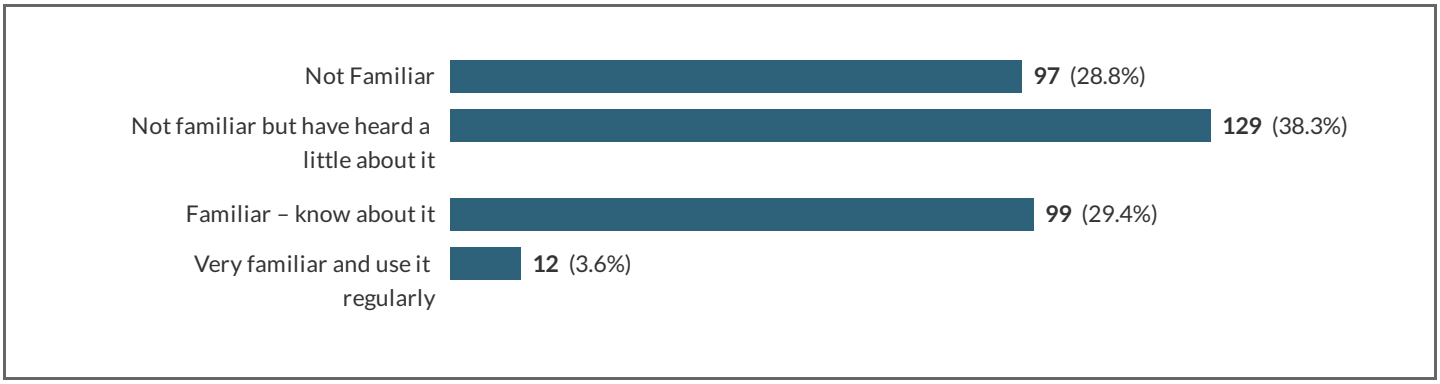
5.a If you selected Other, please specify:

Showing all 40 responses	
Lecturer	268514-268506-22322460

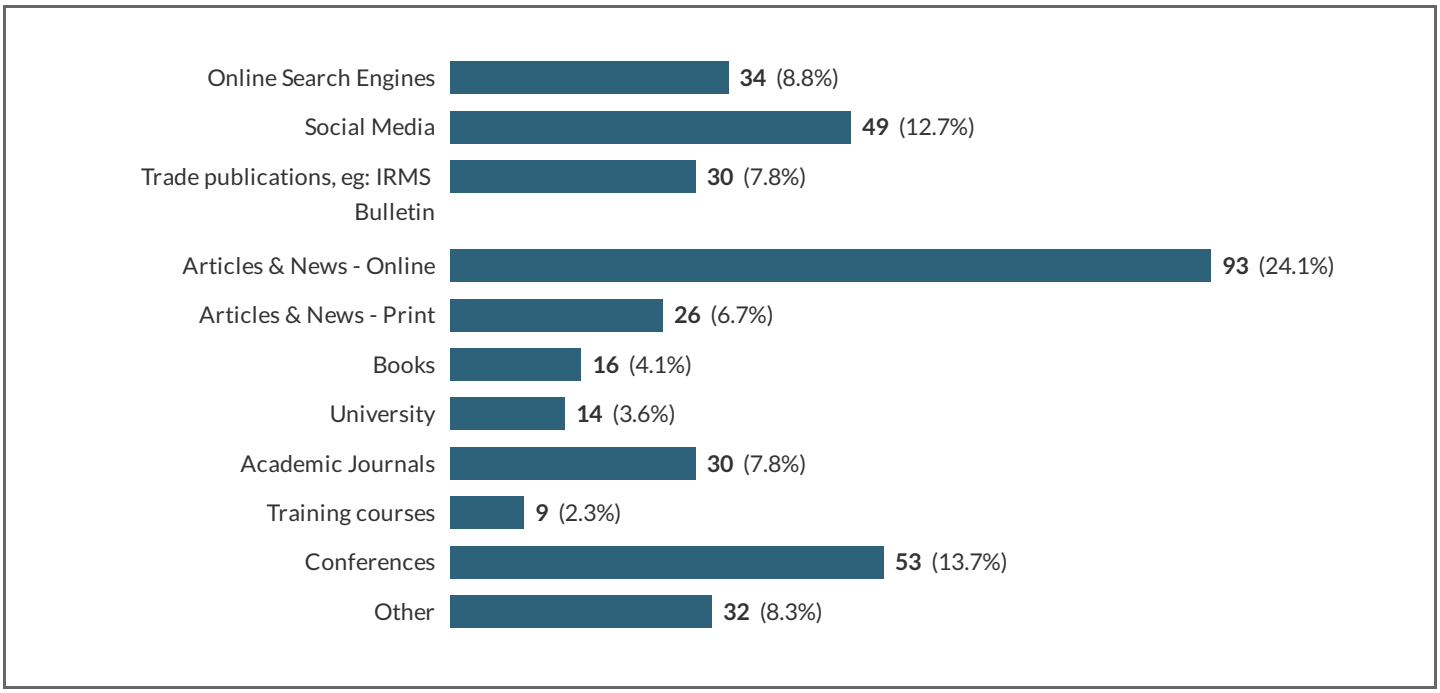
Researcher	268514-268506-22322882
Records Program and ECM administrator	268514-268506-22339297
IT engineer	268514-268506-22340911
Head of Digital Archiving	268514-268506-22381994
Community Nurse (so Information Governance important)	268514-268506-22484995
Contract position	268514-268506-22492263
Associate Professor	268514-268506-22567333
Assistant archivist	268514-268506-22710622
Specialist	268514-268506-22830373
Professional (solicitor)	268514-268506-22831643
Student	268514-268506-22879021
Professional, currently in a team without line management responsibilities	268514-268506-22993444
Advisor/trainer in Operation (about 500 staff)	268514-268506-23009160
Government adviser on information and records management	268514-268506-23009000
Enterprise Architect	268514-268506-23033951
Software Developer	268514-268506-23056455
Waoting for work	268514-268506-23098539
Records Management Assistant	268514-268506-23111186
Principal / Consultant	268514-268506-23282949
Middle manager, operational manager and consultant.	268514-268506-23300933
researcher	268514-268506-23327289
Intern	268514-268506-23354124
I teach them	268514-268506-23362920
Chair AIIM's StratML Committee	268514-268506-23385885
Project Manager	268514-268506-23396321
Technical expert	268514-268506-23414187
IT (ECM) Program Manager - Implementor	268514-268506-23414436
Teacher	268514-268506-23428981
senior manager	268514-268506-23432024
Records Analyst	268514-268506-23501837
project manager	268514-268506-23503107
Entrepeneur	268514-268506-23505463
associate professor	268514-268506-23512258

Information Manager	268514-268506-23534134
Professor and MARA Program Coordinator	268514-268506-23564542
law teacher / PhD student in IT law	268514-268506-23590033
Retired from public service so just have to manage self	268514-268506-23684102
Researcher	268514-268506-23694423
Chief Medical Officer	268514-268506-23711770

6 Are you familiar with Blockchain technology?



7 Where does your main familiarity/knowledge of Blockchain technology come from? (Please select as many as appropriate)

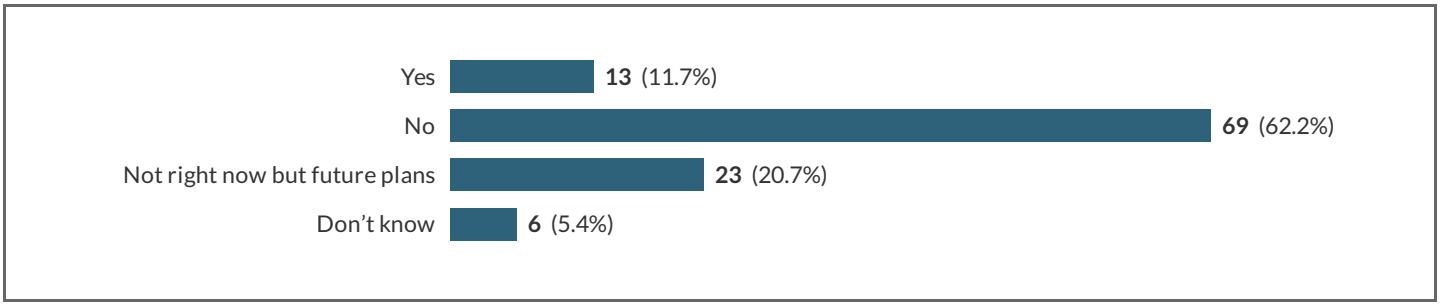


7.a If you selected Other, please specify:

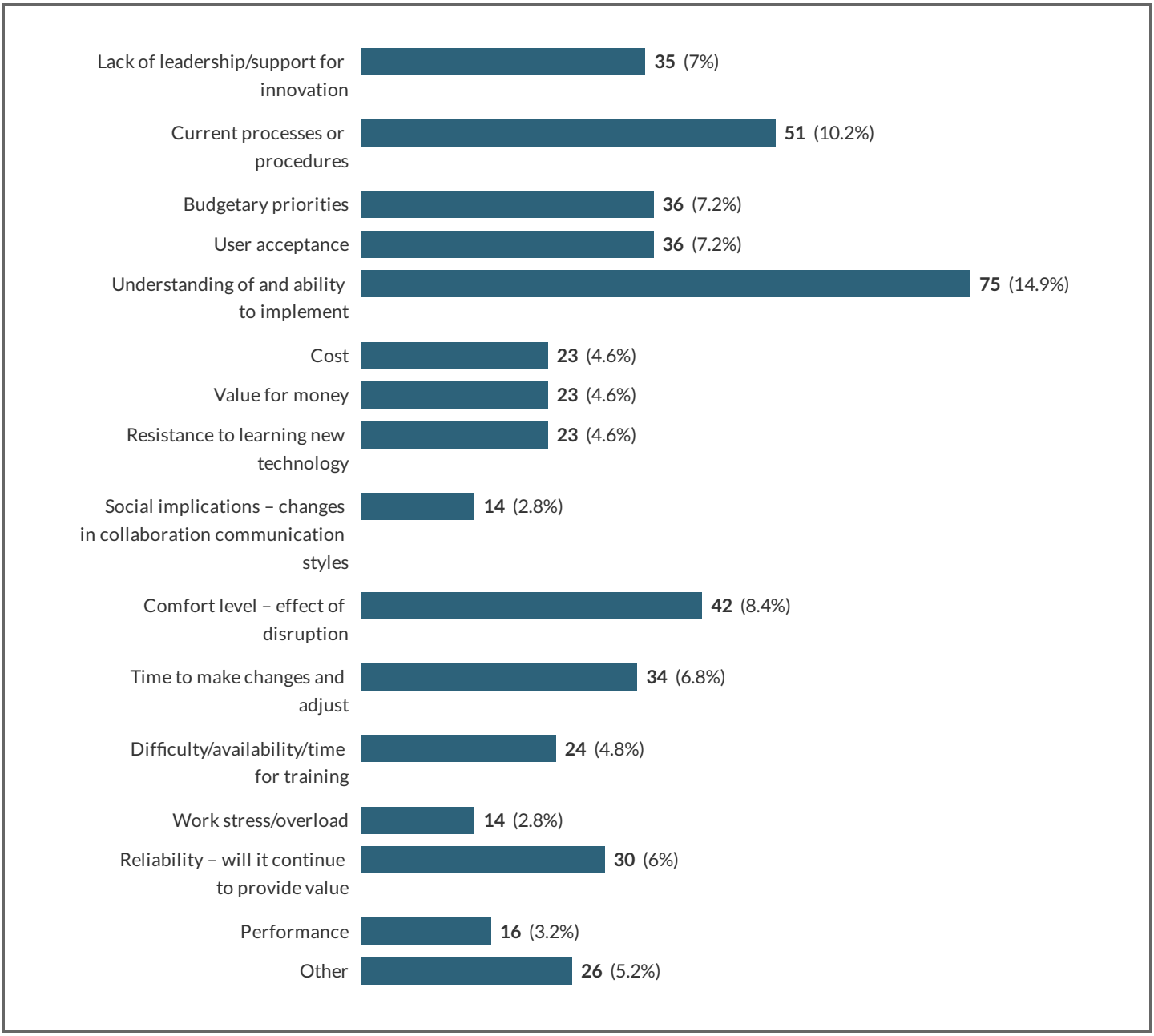
Showing all 32 responses	
Financial services consultancy	268514-268506-22322480
word of mouth	268514-268506-22324127
Tuttle club	268514-268506-22329780
Downloaded, installed and configured Bitcoin client as an experiment	268514-268506-22340911
Discussions with peers	268514-268506-22492263
Bitcoin and other crypto currencies - using for the last 5 years	268514-268506-22517272
word of mouth	268514-268506-22535719
Participation in research projects	268514-268506-22653686
I am trying to develop a cultural blockchain for the uK and am working with a key City organisation already using it.	268514-268506-22864962
Government reports	268514-268506-22987210
Informal word of mouth with colleagues	268514-268506-22993444
Internal presentations	268514-268506-23002500
Heard a debate on the radio	268514-268506-23009000
Close friend was working on a documentary on Bitcoin	268514-268506-23356960
research	268514-268506-23362920
I am a Blockchain trainer	268514-268506-23369751
Contacts in City of London Financial areas	268514-268506-23373352
industry contacts	268514-268506-23419027
My own work. I was part of the Nxt Blockchain community team	268514-268506-23448320
project white papers & website, reddit.	268514-268506-23475120
Throug ISO (Australian committee) working on blockchain standard	268514-268506-23504473
Hold bitcoin and use it for transactions infrequently	268514-268506-23512246
My research team	268514-268506-23512258
research	268514-268506-23516740
Colleagues	268514-268506-23517970
Used to work in fintech startup	268514-268506-23529801
Colleagues working in the field.	268514-268506-23564542
Hacking on them, writing code using the evm	268514-268506-23638708
Personal contacts and discussions	268514-268506-23660270
job	268514-268506-23675223
peers with a techie interest	268514-268506-23776263

My peers	268514-268506-23820885

8 Do you work for an organisation that uses Blockchain Technology?



9 What barriers did/could your organisation face during the implementation of Blockchain Technology? (Please select as many as appropriate)



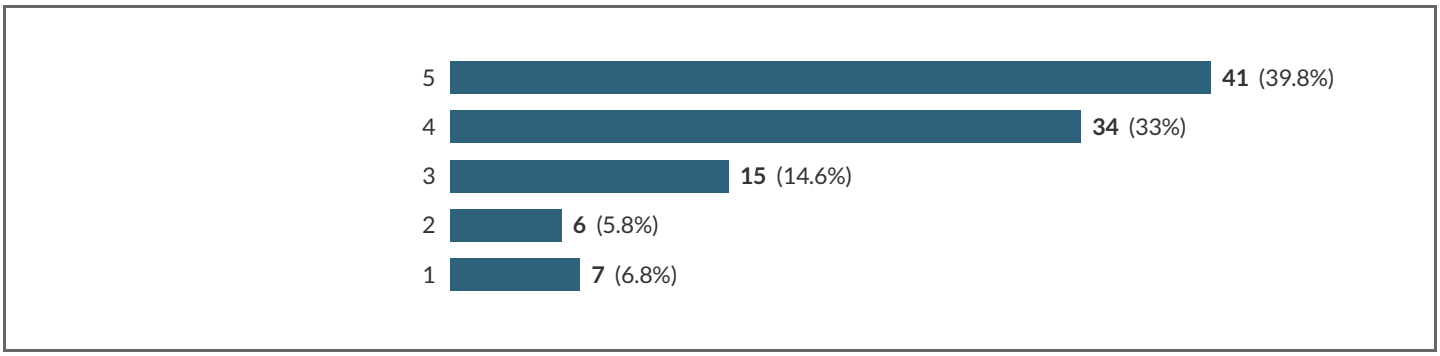
9.a If you selected Other, please specify:

Showing all 26 responses	
Uncertainty around potential benefit	268514-268506-22322645
Regulatory restraints will prohibit use of blockchain for all financial services at this time (see FCA record keeping requirements)	268514-268506-22405152
NHS adoption? applications? EHRs potential?	268514-268506-22484995
No way to effectively archive older transactions in the blockchain - people running full nodes with an entire block chain history require vast resources and the file format of the stored blockchain itself is not a highly optimised database and is not build for past searchability or performance - only for capturing that the a transaction has taken place - the storage of the blockchain format also limits storage architecture to non optimal outcomes.	268514-268506-22517272

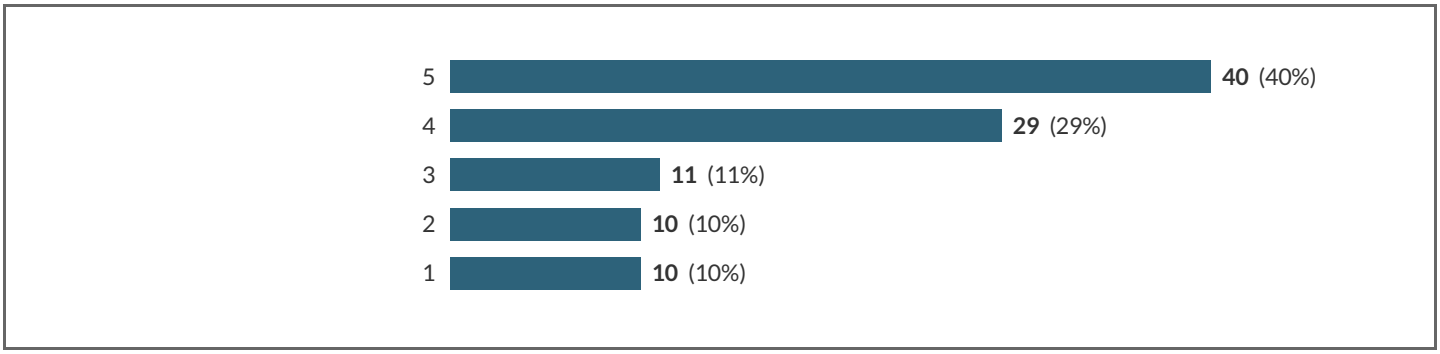
Lack of motivation	268514-268506-22653686
Using to help our clients, or for research and development purposes	268514-268506-22666979
University: teams working on it are diverse and reasons for difficulty or otherwise are not clear.	268514-268506-22864962
As a consultant, if we were to push for blockchain technologies it would most likely be with regard to digital preservation. Even with the technology being open-source, there has not been enough development in this area for it to simply be implemented. A lot of work still needs to done on a wider collaborative scale - not internally by organisations.	268514-268506-23012408
Integration with existing technology systems	268514-268506-23033951
Unproven and immature technology in the RIM/IG space.	268514-268506-23236930
Protection of personal health information	268514-268506-23286018
Not yet a business priority	268514-268506-23396426
Is Blockchain the right tool in this environment?	268514-268506-23397172
Regulatory reasons	268514-268506-23400399
I cannot answer on the behalf of my organization	268514-268506-23428981
None. We are a blockchain training company (Blockchain Workspace) all of whom are comfortable with the technology	268514-268506-23448320
Not implemented...	268514-268506-23502339
Not yet convinced that it is useful or that easy to deal with computationally	268514-268506-23504473
none	268514-268506-23505463
People generally don't know the first thing about blockchain and tend not to understand the entry-level 'introductions'. It has a steep learning curve - usually based on a specific application (eg. bitcoin)	268514-268506-23512246
Many could apply, but then it's a matter of identifying what purpose would blockchain technology serve.	268514-268506-23544206
identification of useCases	268514-268506-23579136
Nonr, we're a blockchain health company.	268514-268506-23638708
It's too new and the use cases don't exist.	268514-268506-23674142
We are a blockchain company - we use it	268514-268506-23711770
appropriateness of the technology for the functions of the organisation	268514-268506-23776263

10 Which business areas are/will be the drivers behind Blockchain Technology’s implementation and use in your organisation? (5 being most likely to drive/lead and 1 being least likely)

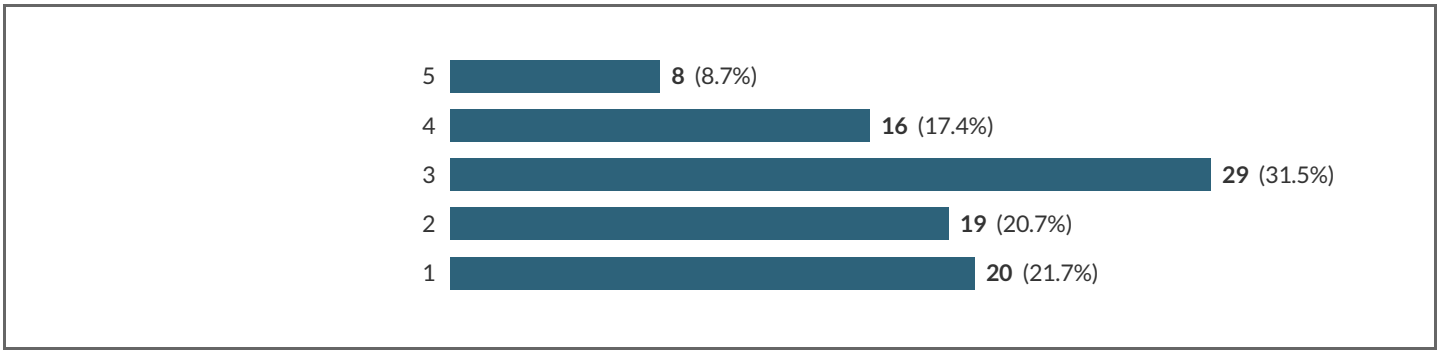
10.1 Information Technology



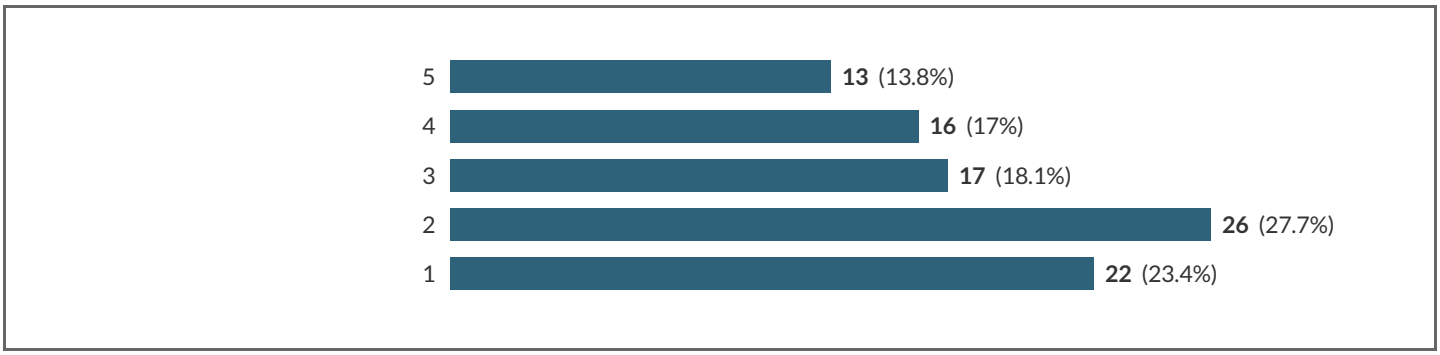
10.2 Information Governance



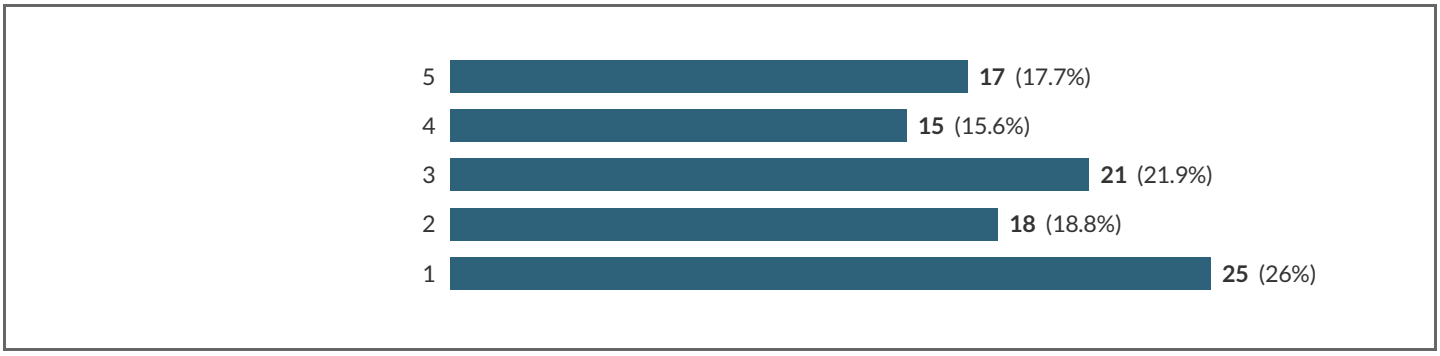
10.3 Professional Services



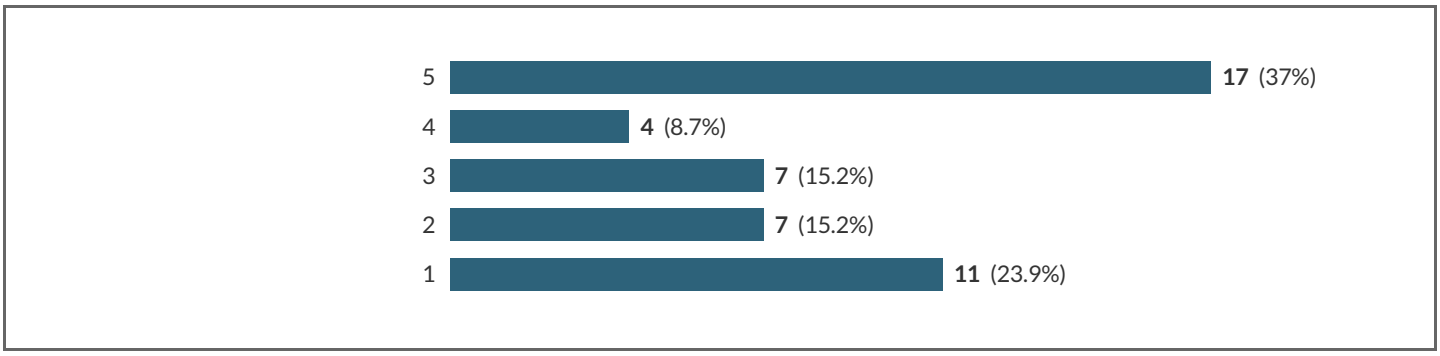
10.4 Executive



10.5 Finance



10.6 Other



10.a If Other please specify here:

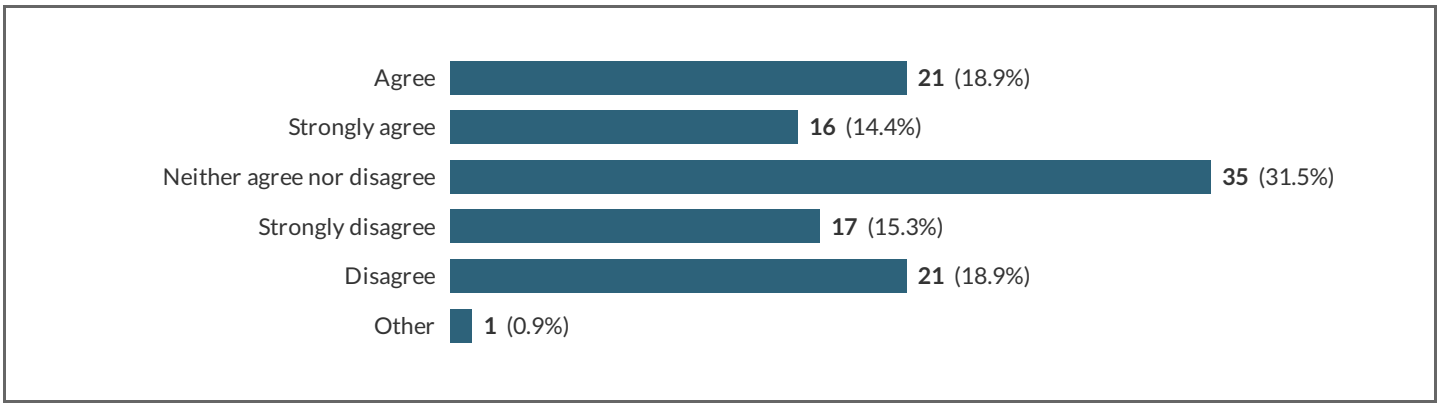
Showing all 33 responses	
Audit and Regulation	268514-268506-22322480
Integrity and trust	268514-268506-22329780
Research	268514-268506-22331344
Consultants on discrete projects may recommend it	268514-268506-22344334
Security related to records?	268514-268506-22484995
Faculty	268514-268506-22567333
I am completing this on a mobile device so my answer must be "ease of use"	268514-268506-22979170
Don't know - it would depend on the impetus in government generally	268514-268506-23009000
I am assuming 'Information Governance' is the same as 'Records Management.'	268514-268506-23027798
Business functions e.g. Finance, supply chain, sustainability	268514-268506-23033951
Open Data, Open Government	268514-268506-23286018
Adoption driven by business need - clinical trials / reg'ltry submission is our likely use case	268514-268506-23293571
Policy and compliance, policy ow ners	268514-268506-23300933

Depends sector where good tools emerge. If in finance then they will lead etc	268514-268506-23356960
legal issues	268514-268506-23362920
Customer experience	268514-268506-23396426
The likelihood of blockchain being implemented as a recordkeeping tool is low	268514-268506-23397172
Groups pursuing different use cases outside formal groups.	268514-268506-23416727
R&D innovation	268514-268506-23419027
commercial	268514-268506-23420820
Archival provenance of records and information in our custody.	268514-268506-23427079
I'm not informed enough about Blockchain to answer.	268514-268506-23429280
Government mandates.	268514-268506-23452486
Suspect most likely to find its way into organisations via 3rd party services	268514-268506-23512246
I can't see that my institution (faculty) will implement blockchain in its operations soon.	268514-268506-23512258
Surveillance and integrity - using enhanced & trusted security to meet changing clients/user needs	268514-268506-23517970
Blockchain technology can be used in many areas but we need a legal framework for that too.	268514-268506-23590033
Not relevant.	268514-268506-23674142
Non financial applications	268514-268506-23675223
Considering developing blockchain-based records management and IG software.	268514-268506-23694920
Unclear Question. Customer facing business solutions will drive Blockchain implementation.	268514-268506-23711770
As a member service if the technology enhanced the organisations customer service to them	268514-268506-23776263
the need to be able to advise on blockchain technology may be the most important driver	268514-268506-23817644

11 To what extent do the statements below reflect your organisation's attitudes to the adoption of new technology, such as Blockchain Technology?

11.1 Can only be proposed by senior staff?

11.1.a Can only be proposed by senior staff?

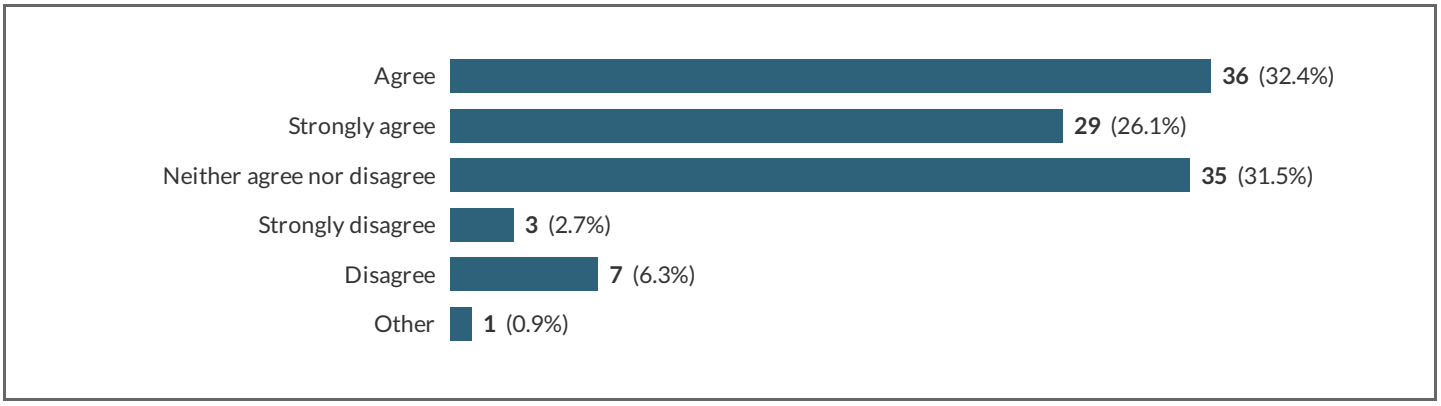


11.1.b Can only be proposed by senior staff? - If you selected Other, please specify:

Showing 1 response	
all we do as company	268514-268506-23711770

11.2 Senior staff are open to new technologies?

11.2.a Senior staff are open to new technologies?

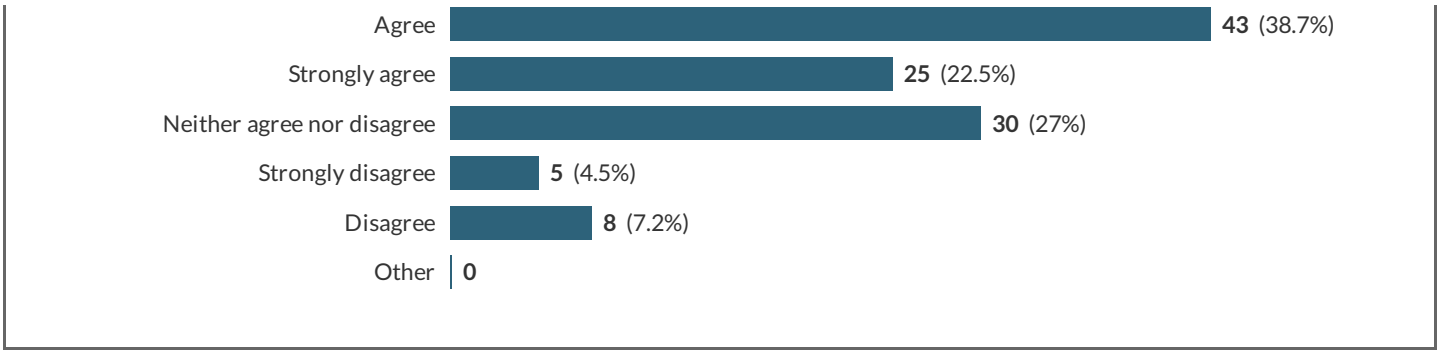


11.2.b Senior staff are open to new technologies? - If you selected Other, please specify:

Showing 1 response	
all we do as company	268514-268506-23711770

11.3 There are means for all staff to raise innovative ideas?

11.3.a There are means for all staff to raise innovative ideas?

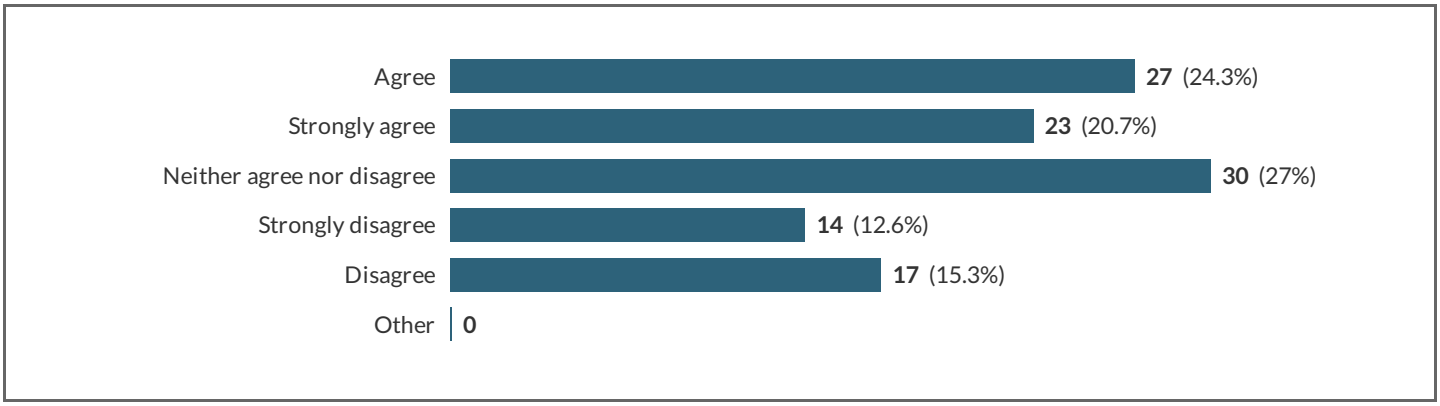


11.3.b There are means for all staff to raise innovative ideas? - If you selected Other, please specify:

No responses

11.4 Technological change is slow?

11.4.a Technological change is slow?

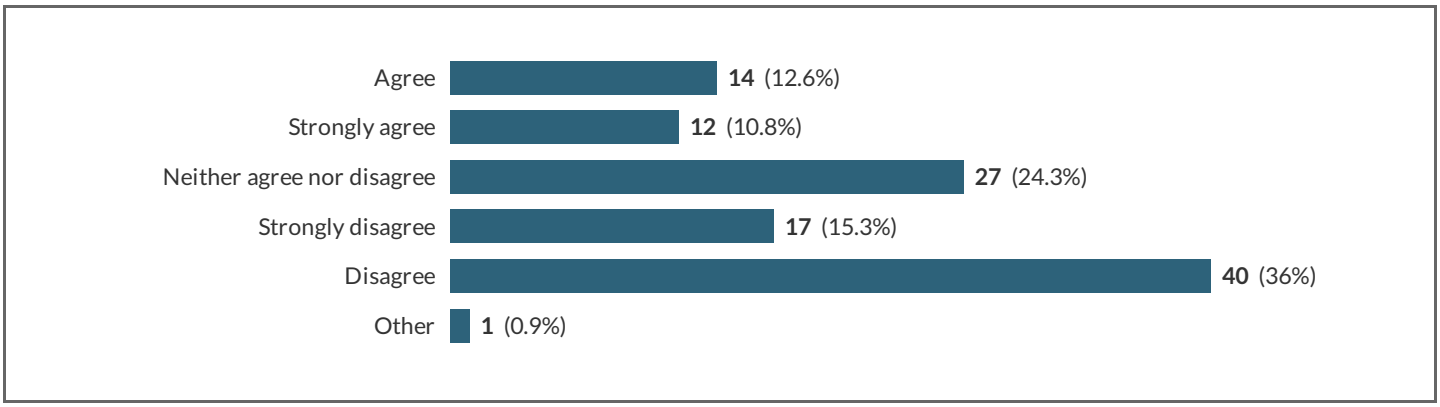


11.4.b Technological change is slow? - If you selected Other, please specify:

No responses

11.5 Technological innovation is not a priority?

11.5.a Technological innovation is not a priority?



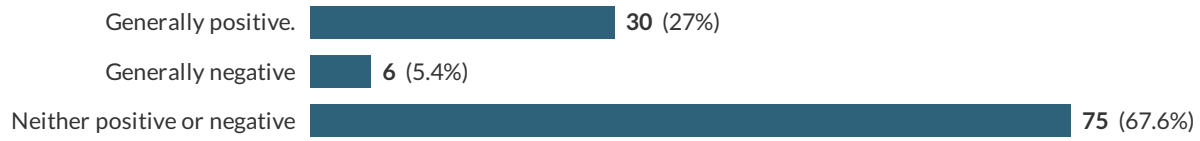
11.5.b Technological innovation is not a priority? - If you selected Other, please specify:

Showing 1 response	
On a client or project basis.	268514-268506-23416727

11.a Feel free to offer any comments to further explain your choices. (Optional)

Showing all 17 responses	
Commercial drivers are the priority, not the issues you mention in your question.	268514-268506-22322480
In a public sector organisation it can be agonisingly slow to get agreement across all the different divisions and IT to start a new process like this.	268514-268506-22344334
Ideas for new technology can be proposed by teams, and these ideas can be raised up to the Executive level, but there is a lack of support for implementation at this level, especially for bigger technical solutions - instead problems are often targeted by specific pieces of software to solve a specific issue, leading to overlapping functionality and a lack of a coherent structure for tech in the organisation.	268514-268506-22346722
Many community based staff could use m-health tech but it is not available. There is still no integration across systems - primary, secondary, social care…	268514-268506-22484995
In business, innovation is not a goal in itself - profit is. You don't ask whether the business need/case exists! :(	268514-268506-22653686
The IT for a major university is highly complex. There are many units within this university which develop technologies and new ideas. It is a bit of a free for all.	268514-268506-22864962
This table is not organized properly that is the Strongly agree/disagree columns should be further away from the middle than the Agree/Disagree columns - doesn't give confidence!	268514-268506-23009000
Tight budgetary environment, including technology acquisitions.	268514-268506-23236930
I filled this in from point of view mostly of me as a consultant. It thus more reflects my own opinions re organisations I might work with rather than my perception of a particular organisation.	268514-268506-23356960
I work for a Telcom and I CT provider. Innovation is core to our business but it has to add value to the customer experience.	268514-268506-23396426
Technology is usually strongly tied to legacy investment. Biggest inertia isn't good ideas or unwillingness to adopt, its that adoption isn't feasible if it means funding re-factoring of legacy systems.	268514-268506-23512246
Budgetary restrictions often apply.	268514-268506-23512258
Our main focus is innovation and new applications of technology for the sector so there is a genuine openness to all kinds of new opportunity, particularly when they are technologies with such obvious potential and impact as Blockchain	268514-268506-23517970
There is less focus on back office technology and more on customer interface	268514-268506-23569482
The academic public sector is really reluctant to any type of changes, even to improve working processes.	268514-268506-23590033
we are a blockchain company from the start	268514-268506-23711770
I'm part of a library and archive service; there is no records mgt dept. Like many organisations until RM is implemented the organisation is wary of implementing IT based solutions due to cost. The organisation is open to change but like many due to finances can be a bit slow on the uptake!	268514-268506-23776263

12 What are your experiences of Blockchain Technology as a record keeping/management tool?



12.a Please offer your reasons why

Showing 5 of 65 responses	
Not yet seen it used as a records management tool.	268514-268506-22322480
No real-world experience. The case for its use has to be compelling, because the high processing cost of blockchain tech means it cannot sensibly be adopted for trivial applications.	268514-268506-22322973
Ability to implement and enforce smart contracts Blockchain as a service Permissions Auto destruction or Permanent archival Clinical Trials Development and enforcement of information governance/data protection ****	268514-268506-22331344
Not used blockchain in this context	268514-268506-22340911
Haven't used it yet	268514-268506-22344334

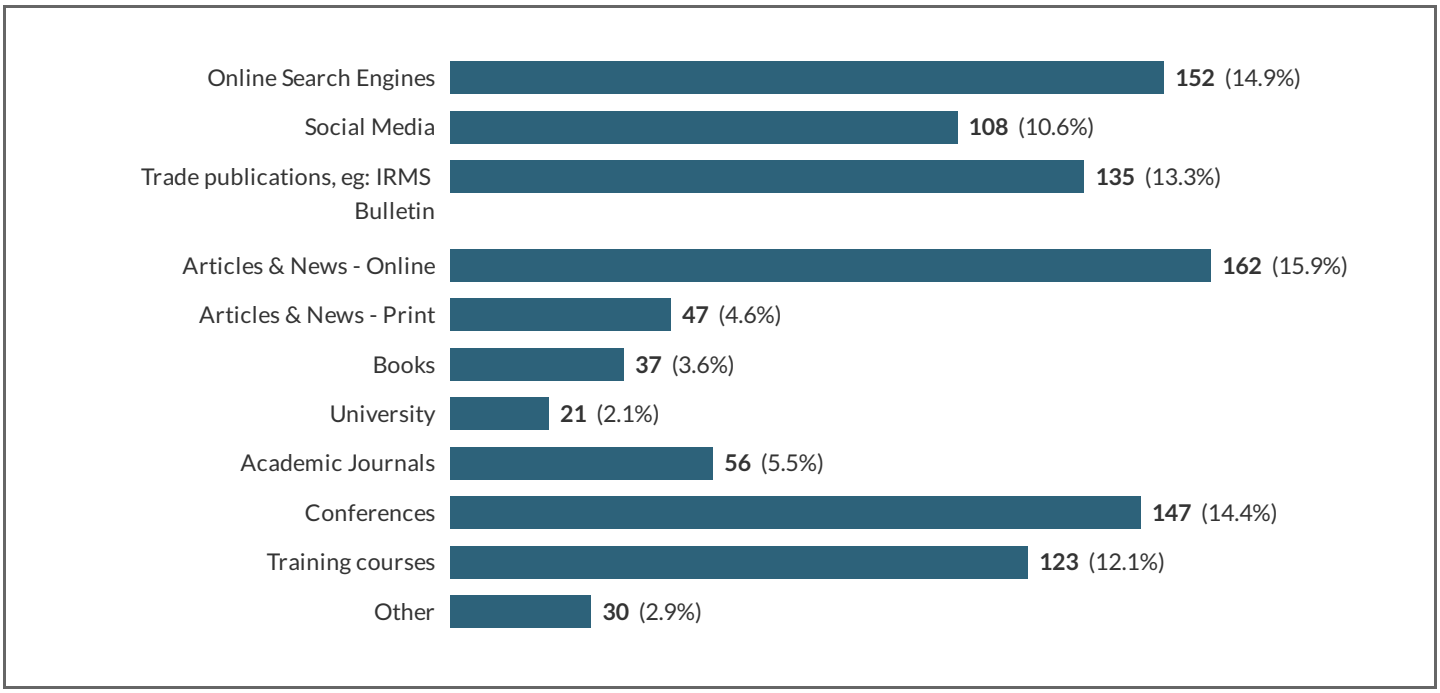
13 Please offer any other comments (Optional)

Showing all 29 responses	
I believe blockchain technology will be used in specialist applications but believe it is actually of little relevance to the vast majority or record keeping applications. It is an example of technology being over-hyped by those promoting it because it is in their commercial interest to do so. Blockchain is much more a ledger/audit logging tool and that is where it will be used.	268514-268506-22322480
I remain unclear of its relevance	268514-268506-22322645
We are set to start a research project into using blockchain technology in an archival context. It is potentially an exciting technology but I can see there being some resistance because it is so different and a lack of understanding of why it is different makes it look like another tech fad. However, we are taking a long view to the technology and using this project as an opportunity to understand how it may work in practice but also what are the challenges specific to our use case.	268514-268506-22322882

Very interested in your work, perhaps we can collaborate h2c.research@gmail.com	268514-268506-22331344
Blockchain technology would seem to be an obvious tool for record managers due to the integrity of the records.	268514-268506-22344334
The technology offers a lot of potential for RM in the future, though there are questions and challenges that need to be addressed - for example, can a permanent digital ledger such as blockchain be compatible with GDPR requirements over the right to be forgotten? Beyond the technology itself, RM is often not seen as a priority in many organisations (many organisations don't have EDRM system, or use RM functions in SharePoint, still use shared drives, etc). Information professionals need a convincing case for Blockchain where previous RM solutions have failed.	268514-268506-22346722
Good luck!! If you can share results I'd be interested @h2cm	268514-268506-22484995
As an individual involved in the blockchain for financial purposes and as an information management consultant implementing large scale edrms solutions my own personal view is that the blockchain is pretty much the latest buzzword For industry implementations on enterprise premises this limits blockchains effectiveness as it essentially remove the distributed component and essentially runs as an in house ledger - this gives rise to existing technology yielding better outcomes. I do remain open to other technology however the technology stack implemented for a project is ever only as good as it's intended purpose - think trying to hammer in a nail with a power drill. Sure the power drill is powerful and more efficient for its intended purpose however it is less optimal for the current situation.	268514-268506-22517272
Testability of Blockchain has been, quite rightly, long and robust, Financial services took the lead given the value to the nature of their business. Only in last 12 months public sector are also either piloting or seriously considering adopting this technology.	268514-268506-22632325
Technically blockchain has already proved its feasibility. It's major challenges are legal ones, especially the seamless integration with already existing legal and regulatory frameworks. Who will be fined and jailed if blockchain is misused? How to reverse the transactions if ordered so by court? :)	268514-268506-22653686
It is an interesting new technology - need to learn more about possible applications	268514-268506-23009000
Block chain is a new tool and it's open source nature makes it harder to trust and deploy. It's also hyped like many new technologies and is being proposed to solve many business problems not all will come true in my humble experience of previous trends. Given it is also difficult to comercialise it will also take time before key players adopt the technology and it may be down to faster niche players to show the way before wider adoption occurs	268514-268506-23049599
A great survey - this is exactly where records management should be going! Thanks	268514-268506-23272178
So far I am only ware of blockchain from point of view of Bitcoin. I have read a couple of articles regarding it and RM, though as I recall they speculated a potential use rather than outlined one.	268514-268506-23356960
Read Victoria Lemieux writings on the matter and her research for InterPARES Trust!	268514-268506-23362920
Interesting area and watch this space!	268514-268506-23396426
I wonder how many responses you are going to get that actually use blockchain?	268514-268506-23397172
Blockchain technology for RM is discussed by visionaries and academics in the Records and	268514-268506-23425104

Blockchain technology for RM is discussed by visionaries and academics in the Records and Archives community that I operate within. Furthermore, it seems to be easier for professionals with backgrounds in computer science and finance to grasp.	268514-268506-23425104
Check out Cassey Findlay's paper, Decentralised and inviolate: the blockchain and its uses for digital archives https://rkroundtable.org/2015/01/23/decentralised-and-inviolate-the-blockchain-and-its-uses-for-digital-archives/	268514-268506-23427079
I am guessing - cannot answer on the behalf of my organization. Sorry. I think professionals are here (in Finland) in general aware of the existence of the blockchain technology, but they do not know it closely and IT companies offering services to the public sector are not supporting it yet. So choosing it is more theory than practice at the moment.	268514-268506-23428981
In our organisation Blockchain technology is seen as having potential use but from a service delivery and financial, not recordkeeping, angle. perspective.	268514-268506-23477907
It would have been easier to answer the survey if we were presented with an actual example of how the blockchain technology may be used for records management. I do understand the principle of the technology, and can foresee how it could be built into a system to offer some security features, but I don't think that it is enough to appreciate how the technology could be accepted or not in my work environnement. I look forward the results of this survey.	268514-268506-23544206
No lifecycle management possible with blockchain based transactions. GDPR rules, etc. represent massive hurdles for its appliance. UseCases first need to be identified. We're only at the beginning of it.	268514-268506-23579136
In my legal perspective, I see more things to do in the legal aspects of blockchain technology including in connection with records management.	268514-268506-23590033
I'm CTO of an early stage startup working that has solved the problem interoperability, privacy, and regulatory compliance for lifetime EMRs.	268514-268506-23638708
Not sure if it is a fashionable nostrum or has real value. The problems of records management are managerial not technical	268514-268506-23694423
we are purely a blockchain company with solutions built on top of and anchored in public blockchains.	268514-268506-23711770
Potentially very interesting for additional audit / DPA / individualised customer service functionality	268514-268506-23776263
I think blockchain technology has potential, but it still needs to be proven in practice with respect to recordkeeping. There seems to be a lot of discussion, but I haven't heard of relevant projects in this area.	268514-268506-23817644

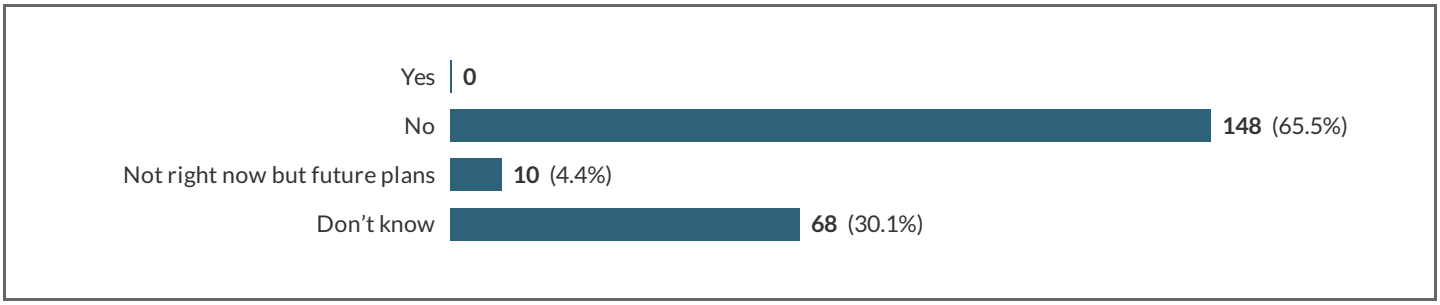
14 Where do you look for information about new technologies that could have an impact on you professionally and personally? (Please select as many as appropriate)



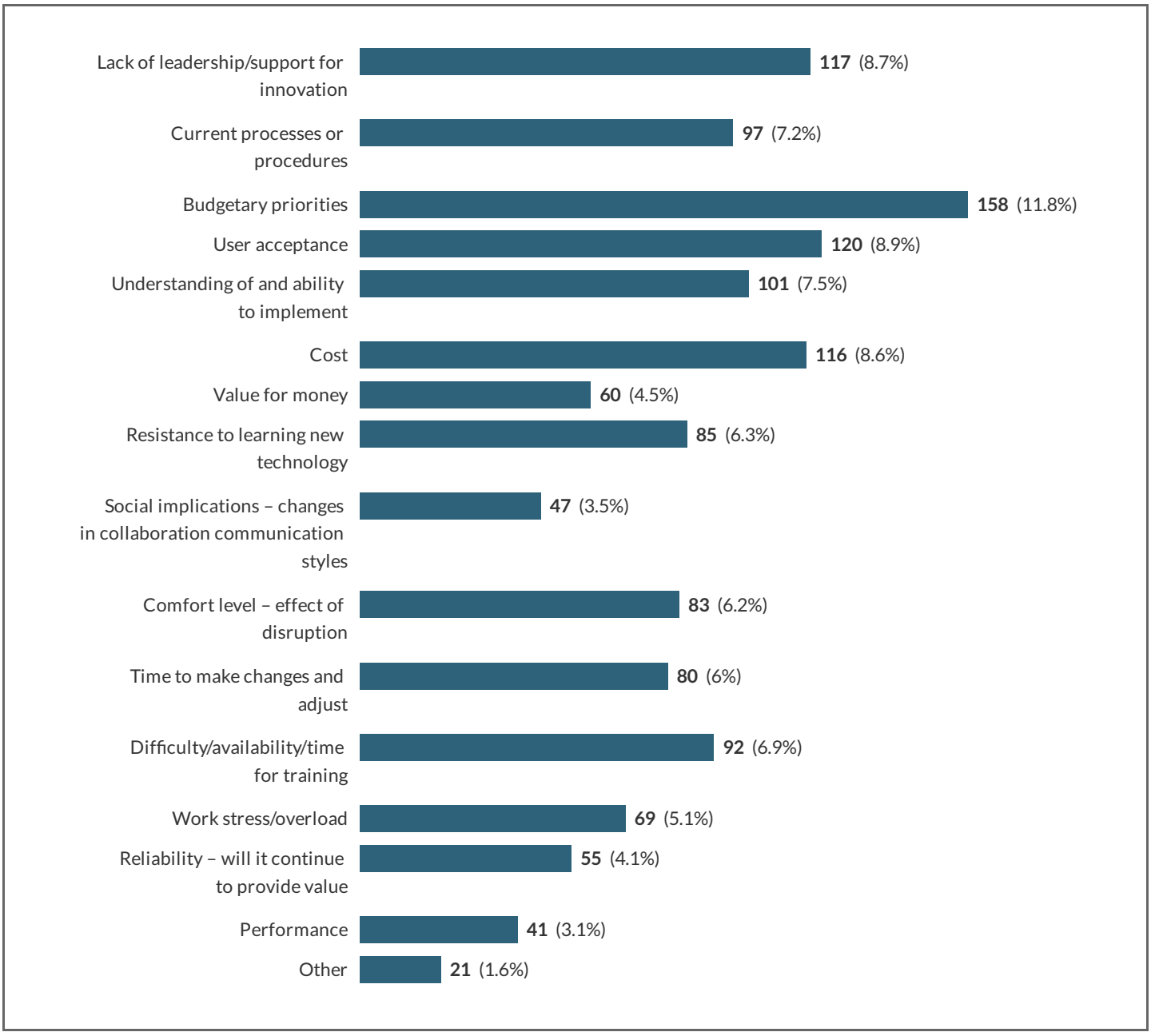
14.a If you selected Other, please specify:

Showing all 30 responses	
Networking with colleagues and other information professionals	268514-268506-22328334
ARMA and AIIM webpage and journals	268514-268506-22339297
SENIOR MANAGEMENT	268514-268506-22343127
Email lists	268514-268506-22485455
Listserv	268514-268506-22515103
Co-workers	268514-268506-22520051
Regional networking meetings/workshops	268514-268506-22670172
Peers in industry	268514-268506-22678318
Jisc Listserve	268514-268506-22678451
Listserv	268514-268506-22704373
Jiscmail -email list serv	268514-268506-22710622
radio, podcasts	268514-268506-22764303
ARMA, AIIM, SAA, DLA	268514-268506-22769469
I don't: they find me!	268514-268506-22829904
Professional networks, email lists	268514-268506-22830150
Colleagues passing on information	268514-268506-22829989
Professional seminars	268514-268506-22830722
Email lists for sharing info (e.g through JISC)	268514-268506-22833831
I don't actively look	268514-268506-22858716
NZ Records List Server	268514-268506-23013335
Colleagues	268514-268506-23044321
Exchanges with fellow professionals	268514-268506-23091235
Vendor Webinars	268514-268506-23365216
Mailing Lists	268514-268506-23373724
Blogs/Posts from professional organizations - AIIM, ARMA	268514-268506-23414371
Colleagues	268514-268506-23414436
Vendors	268514-268506-23416891
Talking directly to knowledgeable contacts	268514-268506-23416947
peers	268514-268506-23432024
Audtralian and NZ Listserves	268514-268506-23587055

15 Do you work for an organisation that uses Blockchain Technology?



16 In your experience, what barriers has your organisation faced during the implementation of new technology? (Please select as many as appropriate)



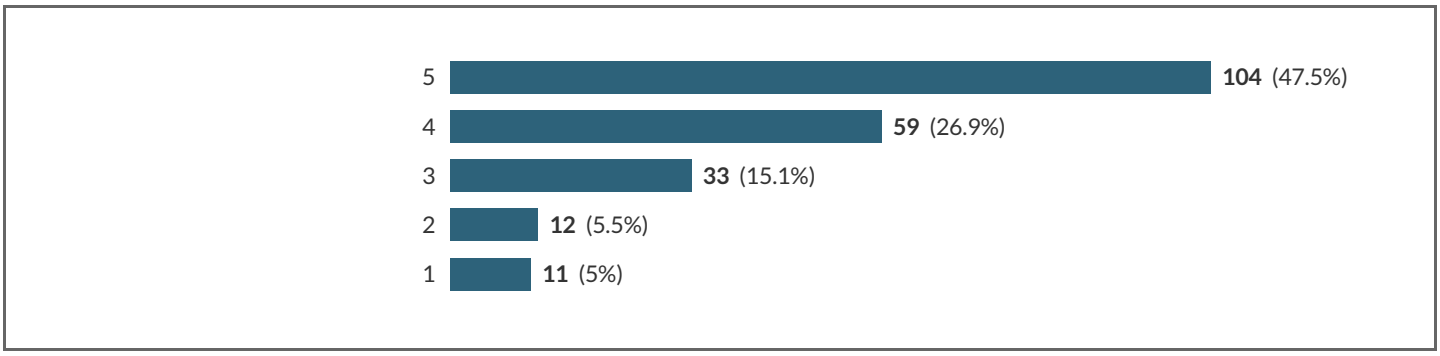
16.a If you selected Other, please specify:

Showing all 21 responses	
Risk averse	268514-268506-22342579
Wrong question - we are obsessed with the inappropriate deployment of new technology for the sake of deploying new technology! This in itself is a major impediment to getting the basic information governance right!	268514-268506-22343127
N/A as we don't use blockchain	268514-268506-22529409
Not used	268514-268506-22677670
I have only been in my position for 3 months so unsure as how to answer this question.	268514-268506-22705850
Flabby requirements that shift	268514-268506-22769469
The biggest issue stems from the lack of service wrap. Such as training and the ability to alter the specification. Another common issue is a disconnect between the business justification and the purpose of the application.	268514-268506-22800375
Politics and fear of causing offence.	268514-268506-22830150
It's a complex organisation that uses a wide variety of software. In some cases upgrading a piece of software will adversely affect other areas of work. Any large-scale changes require a number of departments to all 'buy in'.	268514-268506-22829989
Reliant on central IT policies which condemn us to outdated technology. Unwillingness to implement anything for just one service, no matter what the business need.	268514-268506-22858716
IT department workload and their ability to implement new tech.	268514-268506-22950704
I don't know - I am rarely involved in the implementation of new technology	268514-268506-23371356
complexity of infrastructure	268514-268506-23411160
Trust in our supply chain. New tech often delivers less than promised, making investment decision makers sceptical.	268514-268506-23425072
Doubts over relevance	268514-268506-23426085
Regulatory	268514-268506-23430057
multiplicity of platforms and systems	268514-268506-23432024
Joined up approach to different technologies (end up with silo/ clashing approaches). Also making sure all stakeholders are identified.	268514-268506-23452851
Don't know	268514-268506-23456316
Security accreditation	268514-268506-23525604
Not really applicable to my situation	268514-268506-23684102

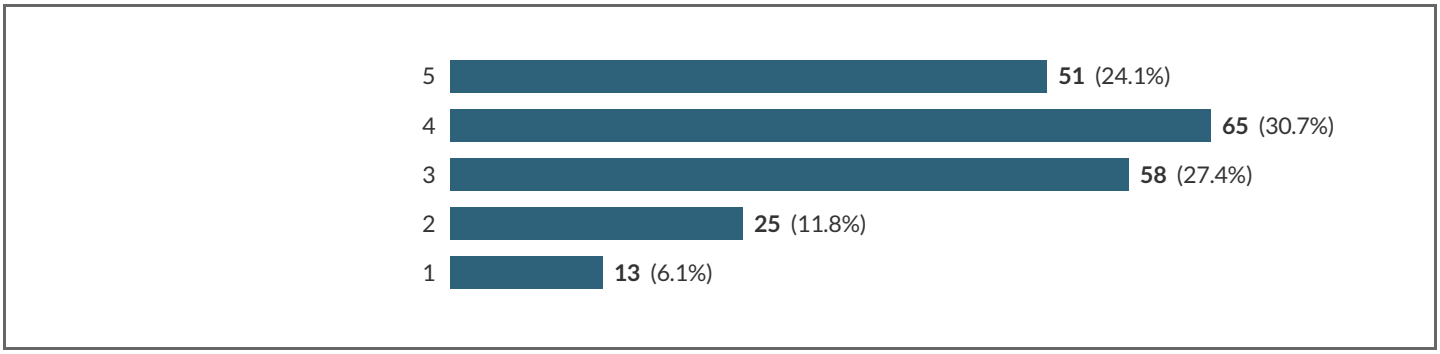
17 Which business areas are/will be the drivers behind new technology implementation and use in your organisation?

(5 being most likely to drive/lead and 1 being least likely)

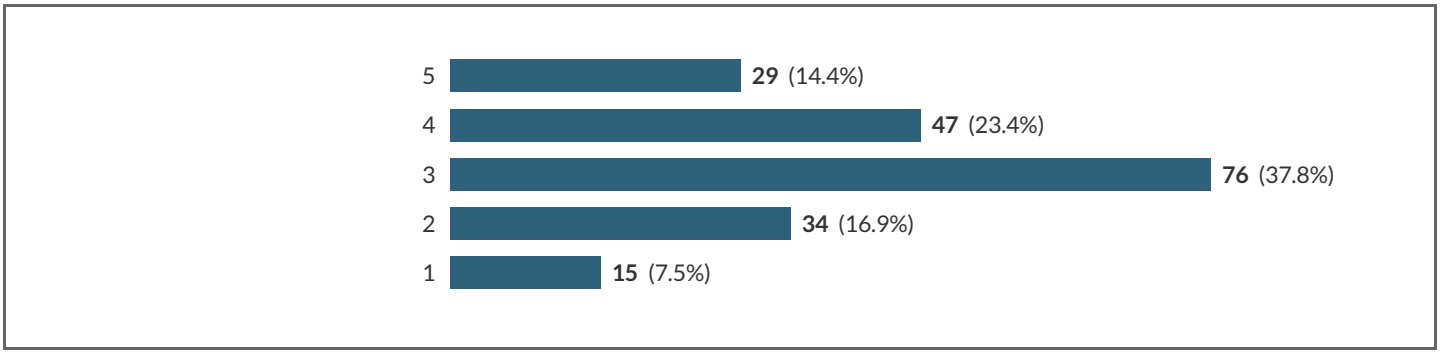
17.1 Information Technology



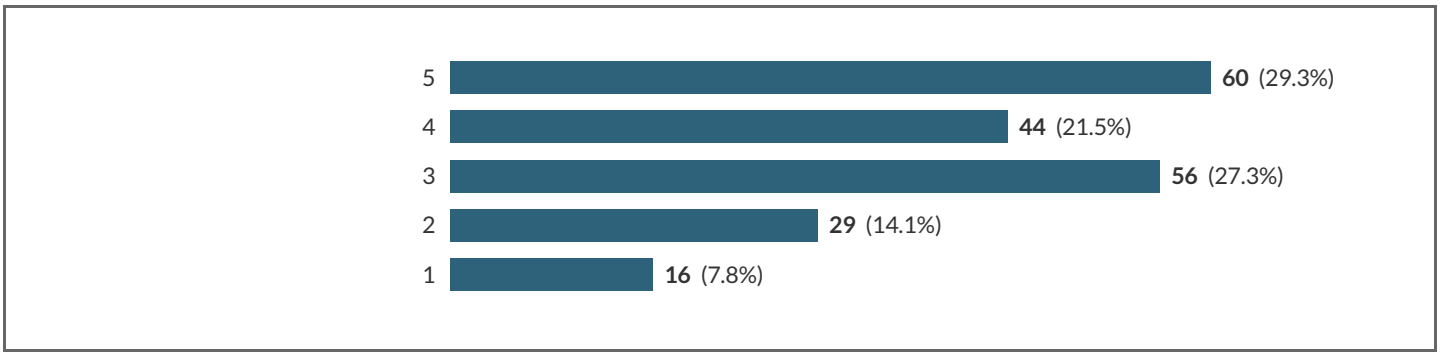
17.2 Information Governance



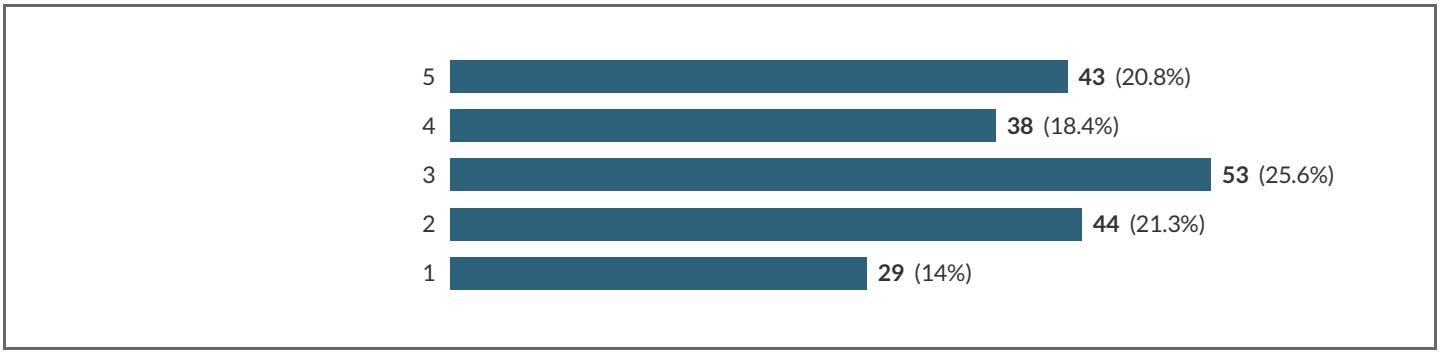
17.3 Professional Services



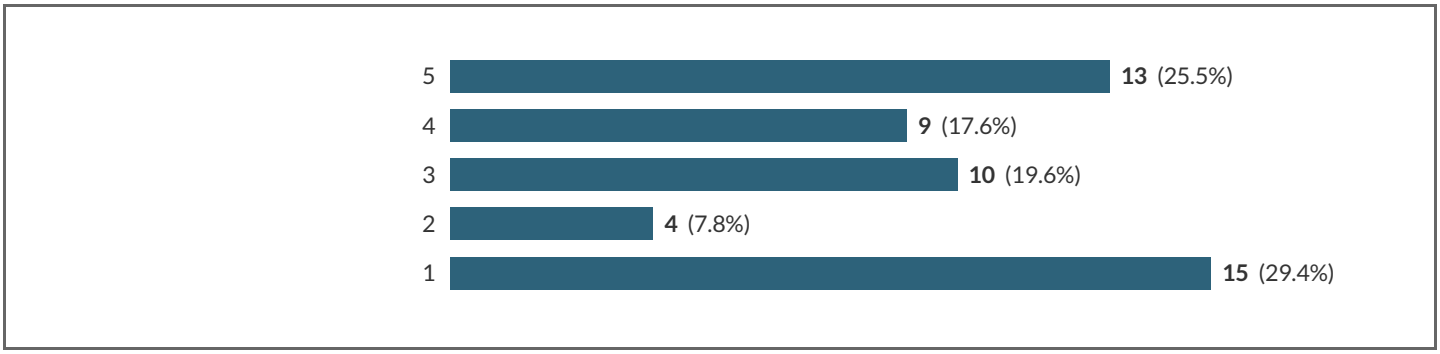
17.4 Executive



17.5 Finance



17.6 Other



17.a If Other please specify here:

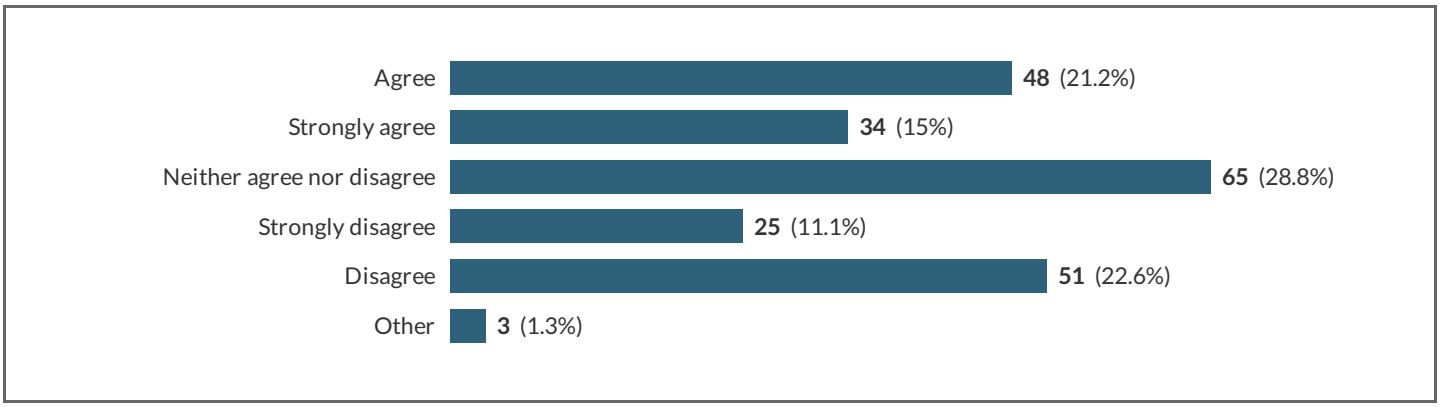
Showing all 30 responses	
Core business activities technology is implemented.	268514-268506-22323718
Business Support - Customer services, e.g. social care services	268514-268506-22328334
CRM's	268514-268506-22339297
Informatics/ Data Science team	268514-268506-22340933
The recordkeeping department	268514-268506-22678451
Self - as I run a stand-alone unit	268514-268506-22704373

(User friendly) accessibility - public engagement. Intuitive/faceted search and discovery.	268514-268506-22710622
Unsure about this question	268514-268506-22764303
Business Area needs to fulfill their mission and function.	268514-268506-22769469
Operation projects	268514-268506-22800375
This is my perception, it may not be at all accurate.	268514-268506-22829989
Other is vague but in my organisation unlikely that other departments would drive.	268514-268506-22851122
Business Development - we are a supplier and much will be driven by clients requests	268514-268506-22979918
Core business groups = 4 (NB Info Gov is part of our IT group)	268514-268506-23011101
Business Case presented to Executive Sponsor	268514-268506-23013335
HR	268514-268506-23013441
I don't understand the question	268514-268506-23255914
Field Operations	268514-268506-23313790
HR Services - Business Support Services	268514-268506-23327289
Departments with specific needs	268514-268506-23365216
Culture	268514-268506-23414436
Legislation, Federal Government Executive Branch Directives, Case Law	268514-268506-23417273
Depends on the area of the organisation	268514-268506-23420686
Operations	268514-268506-23430057
The archive implements its own technology where needed.	268514-268506-23451683
The business sectors themselves that are facing customers	268514-268506-23455581
Nothing will get passed or implemented without full understanding, backing, influence of Executive.	268514-268506-23455885
Strategy linked to Future UK Government priorities / ambition	268514-268506-23549249
In my view the key driver will be understanding the user.	268514-268506-23684102
collectivities	268514-268506-23715698

18 To what extent do the statements below reflect your organisation's attitudes to the adoption of new technology?

18.1 Can only be proposed by senior staff?

18.1.a Can only be proposed by senior staff?

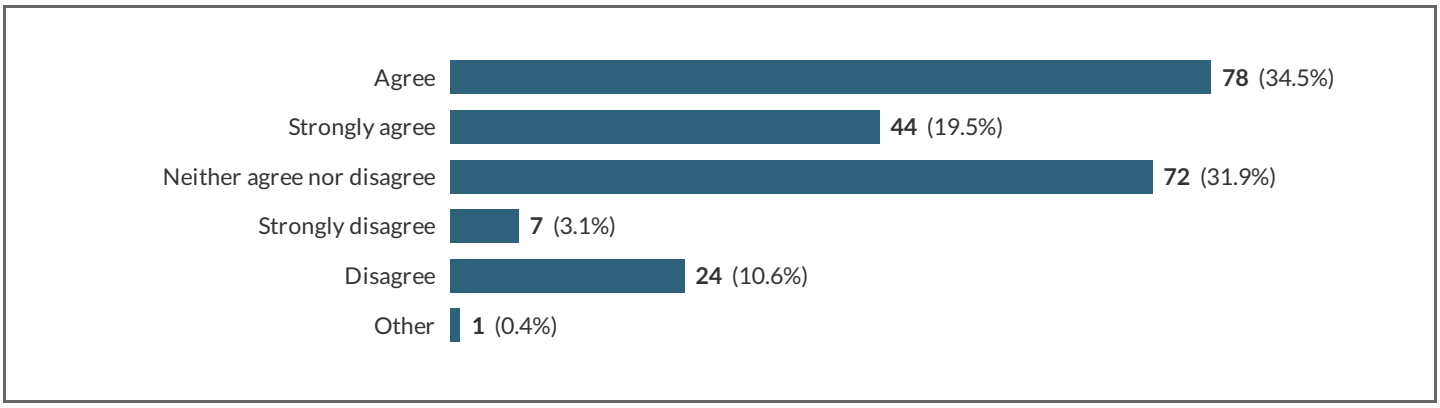


18.1.b Can only be proposed by senior staff? - If you selected Other, please specify:

Showing all 3 responses	
Not applicable as lone consultant	268514-268506-22835683
Any stakeholder can identify or propose improvements - often consultants and external actors	268514-268506-23608472
I don't hear how it happens.	268514-268506-23816004

18.2 Senior staff are open to new technologies?

18.2.a Senior staff are open to new technologies?

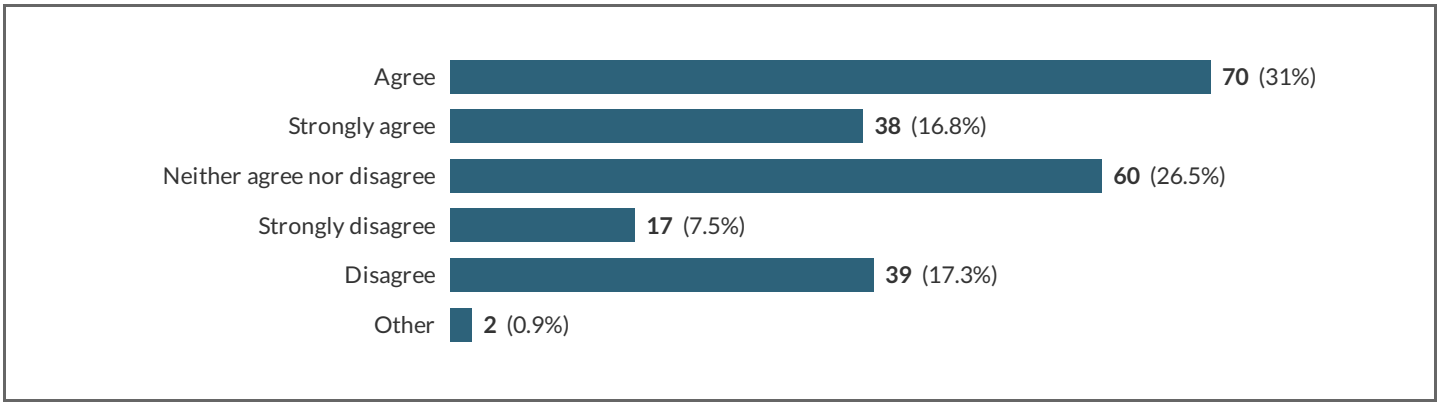


18.2.b Senior staff are open to new technologies? - If you selected Other, please specify:

Showing 1 response	
Not applicable as lone consultant	268514-268506-22835683

18.3 There are means for all staff to raise innovative ideas?

18.3.a There are means for all staff to raise innovative ideas?

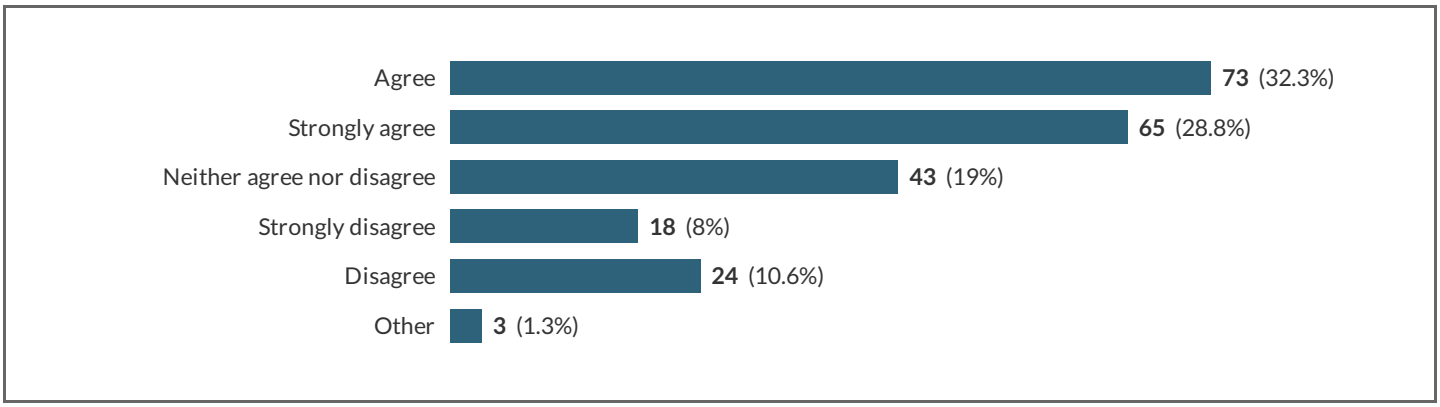


18.3.b There are means for all staff to raise innovative ideas? - If you selected Other, please specify:

Showing all 2 responses	
Sole staff member	268514-268506-22704373
Not applicable as lone consultant	268514-268506-22835683

18.4 Technological change is slow?

18.4.a Technological change is slow?

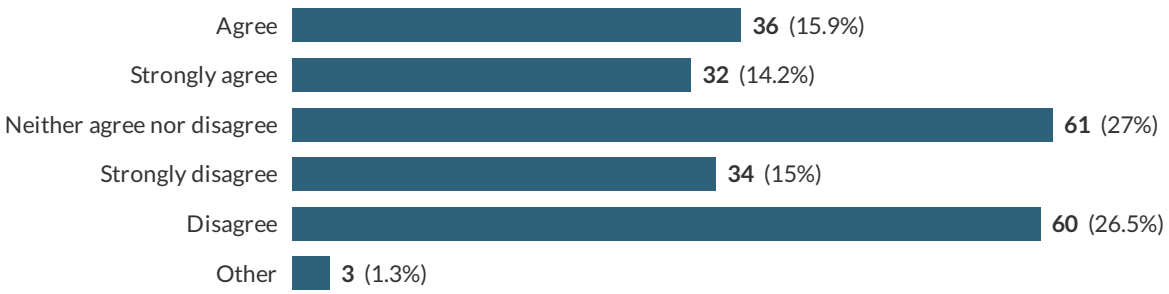


18.4.b Technological change is slow? - If you selected Other, please specify:

Showing all 3 responses	
Depends on which department you are in - some are very adept at changing technology, others not so.	268514-268506-22322744
in some areas, not all	268514-268506-22687451
Not applicable as lone consultant	268514-268506-22835683

18.5 Technological innovation is not a priority?

18.5.a Technological innovation is not a priority?



18.5.b Technological innovation is not a priority? - If you selected Other, please specify:

Showing all 3 responses	
in some areas, not all	268514-268506-22687451
Only me so hard to fit in everything	268514-268506-22704373
Not applicable as lone consultant	268514-268506-22835683

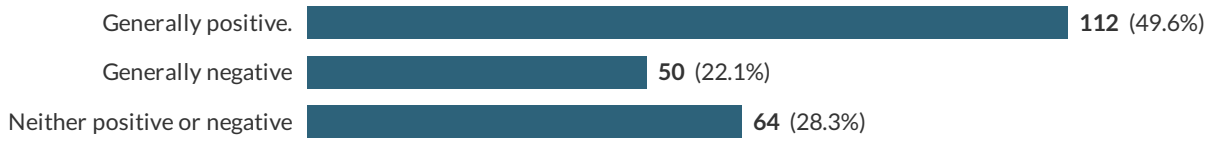
18.a Feel free to offer any comments to further explain your choices. (Optional)

Showing all 24 responses	
You need a champion in the C offices	268514-268506-22339297
Technology for research purposes is a priority but not as much for administrative information	268514-268506-22340933
aren't the columns wrongly ordered?	268514-268506-22343127
Non-senior staff are told to get on with the day-to-day work. Suggesting new ideas is seen as getting above ones station.	268514-268506-22672561
innovation arises from differing drivers or needs, especially the 'student experience'.	268514-268506-22680105

However pushing this forward can be a challenge unless more than one area from the university is on board	
Work in a rural local authority - majority of decision-makers are older and not open to innovation	268514-268506-22677670
The headings here are in the wrong order - strongly agree should be outside of agree and ditto disagree and strongly diagree	268514-268506-22830150
Technological change is not slow in terms of understanding the need for it, what is slow is implementation.	268514-268506-22830722
As a lone consultant these questions are not really applicable to me. But I am driven by whether I can afford it and whether I feel I have a use for it.	268514-268506-22835683
There is a desire to be more technology focused but I don't know if we have the means or culture to do so. Because it is a large complex business it is also uite patchy with some areas more advanced than others. Generally what we offer our clients is good, our own internal services are dire.	268514-268506-22979918
I think the answers above only allow for black and white answers, in truth, it's mixed, some senior executives are all for innovation and technology and in some areas more junior staff can make suggestions for example. Uptake varies but there are certainly many road blocks.	268514-268506-23009160
Senior staff is open to new technologies but they don't know much about it and then, everything happens really slowly because of politics in the public service.	268514-268506-23010918
Cost seems to be a major driver, but also security of information	268514-268506-23011841
Business cases by IT Group to propose solutions to IT issues is the most effective channel	268514-268506-23013335
Answers above relevant to my previous role	268514-268506-23098539
In my case “your organisation” = the organisations I have been consulted by or sent participants to my workshops since 2015. I keep up with the organisations which have consulted me so my impression of past clients is pretty up to date. Because I am consulted by, and train in, pretty well all sectors, some of my answers are an average, which hides some distinguishing differences. For example, I would strongly disagree that “technological innovation is not a priority” for my charity clients – they are red hot about it. For my public sector clients I would agree with the same statement (which would change if they had money to spend on TI). And of course some government departments (HMT, HMRC) are very interested in blockchain – probably more as the use in commerce affects their regulatory strategy. If you decide to ignore my answers because they’re averaged this way, I don’t mind. If you want more detail from me to make more use of my contribution that’s fine too (Dion)	268514-268506-23335071
Becoming a global market place for all types of businesses has provided the impetus to embrace new technologies.	268514-268506-23416891
The (left-to-right) order of the tabulated responses is unconventional and confusing - I would expect to see this order: Strongly Agree-Agree-Neither agree nor disagree-Disagree-Strongly disagree-Other. The order you are using will probably lead to miss-markings and misunderstandings. Your resulting data may be seriously flawed.	268514-268506-23417273
Although technological innovation is a priority for my organisation, it is often badly project managed, misplaced and/or dropped due to lack of engagement.	268514-268506-23424068
The organisation is used to traditional technology decision making, often seeking to control it. We see the proliferation of Digital and web technologies a threat, especially when proposed from keen amateurs outside the formal IT department	268514-268506-23425072

proposed from keen amateurs outside the formal IT department.	
Strong on technology but harder to sort engagement and culture in large organisations	268514-268506-23549249
It is in important in core business but not in support services / admin	268514-268506-23599733
We have differing views on the Board some embrace technology and others against - so some are open, other not 50/50 split	268514-268506-23608472
It happens in fits and starts relating to projects and funding. Sustained support and mechanisms for effective review and 'fixes' are the issues.	268514-268506-23816004

19 What are your experiences of technological innovations contributing towards record keeping/management?



19.a Please offer your reasons why

Showing all 116 responses	
When I started in this role a lot of new systems were just being introduced where they had not considered records management/data protection issues. It has been difficult to implement these retrospectively! In general I am not anti- new technology as it can greatly improve records management, but only if considered from the start!	268514-268506-22322603
Record keeping is not considered a core business activity and therefore no technological innovations have been suggested	268514-268506-22323718
It is generally positive because without technological innovations records management may not deliver effective services	268514-268506-22328334
Storage is so cheap it is easier to buy more than sort out records management issues	268514-268506-22332215
RIM requirements often not considered	268514-268506-22333201
records are more electronic today	268514-268506-22339297
I support process automation especially when the impact on users is lessened	268514-268506-22340933
My experience of the introduction of EDRMS has ben positive. At PHSO and at the Royal Botanic Gardens Registry useful EDRMS were introduced which improved accessibility to information and helped with IG.	268514-268506-22346117
The main reason we need more technology is due to the technology we have today e.g. shared drives are terrible for records management to more technology is needed.	268514-268506-22349907
Some technologies make records management easier, some inadvertently create problems for records management.	268514-268506-22350233
Mainly due to change resistance and a reluctance to leave comfort zone	268514-268506-22362272

Lack of understanding over RM requirements.	268514-268506-22480817
Where they exist, they tend to be IT driven and do not necessarily meet the needs of the organisation.	268514-268506-22484160
Increased efficiency and removal of long-winded processes	268514-268506-22485455
records management considerations are often relegated to phase 2/nice to do and are often lacking in the core system	268514-268506-22495215
Implementation generally positive i.e. new systems, integrations but long term maintenance can be overlooked and build up problems.	268514-268506-22495918
I have yet to come across a system used within our organisation which actually 'manages records'. They all collect data and produce reports but are lacking in RM functionality.	268514-268506-22514687
Change management issues, i.e. resistance learn new processes	268514-268506-22517874
Much more space and time efficient than paper files	268514-268506-22526606
resistance to change and not seen as a priority	268514-268506-22542215
But only just positive - I am not sure that technology is the answer to everything. It is commonly used to cut staff - and so doesn't always help provide a quality system. It often feels like a sticking plaster, that doesn't quite stick.	268514-268506-22635145
IT always lead projects and don't always understand when IG/RM is relevant leading to these issues being side-lined. I also find my fellow IG colleagues don't have a good understanding of technology.	268514-268506-22672561
The picture is changing as we educate others to information management, so a year ago my answer would have been generally negative, but that is slowly changing	268514-268506-22675815
Limited resources means business purposes and function trumps governance more often than not	268514-268506-22678318
i do not have enough experience of records management in my organisation to truthfully comment	268514-268506-22680105
Generally encourages more interaction with the records, and more ease of use, than manually handling and searching.	268514-268506-22677670
They do offer improvement on existing systems - but sometimes their real potential is not realised/maximised because of the barriers previously mentioned.	268514-268506-22710622
within my immediate team record keeping is very basic, but in the wider organisation it is probably more sophisticated but I don't know	268514-268506-22735050
Enabler for RM staff to implement policies - but technology won't do it on its own	268514-268506-22737875
I don't work directly with record keeping - unsure of example here.	268514-268506-22764303
They focus on throwing tools at aproblem rather that the holistic business needs and requirements.	268514-268506-22769469
Record management is not taken seriously by staff	268514-268506-22777647
The response is especially true when the future users, SIRO, IAO or Senior management do not have an understanding of record management.	268514-268506-22800375
Not something that has been brought up while I have been working here.	268514-268506-22827453
Poor information governance, framework and awareness training contributes towards	268514-268506-22827498

Poor information governance, framework and awareness training contributes towards record keeping	268514-268506-22827498
Not a lack of keeness for technology but a lack of enthusiasm for governance	268514-268506-22830150
Potential is amazing - just rarely exploited for wide range of non-technology reasons	268514-268506-22830139
Although new technologies can contribute greatly and have done so, in my experience much innovation has been led by 'techies' (or would-be techies)with a limited understanding of our needs for long-term, robust, reliable information management. They are, understandably, short-term thinkers - otherwise they wouldn't be innovatory.	268514-268506-22829989
So-called solutions are nothing of the sort. We are a cash cow to be milked by profit-making companies.	268514-268506-22830493
The organisation understands the need for good records management, but underestimates its impact. So whilst it is accepted by senior staff, front line are more resistant if it changes the way they currently work.	268514-268506-22830722
Potential benefits of e.g. EDRMS need to be balanced against cost and probable low engagement.	268514-268506-22833831
Cleary transforms speed of processes and accessibility of information. Problem comes when technology is poorly implemented or used without quality assurance	268514-268506-22835683
Positive overall but senior management usually has little idea of such things and often choose wrong people and poor technologies; but EDRMS generally has been OK and with very tight audit functionality it seems suitable alternative to any complex-seeming 'blockchain' fashion	268514-268506-22851122
privacy and security issues often impede the progress in adopting new technologies	268514-268506-22856617
The move from card indexed to online catalogues improves the ability to find documents	268514-268506-22858716
Movement towards using SharePoint for example, but the technology is not being used to its full advantage to aid RM (e.g. no classification scheme, no retention dates in place etc)	268514-268506-22899879
I have found that introductions of EDRMS have been useful to two organisations.	268514-268506-22905373
people think of records management as a chore. Technology isn't flexible enough to satisfy the demands.	268514-268506-22927097
In a go ahead company	268514-268506-22979510
Actually I think you need a fourth option for the question above: I would say both positive and negative. Tech offers opportunities to design systems which are user friendly and integrate well with the business. But I have also been in situations where tech has been rolled out without any consideration of information governance and had to retrofit non-fit for purpose systems. So it can go both ways. I've had to tick Neither positive or negative as the question is mandatory but that is not my answer.	268514-268506-22979918
The Records Management team is not always consulted on how technological innovations will affect records and what impacts this will have on our ability to fulfill our obligations under current legislation.	268514-268506-23005568
A new information system was recently introduced into our largish government department. As is my experience in the past while there are some innovations and improvements, the new system is not as effective as the one it replaced in various ways. This leads to the sort of frustration & "work-arounds" the new system was meant to cure. In the end a complex organization like ours needs a lot of customization and that seems to mean high costs the	268514-268506-23008441

organisation is not prepared to meet. Definitely the 80:20 rule (or maybe 60:40!).	
Some technology gets adopted and overall there are gains. Uptake is not 100% and that creates other problems. In a lot of cases the problem is not the technology but the leadership.	268514-268506-23009160
People in my organisation know that there are technological innovations that will help transform our information management practices. The problem is finding the best instrument for our purposes, then convincing management to spend money on it, and finally making sure there is a continuing budget for maintenance, promotion, and upgrades.	268514-268506-23010307
Information is easily found and circulated around staff although many people get annoyed by how the systems work.	268514-268506-23010918
End users will adopt new technologies in their work regardless of recordkeeping outcomes, so when we as info managers can pro-actively offer new solutions that meet recordkeeping requirements without making it the user's responsibility, everyone wins.	268514-268506-23011101
Always in catchup mode, not exciting enough	268514-268506-23011343
badly planned poorly implemented, training not targeted to actual work needs	268514-268506-23011841
Lack of appreciation of the importance of good information management practices - especially when stacked up against competing priorities..	268514-268506-23012815
If they are IT solutions, they are usually installed without consultation. Information Management solutions (i.e replacement EDRMS to get rid of the dog we use now) are impossible to get approved.	268514-268506-23013335
Cambridge academia is stuck in it's ways... Senior management are not very interested managing e-records as it involves 'change management'.	268514-268506-23038212
Depends how we interpret the need/effect of the change.	268514-268506-23054487
Technology makes it easier to access information thereby making it easier to audit.	268514-268506-23076340
The need/complianxe	268514-268506-23091235
Provides structure and discipline for those that don't understand the importance of records as the lifeblood to the business	268514-268506-23098539
Only the records Management professional really cares about the RM capabilities - everyone else wants to be able to comply but not have to think about how	268514-268506-23255914
RM tech hasn't changed in over 20 years. In general, RM tech is trying to apply a paper model to digital content. Doomed to fail.	268514-268506-23282949
From simple databases to full ECM Suite, there are benefits to be had as long as it is primarily addressing business need rather than technology for the sake of it - you have to sell the benefits to the end user and ensure proper change management/training	268514-268506-23313790
Technological innovations are essential to improve a corporate records management environment, although they cannot run and yield good results if they are not supported through a strong action by the senior management levels and accepted by end-users	268514-268506-23327289
Record keeping/management is slightly to one side of what I'm normally consulted about, but I do talk to records managers on my courses and at client interviews. The professionals and their managers are keener on TI than they used to be, though they are cautious about large scale implementations - usually because of outlay and risk.	268514-268506-23335071
The company has struggled to invest in new technology. It remains heavily reliant on old legacy systems which carry data integrity challenges. Investment has been slow and core	268514-268506-23337645

legacy systems which carry data integrity challenges. Investment has been slow and core capabilities in record keeping require development.	
Lack of statutory laws does not mandate much.	268514-268506-23344843
Some systems are driven by processes and allows good records management practises to be rolled out in parallel to them. Other systems are more off the self and tougher to adapt to good records management processes.	268514-268506-23354538
Viewed as a risk.	268514-268506-23365216
The use of new technology, for instance, Adlib and/or Calm can make the job of a records manager/archivist easier and also increase ease of access to information.	268514-268506-23370559
I have no experience of technological innovations in a record keeping context.	268514-268506-23371356
Generally positive towards new technology, and actively searching for better ways to do things.	268514-268506-23374306
Cost and resource	268514-268506-23393662
The organisation readily accepts proposals to deploy new technologies	268514-268506-23402209
Lack of RM awareness by software developers meaning the basics, like retention/weeding, is either not considered or is an afterthought.	268514-268506-23402354
Organization has a techno-centric approach for managing records rather than info-centric.	268514-268506-23407359
there is a tendency to claim there is more functionality in technology without thinking about user requirements and experience but generally technology is a good thing for RM	268514-268506-23411160
Considered an afterthought rather than a strategic part of the business process	268514-268506-23412258
We actually use it to manage and dispose of content which means we have less data to worry about.	268514-268506-23413778
All levels of staff are not aware of the importance of "true" records management and how technology can make it easier.	268514-268506-23414436
Recognition of records being assets/liabilities for our company.	268514-268506-23416891
functionality has the potential to contribute but lack of RM/RK knowledge in organisation means that it is not identified as a requirement	268514-268506-23416947
Cost/Benefit analysis, ROI and other priorities	268514-268506-23417277
We have needed significant financial investment and senior leadership attention to Records & Information Management (RIM) for at least the past ten years. But every time we seem to be moving toward an enterprise-wide understanding of the issues and a managed program of RIM program improvement/development, the effort flounders - because of a loss of funding, changes in senior and mid-level leadership, other issues taking priority. So, we struggle along. Those of us "in the field" have some understanding of what we need, we continue to advocate for comprehensive solutions, and we continue to "patch" awkward, ancient, hybrid (paper and electronic) RIM systems, policies and procedures. Even where we are using electronic management of information, the applications and systems in which the information is held were individually acquired or developed, did not incorporate RIM standards when acquired, and do not interface with each other or with any "over-arching" RIM system.	268514-268506-23417273
I think there is an appetite for technological innovation in the info management environment	268514-268506-23424068
It's taken years for the technology to catch up with what RM professionals need, and it still	268514-268506-23425072

has a long way to go. The leaders in sharing and collaboration haven't really embraced information lifecycle, with commercial models that thrive on storing more data rather than considered disposal.	
gain of time efficiency	268514-268506-23425367
systems are too often siloed and overly focused on meeting the requirements of RM professionals and are not sufficiently built around servicing user needs	268514-268506-23432024
Innovation often means automation and digital workflows, and I strongly support minimising the need for manual processes. Users have little time and interest for record management.	268514-268506-23435953
The company recognises the importance of good record keeping and supports development in this area.	268514-268506-23451683
IM&T works in a fairly isolated / removed way from other parts of the organisation	268514-268506-23452275
Mixed picture- genuinely beneficial technology can be held back by cost etc, while quick-fix bought products get adopted without long term planning. However, some good innovation is currently taking place.	268514-268506-23452851
Records and Information management is not positively viewed and by and large seen as a blocker rather than an enabler	268514-268506-23455581
Some innovations have RM in mind however many still do not have the basic principles	268514-268506-23455885
Digitisation of records management should be standard and assists businesses streamline admin and operational costs	268514-268506-23490174
Difficult in clearly obtaining return on investment; building strong and convincing business cases to support investment.	268514-268506-23500820
No budget for programs and no upper leadership support for program.	268514-268506-23501837
I have recently recommended that they hire a records manager at DBS to review current practices. They did this on an initial consultancy basis.	268514-268506-23513573
The majority of systems are provided by third party suppliers. In many instances the suppliers have a poor understanding of RM requirements, meaning it is difficult or impossible to implement records retention and deletion. Hopefully the GDPR and data processor liability will improve this situation.	268514-268506-23518116
RM comes under the ICT dept which has enabled us to raise the profile of RM	268514-268506-23534955
Changes in staff and in DP	268514-268506-23546546
consultation with a records manager!	268514-268506-23549839
The cost and effort that needs to be given to advance records keeping requirement is usually such a low priority for an organization, it is typically the first item cut from the budget.	268514-268506-23560068
No appetite for records frameworks or governance. Belief that RM can be provided by Technology with admin support	268514-268506-23587055
we have RM experience in house	268514-268506-23594399
In our organisation we understand the value of records management - many companies we work with do not, they see document control / record management as a waste of time	268514-268506-23608472
Made sure it happened when a senior manager	268514-268506-23684102

we propose outsourcing services we have to be on the top of art	268514-268506-23715698
Technology is aiding best record management practice	268514-268506-23732253
Technology innovations are essential for keeping business processes current and effective, but management often neglects the role of innovation in managing overall enterprise information governance to ensure positive, long-lasting results.	268514-268506-23814048
It's not a priority until there's an embarrassing audit or court case. The other issue is that new 'fix-it' system requirements are not discussed with information/records teams prior to purchase and roll-out.	268514-268506-23816004

20 Please offer any other comments (Optional)

Showing all 19 responses	
technology required in the pharmaceutical industry (eg laboratory software) will be implemented but records management is not considered a core business activity and therefore technology has not been considered	268514-268506-22323718
Good luck with your dissertation!	268514-268506-22333201
need email solutions	268514-268506-22339297
I think Records Management is not recognised as a core function in a business and therefore is not given budget allocation to reflect its technology ambitions. Investment into records management tends to be quite reactive to government regulation.	268514-268506-22342953
There is interest in blockchain smart contracts from legal at my organisation rather than its RIM uses. This still throws up a RIM issue though - how to store/maintain access/apply retention to a smart contract. We recently hosted an event with a specialist fintech law firm so there is some understanding of the potential but not the practicalities and wider impact. Again, I know Delaware are doing something clever with blockchain and retention but more what their outcomes are rather than HOW they've done it.	268514-268506-22495918
Feel it may be harder in the public sector to innovate, particularly when large public bodies are involved.	268514-268506-22677670
Although I have worked as an archivist for last 12 months - I have previously worked 12 years as a Records Manager - so my comments on barriers/contribution towards record keeping are based on this experience.	268514-268506-22710622
Very little actually about blockchain in this survey	268514-268506-22737875
It's a trend and also a fad and fashion - organisations often look around to see what others are doing and then, without sufficient understanding or thought, simply copy. Ray Davies wrote a song many years ago about dedicated followers of fashion - seems just as relevant and appropriate today!	268514-268506-22851122
Technology needs to be collaborative and consult with key parts of the organisation. I'll be honest, you'll rarely get a records manager that is the innovator in an organisation. But you do need to talk to RM and compliance about how to make it work.	268514-268506-22979918
Scotland	268514-268506-23054487
Too soon to tell about blockchain and RM. As far as overall infogov concerned, I see more	268514-268506-23282949

problems than opportunities.	
Most organisations underestimate the impact of technology in terms of end users - communication and training are essential	268514-268506-23313790
Glad of the opportunity to fill in the questionnaire and will encourage my contacts to do so. I wouldn't be surprised if networking groups such as LIKE and NetIKX would be interested in talks on blockchain this year or next - I think information professionals are aware of it and a little bit anxious that they don't know as much as they should about it!	268514-268506-23335071
There is a serious flaw in your questionnaire. In the table following the question: "To what extent do the statements below reflect your organisation's attitudes to the adoption of new technology?" the responses do not progress in a "linear progression" fashion. The (left-to-right) order of the tabulated responses is unconventional and confusing - I would expect to see this order: Strongly Agree-Agree-Neither agree nor disagree-Disagree-Strongly disagree-Other. The order you are using will probably lead to miss-markings and misunderstandings. Your resulting data may be seriously flawed.	268514-268506-23417273
Blockchain technology has only gained traction to a small extent within IG / IT disciplines. We are a long way off getting an understanding at Exec level. The only way I can envisage it being used is if suppliers implement it as an industry standard and it is 'invisible' in the background.	268514-268506-23518116
v interested to see the outcomes of this research.	268514-268506-23549839
Records management is crucial but most organisations fail on the housekeeping elements, they have no systems in place. I do not understand how blockchain will assist with records maangement	268514-268506-23608472
There is a Whole of Government (Australia) Digital Records Platform in development that may or may not solve IRM issues.	268514-268506-23816004

APPENDIX C:

HYPOTHESIS 1 – KNOWLEDGE:

Figure C 1

75 IRM Familiar – Q7 + Q3

Q7: Source of Knowledge?	Q3: For how long have you been in your current role? (respondent numbers)									
	< 12 mths (13)	%	1-3 yrs (22)	%	4-5 yrs (10)	%	6-10 yrs (6)	%	>10 yrs (24)	%
Online Search Engines	4	31	8	36	0		0		3	12.5
Social Media	4	31	10	45	4	40	2	33	12	50
Trade publications	4	31	6	27	4	40	2	33	6	25
Articles & News - Online	12	92	14	64	9	90	5	83	22	92
Articles & News - Print	2	15	4	18	3	30	3	50	7	29
Books	2	15	1	4.5	1	10	2	33	3	12.5
University	2	15	2	9	4	40	0		1	4
Academic Journals	4	31	4	18	5	50	1	17	8	33
Training courses	0	0	3	14	1	10	1	17	0	
Conferences	6	46	7	32	4	40	4	66	10	42
Other	1	8	7	32	2	20	1	17	9	37
Totals	41		66		37		21		81	

Figure C 2

75 IRM Familiar – Q7 + Q5

Q7 - Familiarity of Blockchain tech come from?	Q5 - Which account best describes the role do you currently hold? (% of column)											
	Board		Middle Mgr		Oper Mgr		Non Mgr		Consulant		Other	
Online Search Engines	2	5%	4	5%	3	9%	4	15%	2	6%	0	0%
Social Media	7	19%	12	14%	4	12%	4	15%	4	12%	1	4%
Trade publications	1	3%	12	14%	5	15%	1	4%	2	6%	1	4%
Articles & News - Online	10	27%	21	24%	8	24%	7	26%	10	30%	6	21%
Articles & News - Print	0	0%	6	7%	5	15%	0	0%	4	12%	4	14%
Books	1	3%	5	6%	0	0%	0	0%	0	0%	3	11%
University	0	0%	2	2%	1	3%	4	15%	1	3%	1	4%
Academic Journals	2	5%	6	7%	3	9%	4	15%	2	6%	5	18%
Training courses	1	3%	3	3%	1	3%	0	0%	0	0%	0	0%
Conferences	8	22%	11	13%	2	6%	2	7%	4	12%	4	14%
Other	5	14%	5	6%	2	6%	1	4%	4	12%	3	11%
	37		87		34		27		33		28	

Figure C 3

36 Non-IRM Familiar – Q7 + Q3

Q7: Source of Knowledge?	Q3: For how long have you been in your current role? (respondent numbers)									
	< 12 months (8)	%	1-3rs (10)	%	4-5yrs (6)	%	6-10yrs (6)	%	>10 yrs (6)	%
Online Search Engines	4	50%	7	70.0%	1	17%	4	67%	3	50%
Social Media	5	63%	4	40.0%	2	33%	2	33%	4	67%
Trade publications	0	0%	2	20.0%	3	50%	1	17%	2	33%
Articles & News - Online	6	75%	8	80.0%	5	83%	6	100%	6	100%
Articles & News - Print	1	13%	2	20.0%	0	0%	3	50%	1	17%
Books	1	13%	1	10.0%	0	0%	2	33%	3	50%
University	1	13%	0	0.0%	1	17%	1	17%	2	33%
Academic Journals	1	13%	1	10.0%	1	17%	2	33%	3	50%
Training courses	0	0%	2	20.0%	1	17%	0	0%	1	17%
Conferences	4	5%	7	70.0%	3	50%	3	50%	5	83%
Other	4	5%	2	20.0%	1	17%	3	50%	2	33%

Figure C 4

36 Non-IRM Familiar – Q7 + Q5

Q7: Familiarity of Blockchain tech come from?	Q5: Which Role? (% of column)											
	Board		Middle Mgr		Oper Mgr		Non Mgr		Consult		Other	
Online Search Engines	2	20%	3	8%	1	13%	3	25%	3	12%	7	14%
Social Media	1	10%	4	11%	2	25%	1	8%	3	12%	6	12%
Trade publications, eg: IRMS Bulletin	0	0%	3	8%	1	13%	1	8%	3	12%	0	0%
Articles & News - Online	2	20%	9	25%	2	25%	2	17%	5	20%	11	22%
Articles & News - Print	0	0%	2	6%	0	0%	1	8%	1	4%	3	6%
Books	1	10%	2	6%	0	0%	0	0%	2	8%	2	4%
University	1	10%	1	3%	0	0%	0	0%	1	4%	2	4%
Academic Journals	0	0%	2	6%	0	0%	0	0%	2	8%	4	8%
Training courses	0	0%	1	3%	0	0%	0	0%	1	4%	2	4%
Conferences	2	20%	6	17%	0	0%	3	25%	3	12%	8	16%
Other	1	10%	3	8%	2	25%	1	8%	1	4%	4	8%
Totals	10		36		8		12		25		49	

Figure C 5

182 IRM Non-Familiar – Q14 + Q3

Q14: Source of Knowledge - new tech	Q3: For how long have you been in your current role? (respondent numbers)									
	< 12 mths (31)	%	1-3 yrs (76)	%	4-5 yrs (17)	%	6-10 yrs (22)	%	>10 yrs (36)	%
Online Search Engines	22	71%	47	62%	14	82%	15	68%	21	58%
Social Media	16	52%	36	47%	7	41%	11	50%	12	33%
Trade publications	20	65%	52	68%	9	53%	14	64%	26	72%
Articles & News - Online	22	71%	56	74%	11	65%	18	82%	26	72%
Articles & News - Print	5	16%	19	25%	1	6%	6	27%	5	14%
Books	6	19%	5	7%	0	0%	7	32%	6	17%
University	6	19%	6	8%	1	6%	1	5%	4	11%
Academic Journals	8	26%	17	22%	5	29%	4	18%	10	28%
Conferences	22	71%	48	63%	11	65%	15	68%	27	75%
Training courses	23	74%	40	53%	8	47%	10	45%	23	64%
Other	4	13%	7	9%	4	24%	2	9%	7	19%

Figure C 6

182 IRM Non-Familiar – Q14 + Q5

Q14: Information about new tech that could have an impact on you?	Q5: Which Role? (%of columns)											
	Board		Middle Mgr		Oper Mgr		Non Mgr		Consult		Other	
Online Search Engines	3	19%	34	15%	24	13%	38	15%	14	15%	6	9%
Social Media	0	0%	26	11.8%	16	9%	20	8%	13	14%	7	11%
Trade publications	3	19%	32	14.5%	26	14%	38	15%	12	13%	10	15%
Articles & News - Online	3	19%	38	17.2%	29	16%	40	16%	13	14%	10	15%
Articles & News - Print	1	6%	6	2.7%	12	7%	11	4%	4	4%	2	3%
Books	0	0%	6	2.7%	4	2%	5	2%	5	5%	4	6%
University	1	6%	4	1.8%	3	2%	6	2%	1	1%	3	5%
Academic Journals	1	6%	10	4.5%	11	6%	15	6%	4	4%	3	5%
Conferences	3	19%	34	15.4%	27	15%	33	13%	16	17%	10	15%
Training courses	1	6%	28	12.7%	23	13%	36	15%	8	8%	8	12%
Other	0	0%	3	1.4%	8	4%	6	2%	5	5%	2	3%
Totals	16		221		183		248		95		65	

Figure C 7

44 Non-IRM Non-Familiar – Q14 + Q3

Q14: Source of Knowledge - new tech	Q3: For how long have you been in your current role? (respondent numbers)									
	< 12 mths (12)	%	1-3 yrs (16)	%	4-5 yrs (3)	%	6-10 yrs (7)	%	>10 yrs (8)	%
Online Search Engines	9	75%	12	75%	1	33%	6	86%	5	63%
Social Media	6	50%	8	50%	3	100%	5	71%	4	50%
Trade publications	4	33%	4	25%	0	0%	1	14%	5	63%
Articles & News - Online	10	83%	8	50%	3	100%	2	29%	6	75%
Articles & News - Print	3	25%	3	19%	1	33%	0	0%	4	50%
Books	4	33%	4	25%	0	0%	1	14%	4	50%
University	0	0%	1	6%	1	33%	0	0%	1	13%
Academic Journals	2	17%	4	25%	1	33%	1	14%	4	50%
Conferences	8	67%	7	44%	2	67%	4	57%	3	38%
Training courses	6	50%	6	38%	1	33%	3	43%	3	38%
Other	1	8%	1	6%	1	33%	2	29%	1	13%

Figure C 8

44 Non-IRM Non-Familiar – Q14 + Q5

Q14: Where do you look for information about new tech that could have an impact on you?	Q5: Which account best describes the role do you currently hold? (% of column)											
	Board		Middle Mgr		Oper Mgr		Non Mgr		Consult		Other	
Online Search Engines	3	16%	9	17%	6	23%	8	17%	4	20%	3	13%
Social Media	3	16%	7	13%	5	19%	6	13%	2	10%	3	13%
Trade publications, eg: IRMS Bulletin	1	5%	2	4%	2	8%	5	10%	1	5%	3	13%
Articles & News - Online	3	16%	8	15%	3	12%	9	19%	3	15%	3	13%
Articles & News - Print	1	5%	3	6%	2	8%	4	8%	0	0%	1	4%
Books	1	5%	6	11%	0	0%	3	6%	2	10%	1	4%
University	0	0%	2	4%	0	0%	0	0%	0	0%	1	4%
Academic Journals	1	5%	5	9%	1	4%	2	4%	0	0%	3	13%
Conferences	2	11%	7	13%	5	19%	4	8%	4	20%	2	8%
Training courses	3	16%	3	6%	2	8%	6	13%	3	15%	2	8%
Other	1	5%	1	2%	0	0%	1	2%	1	5%	2	8%
Totals	19		53		26		48		20		24	

APPENDIX D:

HYPOTHESIS 1 – USE:

Figure D 1

75 IRM Familiar – Q8 + Q1

Q1: What sector do you currently work in?	Do you work for an organisation that uses Blockchain Technology? (% of column)								Totals
	Yes		No		Not right now but future plans		Don't know		
Public Sector	2	22%	24	47%	5	46%	2	50%	33
Private Sector	3	33%	18	35%	3	27%	1	25%	25
Finance/Banking	2	22%	3	6%	3	27%	0	0%	8
Other	2	22%	6	12%	1	0%	1	25%	9
Totals	**9**		**51**		**11**		**4**		**75**

Figure D 2

5 IRM Familiar – Q8 + Q5

Q5: Current role	Q8: Do you work for an organisation that uses Blockchain Technology? (% of column)								
	Yes		No		Not right now but future plans		Don't know		Total
Board level	4	44%	7	14%	2	18%	0	0%	13
Middle manager	2	22%	16	31%	6	55%	1	25%	25
Operational manager	1	11%	7	14%	1	9%	1	25%	10
Non Managerial	0	0%	7	14%	0	0%	1	25%	8
Consulant	1	11%	9	18%	1	9%	0	0%	11
Other	1	11%	5	10%	1	9%	1	25%	8
Totals	**9**		**51**		**11**		**4**		75

Figure D 3

75 IRM Familiar – Q8 + Q3

Q3: Length in current role	Q8: Do you work for an organisation that uses Blockchain Technology? (% of column)								
	Yes		No		Not right now but future plans		Don't know		
Less than twelve months	2	22%	8	16%	3	27%	0	0%	13
1 to 3 years	4	44%	15	29%	1	9%	2	50%	22
4 to 5 years	0	0%	9	18%	1	9%	0	0%	10
6 to 10 years	0	0%	3	6%	3	27%	0	0%	6
Over 10 years	3	33%	16	31%	3	27%	2	50%	24
Totals	9		51		11		4		75

Figure D 4

36 Non-IRM Familiar – Q8 + Q1

Q1: What sector do you currently work in?	Q8: Do you work for an organisation that uses Blockchain Tech? (% of columns)								
	Yes		No		Not right now		Don't know		Totals
Public Sector	0	0%	6	33%	3	25%	1	50%	10
Private Sector	4	100%	5	28%	7	58%	0	0%	16
Finance/Banking	0	0%	0	0%	0	0%	0	0%	0
Other	0	0%	7	39%	2	17%	1	50%	10
Totals	4		18		12		2		36

Figure D 5

36 Non-IRM Familiar – Q8 + Q5

Q5: Current role	Q8: Do you work for an organisation that uses Blockchain Technology? (% of columns)								
	Yes		No		Not right now		Don't know		Total
Board level	2	50%	0	0%	0	0%	0	0%	2
Middle manager	1	25%	4	22%	5	42%	0	0%	10
Operational manager	0	0%	1	6%	1	8%	0	0%	2
Non Managerial	1	25%	3	17%	0	0%	0	0%	4
Consulant	0	0%	4	22%	1	8%	0	0%	5
Other	0	0%	6	33%	5	42%	2	100%	13
Totals	4		18		12		2		36

Figure D 6

36 Non-IRM Familiar – Q8 + Q3

Q3: Length in current role	Q8: Do you work for an organisation that uses Blockchain Technology? (% of columns)								
	Yes		No		Not right now		Don't know		Total
Less than twelve months	1	25%	4	22%	2	17%	1	50%	8
1 to 3 years	1	25%	1	6%	7	58%	1	50%	10
4 to 5 years	1	25%	5	28%	0	0%	0	0%	6
6 to 10 years	0	0%	5	28%	1	8%	0	0%	6
Over 10 years	1	25%	3	17%	2	17%	0	0%	6
Totals	4		18		12		2		36

Figure D7

182 IRM Non-Familiar – Q15 + Q1

Q1: What sector do you currently work in?	Q15: Do you work for an organisation that uses Blockchain Technology?								Totals
	Yes		No		Not right now but future plans		Don't know		
Public Sector	0		74	60%	2	25%	33	65%	109
Private Sector	0		30	24%	2	25%	12	24%	44
Finance/Banking	0		4	3%	3	38%	4	8%	11
Other	0		15	12%	1	13%	2	4%	18
Totals	0		123		8		51		182

Figure D 8

182 IRM Non-Familiar – Q15 + Q5

Q5: Current role	Q15: Do you work for an organisation that uses Blockchain Technology? (% of column)							
	Yes	No		Not right now - future plans		Don't know		Total
Board level	0	3	2%	0	0%	0	0%	
Middle manager	0	34	28%	1	13%	13	25%	48
Operational manager	0	28	23%	2	25%	11	22%	41
Non Managerial	0	36	29%	1	13%	20	39%	57
Consulant	0	11	9%	4	50%	5	10%	20
Other	0	11	9%	0	0%	2	4%	13
Totals	0	123		8		51		182

Figure D 9

182 IRM Non-Familiar – Q15 + Q3

Q3: Length in current role	Q15: Do you work for an organisation that uses Blockchain Technology?							
	Yes	No		Not right now - future plans		Don't know		Totals
Less than twelve months	0	17	14%	3	38%	11	22%	31
1 to 3 years	0	56	46%	2	25%	18	35%	76
4 to 5 years	0	7	6%	1	13%	9	18%	17
6 to 10 years	0	15	12%	1	13%	6	12%	22
Over 10 years	0	28	23%	1	13%	7	14%	36
Totals	0	123		8		51		182

Figure D 10

44 Non-IRM Non-Familiar – Q15 + Q1

Q1: What sector do you currently work in?	Q15: Do you work for an organisation that uses Blockchain Technology? (% of columns)							
	Yes	No		Not right now but fu		Don't know		Total
Public Sector	0	12	48%	1	50%	10	59%	23
Private Sector	0	9	36%	1	50%	4	24%	14
Finance/Banking	0	1	4%	0	0%	1	6%	2
Other	0	3	12%	0	0%	2	12%	5
Totals	0	25		2		17		44

Figure D 11

44 Non-IRM Non-Familiar – Q15 + Q5

Q5: Current role	Q15: Do you work for an organisation that uses Blockchain Technology?(% of columns)							
	Yes	No		Not right now		Don't know		Totals
Board level	0	4	16%	0	0%	0	0%	4
Middle manager	0	5	20%	1	50%	6	35%	12
Operational manager	0	4	16%	0	0%	2	12%	6
Non Managerial	0	6	24%	0	0%	6	35%	12
Consulant	0	3	12%	0	0%	1	6%	4
Other	0	3	12%	1	50%	2	12%	6
Totals	0	25		2		17		44

Figure D 12

44 Non-IRM Non-Familiar – Q15 + Q3

Q3: Length in current role	Q15: Do you work for an organisation that uses Blockchain Technology?							
	Yes	No		Not right now		Don't know		Totals
Less than twelve months	0	8	32%	0	0%	4	24%	12
1 to 3 years	0	8	32%	1	50%	6	35%	15
4 to 5 years	0	2	8%	0	0%	1	6%	3
6 to 10 years	0	5	20%	0	0%	2	12%	7
Over 10 years	0	2	8%	1	50%	4	24%	7
Totals	0	25		2		17		44

APPENDIX E:

HYPOTHESIS 1 – EXPERIENCE

Figure E 1:

75 IRM Familiar – Q12 + Q5

Q5: Current role	Experiences as RM tool? (%of column)						
	Gen Positive		Gen negative		Neither pos or neg		Total
Board level	5	24%	0	0%	8	16%	13
Middle manager	6	29%	2	50%	17	34%	25
Operational manager	3	14%	0	0%	7	14%	10
Non Managerial	2	10%	0	0%	6	12%	8
Consulant	2	10%	1	25%	8	16%	11
Other	3	14%	1	25%	4	8%	8
Totals	21		4		50		75

Figure E 2:

75 IRM Familiar – Q12 + Q1

Q1: What sector do you currently work in?	Q12: Experiences as RM tool? (%of column)						
	Positive.		Negative		Neither		Total
Public Sector	6	29%	1	25%	26	52%	33
Private Sector	11	52%	0	0%	14	28%	25
Finance/Banking	2	10%	0	0%	6	12%	8
Other	2	10%	3	75%	4	8%	9
Totals	21		4		50		75

Figure E 3:

36 Non-IRM Familiar – Q12 + Q5

Q5: Current role	Q12: Experiences as RM tool? (%of column)						
	Positive		Negative		Neither		Total
Board level	2	22%	0	0%	0	0%	2
Middle manager	2	22%	2	100%	6	24%	10
Operational manager	0	0%	0	0%	2	8%	2
Non Managerial	0	0%	0	0%	4	16%	4
Consulant	0	0%	0	0%	5	20%	5
Other	5	56%	0	0%	8	32%	13
Totals	9		2		25		36

Figure E 4:

36 Non-IRM Familiar – Q12 + Q1

Q1: What sector do you currently work in?	Q12: Experiences as RM tool? (%of column)						
	Positive		Negative		Neither		Total
Public Sector	1	11%	0	0%	9	36%	10
Private Sector	5	56%	0	0%	11	44%	16
Finance/Banking	0	0%	0	0%	0	0%	0
Other	3	33%	2	100%	5	20%	10
Totals	9		2		25		36

Figure E 5:

182 IRM Non-Familiar – Q19 + Q5

Q5: Current role	Experiences of tech in RM? (% of column)						
	Pos		Neg		Neither		Total
Board level	2	2%	1	2%	0	0%	3
Middle manager	22	24%	17	38%	9	19%	48
Operational manager	18	20%	12	27%	11	23%	41
Non Managerial	30	33%	7	16%	20	43%	57
Consulant	10	11%	5	11%	5	11%	20
Other	8	9%	3	7%	2	4%	13
Totals	90		45		47		182

Figure E 6:

182 IRM Non-Familiar – Q19 + Q1

Q1: What sector do you currently work in?	Q19: Experiences of tech in RM? (% of column)						
	Gen pos		Gen Neg		Neither		Total
Public Sector	48	53%	31	69%	30	64%	109
Private Sector	25	28%	11	24%	8	17%	34
Finance/Banking	4	4%	3	7%	4	9%	11
Other	13	14%	0	0%	5	11%	18
Totals	90		45		47		182

Figure E 7:

44 Non-IRM Non-Familiar – Q19 + Q5

Q5: Current role	Experiences of tech in RM? (% of column)						
	Positive		Negative		Neither		Total
Board level	3	14%	0	0%	1	6%	4
Middle manager	5	23%	1	20%	6	35%	12
Operational manager	3	14%	0	0%	3	18%	6
Non Managerial	4	18%	2	40%	6	35%	12
Consulant	3	14%	1	20%	0	0%	4
Other	4	18%	1	20%	1	6%	6
Totals	22		5		17		44

Figure E 8:

44 Non-IRM Non-Familiar – Q19 + Q5

Q1: What sector do you currently work in?	Q19: Experiences as RM tool? (%of column)						
	Positive		Negative		Neither		Total
Public Sector	9	41%	4	80%	10	59%	23
Private Sector	8	37%	1	20%	5	29%	14
Finance/Banking	1	5%	0	0%	1	6%	2
Other	4	18%	0	0%	1	6%	5
Totals	22		5		17		44

APPENDIX F:

HYPOTHESIS 2 – BARRIERS

Familiar

Figure F1:

75 IRM Familiar – Q9 + Q1

Q9: Barriers to implementation	Q1: What sector do you currently work in? (ordered by total)								
	Public (33)	%	Private (25)	%	Fin/Bank (8)	%	Other (9)	%	Totals
Understanding of and ability to implement	24	73	16	64	4	50	8	89	52
Current processes or procedures	16	48	10	40	6	75	5	56	37
Lack of leadership/support for innovation	11	33	10	40	4	50	3	33	28
Comfort level – effect of disruption	13	39	8	32	4	50	3	33	28
User acceptance	12	36	8	32	4	50	2	22	26
Time to make changes and adjust	14	42	6	24	4	50	1	11	25
Budgetary priorities	14	42	4	16	5	63	1	11	24
Reliability – will it continue to provide value	7	21	5	20	6	75	1	11	19
Other	10	30	6	24	2	25	1	11	19
Value for money	7	21	6	24	3	38	2	22	18
Difficulty/availability/time for training	9	27	4	16	2	25	2	22	17
Cost	6	18	4	16	5	63	0	0	15
Resistance to learning new technology	5	15	6	24	2	25	2	22	15
Work stress/overload	7	21	2	8	2	25	1	11	12
Performance	4	12	2	8	4	50	2	22	12
Social implications	4	12	3	12	3	38	1	11	11
Totals	272		144		71		53		540

Figure F2:

75 IRM Familiar – Q9 + Q2

Q9: Barriers to Implementation	Q2: People are employed? (ordered by total)						
	1 - 100 (20)	%	101 - 1000 (17)	%	1001 + (38)	%	Totals
Understanding of and ability to implement	14	70	10	59	28	74	52
Current processes or procedures	6	30	10	59	21	55	37
Lack of leadership/support for innovation	5	25	6	35	17	45	28
Comfort level – effect of disruption	5	25	5	29	18	47	28
User acceptance	5	25	7	41	14	37	26
Time to make changes and adjust	3	15	10	59	12	32	25
Budgetary priorities	2	10	5	29	17	45	24
Reliability – will it continue to provide value	4	25	4	24	11	29	19
Other	7	35	3	18	9	24	19
Value for money	7	35	3	18	8	21	18
Difficulty/availability/time for training	3	15	6	35	8	21	17
Cost	2	10	5	29	8	21	15
Resistance to learning new technology	5	25	2	12	8	21	15
Work stress/overload	2	10	4	24	6	16	12
Performance	3	15	2	12	7	18	12
Social implications	4	25	1	6	6	16	11
Totals	107		146		287		540

Figure F3:

36 Non-IRM Familiar – Q9 + Q1

Q9: Barriers to implementation	Q1: What sector do you currently work in?								
	Public (10)	%	Private (16)	%	Fin/Bank	%	Other (10)	%	Totals
Understanding of and ability to implement	8	80	9	56	0		6	60	23
Current processes or procedures	6	60	6	38	0		2		14
Comfort level – effect of disruption	4		6	38	0		4		14
Budgetary priorities	6	60	3		0		3		12
Reliability – will it continue to provide value	2		4		0		5	50	11
User acceptance	4		3		0		3		10
Time to make changes and adjust	3		5	31	0		1		9
Cost	3		2		0		3		8
Resistance to learning new technology	3		3		0		2		8
Lack of leadership/support for innovation	1		5		0		1		7
Difficulty/availability/time for training	3		3		0		1		7
Other	0		5		0		2		7
Value for money	2		0		0		3		5
Performance	1		1		0		2		4
Social implications	2		0		0		1		3
Work stress/overload	1		1		0		0		2
Totals	72		70		0		44		188

Figure F4:

36 Non-IRM Familiar – Q9 + Q2

Q9: Barriers to Iplementation	Q2: People are employed? (ordered by total)						
	1 - 100 (7)	%	101 - 1000 (15)	%	1001 + (14)	%	Totals
Understanding of and ability to implement	3	43	11	73	9	64	23
Current processes or procedures	0	0	6	40	8	57	14
Comfort level – effect of disruption	0	0	9	60	5	36	14
Budgetary priorities	2	29	5	33	5	36	12
Reliability – will it continue to provide value	1	14	6	40	4	29	11
User acceptance	0	0	6	40	4	29	10
Time to make changes and adjust	1	14	4	27	4	29	9
Cost	3	43	2	13	3	21	8
Resistance to learning new technology	0	0	4	27	4	29	8
Lack of leadership/support for innovation	0	0	3	20	4	29	7
Difficulty/availability/time for training	2	29	4	27	1	7	7
Other	2	29	2	13	3	21	7
Value for money	0	0	3	20	2	14	5
Performance	1	14	1	7	2	14	4
Social implications	0	0	2	13	1	7	3
Work stress/overload	0	0	1	7	1	7	2
Totals	30		83		75		188

Non-Familiar

Figure F5:

182 IRM Non-Familiar – Q16 + Q1

Q16: Barriers to implementation	Q1: What sector do you currently work in? (ordered by total)								
	Public (109)	**%**	**Private (44)**	**%**	**Fin/BanK (11)**	**%**	**Other (18)**	**%**	**Totals**
Budgetary priorities	85	78	24	55	9	82	14	78	132
User acceptance	58	53	27	61	6	55	13	72	104
Lack of leadership/support for innovation	64	59	18	41	6	55	10	56	98
Cost	62	57	18	41	5	45	12	67	97
Understanding of and ability to implement	45	41	19	43	7	64	9	50	80
Current processes or procedures	46	42	17	39	7	64	9	50	79
Resistance to learning new technology	44	40	17	39	3	27	11	61	75
Difficulty/availability/time for training	45	41	13	30	5	45	11	61	74
Comfort level – effect of disruption	43	39	16	36	5	45	9	50	73
Time to make changes and adjust	40	37	15	34	6	55	8	44	69
Work stress/overload	36	33	10	23	1		7	39	54
Value for money	30	28	10	23	5	45	8	44	53
Reliability – will it continue to provide value	31	28	5	11	3	27	5	28	44
Social implications	24	22	9	20	3	27	6	33	42
Performance	21	19	5	11	3	27	6	33	35
Other	11	10	4	9	0		0		15
Totals	718		252		82		147		1199

Figure F6:

182 IRM Non-Familiar – Q16 + Q2

Q16: Barriers to implementation	Q2: How many people are employed at your org?						
	1 - 100 (30)	**%**	**101 - 1000 (63)**	**%**	**1001 + (89)**	**%**	**Totals**
Budgetary priorities	21	70	49	77	62	70	132
User acceptance	17	57	41	65	46	52	104
Lack of leadership/support for innovation	14	47	40	63	44	49	98
Cost	19	63	33	52	45	51	97
Understanding of and ability to implement	17	57	21	33	42	47	80
Current processes or procedures	12	40	27	43	40	45	79
Resistance to learning new technology	15	50	30		30	34	75
Difficulty/availability/time for training	15	50	28	44	31	35	74
Comfort level – effect of disruption	12	40	27	43	34	38	73
Time to make changes and adjust	13	43	20	63	36	40	69
Work stress/overload	12	40	20	63	22	25	54
Value for money	10	33	17	27	26	29	53
Reliability – will it continue to provide value	10	33	10	16	24	27	44
Social implications	10	33	15	24	17	19	42
Performance	9	30	5	8	21	24	35
Other	0	0	4	6	11	12	15
Totals	226		404		569		1199

Figure F7:

44 Non-IRM Non-Familiar – Q16 + Q1

Q16: Barriers to implementation	Q1: What sector do you currently work in? (ordered by total)								
	Public (23)	%	Private (14)	%	Fin/Bank (2)	%	Other (5)	%	Totals
Budgetary priorities	14	61	7	50	2	100	3	60	26
Understanding of and ability to implement	10	43	7	50	1	50	3	60	21
Lack of leadership/support for innovation	7	30	9	64	1	50	2	40	19
Cost	8	35	7	50	1	50	3	60	19
Current processes or procedures	11	48	5	36	1	50	1		18
Difficulty/availability/time for training	10	43	5	36	0	0	3	60	18
User acceptance	8	35	4	29	1	50	3	60	16
Work stress/overload	10	43	2	14	0	0	3	60	15
Time to make changes and adjust	7	30	2	14	0	0	2	40	11
Reliability – will it continue to provide value	5	22	3	21	1	50	2	40	11
Resistance to learning new technology	2	9	5	36	1	50	2	40	10
Comfort level – effect of disruption	4	17	4	29	0	0	2	40	10
Value for money	3	13	2	14	1	50	1	20	7
Performance	4	17	2	14	0	0	0	0	6
Other	4	17	0	0	0	0	2	40	6
Social implications	3	13	1	7	0	0	1	20	5
Totals	120		81		10		43		254

Figure F7:

44 Non-IRM Non-Familiar – Q16 + Q2

Q16: Barriers to implementation	Q2 How many people are employed at your org?						
	1 - 100 (15)	%	101 - 1000 (14)	%	1001 + (15)	%	Totals
Budgetary priorities	9	60	7	50	10	67	26
Understanding of and ability to implement	8	53	8	57	5	33	21
Lack of leadership/support for innovation	7	47	7	50	5	33	19
Cost	9	60	4	29	6	40	19
Current processes or procedures	5	33	6	43	7	47	18
Difficulty/availability/time for training	7	47	6	43	5	33	18
User acceptance	3	20	7	50	6	40	16
Work stress/overload	5	33	4	29	6		15
Time to make changes and adjust	3	20	5	36	3	20	11
Reliability – will it continue to provide value	2	13	5	36	4	40	11
Resistance to learning new technology	3	20	4	29	3	20	10
Comfort level – effect of disruption	4	27	3	21	3	20	10
Value for money	2	13	2	14	3	20	7
Performance	1	7	4	29	1	7	6
Other	2	13	1	7	3	20	6
Social implications	1	7	2	14	2	13	5
Totals	78		90		86		254

APPENDIX G:

HYPOTHESIS 2 – DRIVERS

Information Technology

Figure G1.1:

75 IRM Familiar – Q10.1 + Q1

10.1 Information Technology	Q1: What sector do you currently work in? (% of column)								
	Public	**%**	**Private**	**%**	**Fina/Bank**	**%**	**Other**	**%**	**Totals**
5	13	39%	6	24%	5	63%	3	33%	27
4	10	30%	12	48%	1	13%	2	22%	25
3	4	12%	3	12%	0	0%	1	11%	8
2	1	3%	1	4%	1	13%	1	11%	4
1	3	9%	2	8%	1	13%	0	0%	6
No answer	2	6%	1	4%	0	0%	2	22%	5
Totals	33		25		8		9		75

Figure G1.2:

75 IRM Familiar – Q10.1 + Q2

10.1 Information Technology	Q2: How many people are employed at your organisation?			
	1 - 100	101 - 1000	1001 +	Total
5	5	5	17	27
4	9	6	10	25
3	2	1	5	8
2	2	1	1	4
1	2	1	3	6
No answer	0	3	2	5
Totals	20	17	38	75

Figure G1.3:

36 Non-IRM Familiar – Q10.1 + Q1

10.1 Information Technology	Q1: What sector do you currently work in? (% of column)								
	Public	**%**	**Private**	**%**	**Fina/Bank**	**%**	**Other**	**%**	**Totals**
5	3	30%	8	50%	0	0%	3	30%	14
4	2	20%	3	19%	0	0%	4	40%	9
3	3	30%	2	13%	0	0%	2	20%	7
2	1	10%	0	0%	0	0%	1	10%	2
1	0	0%	1	6%	0	0%	0	0%	1
No answer	1	10%	2	13%	0	0%	0	0%	3
Totals	10		16		0		10		36

Figure G1.4:

36 Non-IRM Familiar – Q10.1 + Q2

10.1 Information Technology	Q2: How many people are employed at your organisation?			
	1 - 100	101 - 1000	1001 +	Totals
5	4	3	7	14
4	2	5	2	9
3	0	5	2	7
2	0	1	1	2
1	0	1	0	1
No answer	1	0	2	3
Totals	7	15	14	36

Figure G1.5:

182 IRM Non-Familiar – Q17.1 + Q1

17.1 Information Technology	Q1: What sector do you currently work in? (% of column)								
	Public	**%**	**Private**	**%**	**Fina/Bank**	**%**	**Other**	**%**	**Totals**
5	53	49%	18	41%	5	45%	7	39%	83
4	29	27%	13	30%	1	9%	4	22%	47
3	17	16%	6	14%	2	18%	3	17%	28
2	6	6%	2	5%	1	9%	1	6%	10
1	2	2%	4	9%	0	0%	3	17%	9
No answer	2	2%	1	2%	2	18%	0	0%	5
Totals	109		44		11		18		182

Figure G1.6:

182 IRM Non-Familiar – Q17.1 + Q2

17.1 Information Technology	Q2: How many people are employed at your organisation?			
	1 - 100	101 - 1000	1001 +	Totals
5	13	27	43	83
4	5	19	23	47
3	8	6	14	28
2	1	5	4	10
1	3	6	0	9
No answer	0	0	5	5
Totals	30	63	89	182

Figure G1.7:

44 Non-IRM Non-Familiar – Q17.1 + Q1

10.1 Information Technology	Q1: What sector do you currently work in? (% of column)								
	Public	**%**	**Private**	**%**	**Fina/Bank**	**%**	**Other**	**%**	**Totals**
5	7	30%	10	71%	2	100%	2	40%	21
4	9	39%	2	14%	0	0%	1	20%	12
3	3	13%	1	7%	0	0%	1	20%	5
2	1	4%	0	0%	0	0%	1	20%	2
1	1	4%	1	7%	0	0%	0	0%	2
No answer	2	9%	0	0%	0	0%	0	0%	2
	23		14		2	0	5		44

Figure G1.8:

44 Non-IRM Non-Familiar – Q17.1 + Q2

17.1 Information Technology	Q2: How many people are employed at your organisation?			
	1 - 100	101 - 1000	1001 +	Totals
5	7	8	6	21
4	3	5	4	12
3	3	1	1	5
2	1	0	1	2
1	1	0	1	2
No answer	0	0	2	2
Totals	15	14	15	44

Information Governance

Figure G2.1:

75 IRM Familiar – Q10.2 + Q1

10.2 Information Governance	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	14	42%	8	32%	1	13%	3	33%	26
4	11	33%	6	24%	4	50%	4	44%	25
3	2	6%	1	4%	1	13%	1	11%	5
2	2	6%	4	16%	1	13%	0	0%	7
1	2	6%	2	8%	1	13%	0	0%	5
No answer	2	6%	4	16%	0	0%	1	11%	7
Totals	33		25		8		9		75

Figure G2.2:

75 IRM Familiar – Q10.2 + Q2

10.1 Information Governance	Q2: How many people are employed at your organisation?			
	1 - 100	101 - 1000	1001 +	Totals
5	8	6	12	26
4	8	4	13	25
3	0	1	4	5
2	2	1	4	7
1	1	2	2	5
No answer	1	3	3	7
Totals	20	17	38	75

Figure G2.3:

36 Non-IRM Familiar – Q10.2 + Q1

10.2 Information Governance	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	4	40%	6	38%	0	0%	4	40%	14
4	1	10%	2	13%	0	0%	1	10%	4
3	2	20%	2	13%	0	0%	2	20%	6
2	1	10%	2	13%	0	0%	0	0%	3
1	1	10%	2	13%	0	0%	2	20%	5
No answer	1	10%	2	13%	0	0%	1	10%	4
Totals	10		16		0		10		36

Figure G2.4:

36 Non-IRM Familiar – Q10.2 + Q2

10.1 Information Governance	Q2: How many people are employed at your organisation?			
	1 - 100	101 - 1000	1001 +	Totals
5	5	5	4	14
4	0	3	1	4
3	0	4	2	6
2	1	1	1	3
1	0	1	4	5
No answer	1	1	2	4
Totals	7	15	14	36

Figure G2.5:

182 IRM Non-Familiar – Q10.2 + Q1

17.1 Information Governance	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	28	26%	10	23%	1	9%	5	28%	44
4	30	28%	14	32%	1	9%	6	33%	51
3	33	30%	7	16%	3	27%	3	17%	46
2	7	6%	8	18%	2	18%	2	11%	19
1	7	6%	2	5%	0	0%	2	11%	11
No answer	4	4%	3	7%	4	36%	0	0%	11
Totals	109		44		11		18		182

Figure G2.6:

182 IRM Non-Familiar – Q10.2 + Q2

17.1 Information Governance	Q2: How many people are employed at your organisation?			
	1 - 100	101 - 1000	1001 +	Totals
5	8	17	19	44
4	13	18	20	51
3	5	17	24	46
2	2	3	14	19
1	2	4	5	11
No answer	0	4	7	11
Totals	30	63	89	182

Figure G2.7:

44 Non-IRM Non-Familiar – Q10.2 + Q1

17.1 Information Governance	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	5	22%	2	14%	0	0%	0	0%	7
4	8	35%	5	36%	1	50%	0	0%	14
3	3	13%	5	36%	1	50%	3	60%	12
2	4	17%	2	14%	0	0%	0	0%	6
1	1	4%	0	0%	0	0%	1	20%	2
No answer	2	9%	0	0%	0	0%	1	20%	3
Totals	23		14		2		5		44

Figure G2.8:

44 Non-IRM Non-Familiar – Q10.2 + Q2

17.1 Information Governance	Q2: How many people are employed at your organisation?			
	1 - 100	101 - 1000	1001 +	Totals
5	2	2	3	7
4	4	5	5	14
3	5	5	2	12
2	2	2	2	6
1	1	0	1	2
No answer	1	0	2	3
Totals	15	14	15	44

Professional Services

Figure G3.1:

75 IRM Familiar – Q10.3 + Q1

10.3 Professional Services	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	4	12%	1	4%	0	0%	0	0%	5
4	6	18%	1	4%	1	13%	1	11%	9
3	8	24%	6	24%	3	38%	4	44%	21
2	6	18%	8	32%	0	0%	0	0%	14
1	7	21%	4	16%	3	38%	2	22%	16
No answer	2	6%	5	20%	1	13%	2	22%	10
Totals	33		25		8		9		75

Figure G3.2:

75 IRM Familiar – Q10.3 + Q2

10.3 Professional Services	Q2: How many people are employed at your organisation?			
	1 - 100	101 - 1000	1001 +	Totals
5	1	1	3	5
4	2	3	4	9
3	8	2	11	21
2	3	3	8	14
1	5	4	7	16
No answer	1	4	5	10
Totals	20	17	38	75

Figure G3.3:

36 Non-IRM Familiar – Q10.3 + Q1

10.3 Professional Services	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	0	0%	2	13%	0	0%	1	10%	3
4	4	40%	2	13%	0	0%	1	10%	7
3	1	10%	4	25%	0	0%	3	30%	8
2	2	20%	3	19%	0	0%	0	0%	5
1	1	10%	2	13%	0	0%	1	10%	4
No answer	2	20%	3	19%	0	0%	4	40%	9
	10		16		0		10		36

Figure G3.4:

36 Non-IRM Familiar – Q10.3 + Q2

10.3 Professional Services	Q2: How many people are employed at your organisation?			
	1 - 100	101 - 1000	1001 +	Totals
5	0	1	2	3
4	2	3	2	7
3	3	3	2	8
2	0	2	3	5
1	0	1	3	4
No answer	2	5	2	9
Totals	7	15	14	36

Figure G3.5:

182 IRM Non-Familiar – Q10.3 + Q1

17.3 Professional Services	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	14	13%	4	9%	2	18%	3	17%	23
4	20	18%	9	20%	3	27%	2	11%	34
3	40	37%	16	36%	1	9%	4	22%	61
2	21	19%	5	11%	1	9%	2	11%	29
1	4	4%	4	9%	0	0%	5	28%	13
No answer	10	9%	6	14%	4	36%	2	11%	22
Totals	109		44		11		18		182

Figure G3.6:

182 IRM Non-Familiar – Q10.3 + Q2

17.3 Professional Services	Q2: How many people are employed at your organisation?			
	1 - 100	101 - 1000	1001 +	Totals
5	6	8	9	23
4	3	19	12	34
3	10	14	37	61
2	4	11	14	29
1	4	3	6	13
No answer	3	8	11	22
Totals	30	63	89	182

Figure G3.7:

44 Non-IRM Non-Familiar – Q10.3 + Q1

17.3 Professional Services	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	3	13%	1	7%	1	50%	1	20%	6
4	8	35%	4	29%	0	0%	1	20%	13
3	6	26%	6	43%	1	50%	2	40%	15
2	3	13%	2	14%	0	0%	0	0%	5
1	0	0%	1	7%	0	0%	1	20%	2
No answer	3	13%	0	0%	0	0%	0	0%	3
Totals	23		14		2		5		44

Figure G3.8:

44 Non-IRM Non-Familiar – Q10.3 + Q2

17.3 Professional Services	Q2: How many people are employed at your organisation?			
	1 - 100	101 - 1000	1001 +	Totals
5	1	1	4	6
4	7	2	4	13
3	3	7	5	15
2	1	3	1	5
1	1	1	0	2
No answer	2	0	1	3
Totals	15	14	15	44

Executive

Figure G4.1:

75 IRM Familiar – Q10.4 + Q1

10.4 Executive	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	3	9%	3	12%	2	25%	0	0%	8
4	3	9%	3	12%	1	13%	3	33%	10
3	8	24%	2	8%	1	13%	0	0%	11
2	7	21%	8	32%	0	0%	2	22%	17
1	8	24%	5	20%	3	38%	1	11%	17
No answer	4	12%	4	16%	1	13%	3	33%	12
Totals	33		25		8		9		75

Figure G4.2:

75 IRM Familiar – Q10.4 + Q2

10.4 Executive	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
5	2	0	6	8
4	6	1	3	10
3	2	4	5	11
2	6	1	10	17
1	3	6	8	17
No answer	1	5	6	12
Totals	20	17	38	75

Figure G4.3:

36 Non-IRM Familiar – Q10.4 + Q1

10.4 Executive	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	1	10%	4	25%	0	0%	0	0%	5
4	1	10%	4	25%	0	0%	1	10%	6
3	2	20%	2	13%	0	0%	2	20%	6
2	4	40%	2	13%	0	0%	3	30%	9
1	0	0%	2	13%	0	0%	3	30%	5
No answer	2	20%	2	13%	0	0%	1	10%	5
Totals	10		16		0		10		36

Figure G4.4:

36 Non-IRM Familiar – Q10.4 + Q2

10.4 Executive	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
5	0	1	4	5
4	2	3	1	6
3	2	3	1	6
2	1	3	5	9
1	0	3	2	5
No answer	2	2	1	5
Totals	7	15	14	36

Figure G4.5:

182 IRM Non-Familiar – Q10.4 + Q1

17.4 Executive	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	29	27%	12	27%	3	27%	4	22%	48
4	23	21%	7	16%	4	36%	1	6%	35
3	25	23%	13	30%	1	9%	7	39%	46
2	10	9%	8	18%	0	0%	3	17%	21
1	11	10%	1	2%	0	0%	2	11%	14
No answer	11	10%	3	7%	3	27%	1	6%	18
Totals	109		44		11		18		182

Figure G4.6:

182 IRM Non-Familiar – Q10.4 + Q2

17.4 Executive	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
5	8	18	22	48
4	5	11	19	35
3	6	16	24	46
2	6	5	10	21
1	2	7	5	14
No answer	3	6	9	18
Totals	30	63	89	182

Figure G4.7:

44 Non-IRM Non-Familiar – Q10.4 + Q1

17.4 Executive	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	5	22%	5	36%	0	0%	2	40%	12
4	5	22%	3	21%	1	50%	0	0%	9
3	4	17%	4	29%	1	50%	1	20%	10
2	6	26%	2	14%	0	0%	0	0%	8
1	0	0%	0	0%	0	0%	2	40%	2
No answer	3	13%	0	0%	0	0%	0	0%	3
Totals	23		14		2		5		44

Figure G4.8:

44 Non-IRM Non-Familiar – Q10.4 + Q2

17.4 Executive	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
5	4	2	6	12
4	2	4	3	9
3	5	1	4	10
2	0	7	1	8
1	2	0	0	2
No answer	2	0	1	3
Totals	15	14	15	44

Finance

Figure G5.1:

75 IRM Familiar – Q10.5 + Q1

10.5 Finance	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	5	15%	3	12%	1	13%	2	22%	11
4	2	6%	5	20%	1	13%	2	22%	10
3	6	18%	3	12%	2	25%	2	22%	13
2	4	12%	7	28%	0	0%	1	11%	12
1	13	39%	4	16%	3	38%	1	11%	21
No answer	3	9%	3	12%	1	13%	1	11%	8
Totals	33		25		8		9		75

Figure G5.2:

75 IRM Familiar – Q10.5 + Q2

10.5 Finance	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
5	1	5	5	11
4	4	0	6	10
3	4	2	7	13
2	3	1	8	12
1	7	7	7	21
No answer	1	2	5	8
Totals	20	17	38	75

Figure G5.3:

36 Non-IRM Familiar – Q10.5 + Q1

10.5 Finance	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	1	10%	4	25%	0	0%	1	10%	6
4	0	0%	3	19%	0	0%	2	20%	5
3	3	30%	3	19%	0	0%	2	20%	8
2	4	40%	1	6%	0	0%	1	10%	6
1	0	0%	1	6%	0	0%	3	30%	4
No answer	2	20%	4	25%	0	0%	1	10%	7
Totals	10		16		0		10		36

Figure G5.4:

36 Non-IRM Familiar – Q10.5 + Q2

10.5 Finance	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
5	0	5	1	6
4	3	1	1	5
3	2	1	5	8
2	0	2	4	6
1	0	3	1	4
No answer	2	3	2	7
Totals	7	15	14	36

Figure G5.5:

182 IRM Non-Familiar – Q10.5 + Q1

17.5 Finance	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	18	17%	10	23%	2	18%	3	17%	33
4	19	17%	11	25%	1	9%	3	17%	34
3	25	23%	11	25%	2	18%	5	28%	43
2	25	23%	8	18%	0	0%	3	17%	36
1	11	10%	3	7%	3	27%	3	17%	20
No answer	11	10%	1	2%	3	27%	1	6%	16
Totals	109		44		11		18		182

Figure G5.6:

182 IRM Non-Familiar – Q10.5 + Q2

17.5 Finance	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
5	4	13	16	33
4	6	10	18	34
3	9	10	24	43
2	4	15	17	36
1	6	9	5	20
No answer	1	6	9	16
Totals	30	63	89	182

Figure G5.7:

44 Non-IRM Non-Familiar – Q10.5 + Q1

17.5 Finance	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	5	22%	5	36%	0	0%	2	40%	12
4	5	22%	3	21%	1	50%	0	0%	9
3	4	17%	4	29%	1	50%	1	20%	10
2	6	26%	2	14%	0	0%	0	0%	8
1	0	0%	0	0%	0	0%	2	40%	2
No answer	3	13%	0	0%	0	0%	0	0%	3
Totals	23		14		2		5		44

Figure G5.8:

44 Non-IRM Non-Familiar – Q10.5 + Q2

17.5 Finance	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
5	5	1	4	10
4	1	1	2	4
3	3	3	4	10
2	2	4	2	8
1	3	5	1	9
No answer	1	0	2	3
Totals	15	14	15	44

Other

Figure G6.1:

75 IRM Familiar – Q10.6 + Q1

10.5 Other	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	3	9%	8	32%	1	13%	1	11%	13
4	1	3%	0	0%	0	0%	0	0%	1
3	0	0%	2	8%	0	0%	2	22%	4
2	4	12%	2	8%	0	0%	0	0%	6
1	6	18%	1	4%	1	13%	0	0%	8
No answer	19	58%	12	48%	6	75%	6	67%	43
Totals	33		25		8		9		75

Figure G6.2:

75 IRM Familiar – Q10.6 + Q2

10.5 Other	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
5	5	3	5	13
4	0	1	0	1
3	1	0	3	4
2	2	1	3	6
1	1	4	3	8
No answer	11	8	24	43
Totals	20	17	38	75

Figure G6.3:

36 Non-IRM Familiar – Q10.6 + Q1

10.5 Other	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	1	10%	2	13%	0	0%	1	10%	4
4	2	20%	0	0%	0	0%	1	10%	3
3	1	10%	2	13%	0	0%	0	0%	3
2	1	10%	0	0%	0	0%	0	0%	1
1	0	0%	2	13%	0	0%	1	10%	3
No answer	5	50%	10	63%	0	0%	7	70%	22
Totals	10		16		0		10		36

Figure G6.4:

36 Non-IRM Familiar – Q10.6 + Q2

10.5 Other	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
5	2	1	1	4
4	0	1	2	3
3	1	1	1	3
2	1	0	0	1
1	0	1	2	3
No answer	3	11	8	22
Totals	7	15	14	36

Figure G6.5:

182 IRM Non-Familiar – Q10.6 + Q1

17.5 Other	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	3	3%	4	9%	2	18%	1	6%	10
4	2	2%	3	7%	1	9%	1	6%	7
3	4	4%	2	5%	0	0%	1	6%	7
2	2	2%	0	0%	0	0%	1	6%	3
1	6	6%	3	7%	1	9%	3	17%	13
No answer	92	84%	32	73%	7	64%	11	61%	142
Totals	109		44		11		18		182

Figure G6.6:

182 IRM Non-Familiar – Q10.6 + Q2

17.5 Other	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
5	2	0	8	10
4	0	4	3	7
3	2	1	4	7
2	1	1	1	3
1	3	3	7	13
No answer	22	54	66	142
Totals	30	63	89	182

Figure G6.7:

44 Non-IRM Non-Familiar – Q10.6 + Q1

17.5 Other	Q1: What sector do you currently work in? (% of column)								
	Public		**Private**		**Fina/Bank**		**Other**		**Totals**
5	2	9%	0	0%	0	0%	1	20%	3
4	2	9%	0	0%	0	0%	0	0%	2
3	0	0%	1	7%	1	50%	1	20%	3
2	1	4%	0	0%	0	0%	0	0%	1
1	0	0%	2	14%	0	0%	0	0%	2
No answer	18	78%	11	79%	1	50%	3	60%	33
Totals	23		14		2		5		44

Figure G6.8:

44 Non-IRM Non-Familiar – Q10.6 + Q2

17.5 Other	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
5	1	0	2	3
4	0	0	2	2
3	1	1	1	3
2	0	1	0	1
1	2	0	0	2
No answer	11	12	10	33
Totals	15	14	15	44

APPENDIX H:

HYPOTHESIS 2 – ATTITUDES

Can only be proposed by senior staff

Figure H1.1:

75 IRM Familiar – Q11.1 + Q1

11.1 Proposed by senior staff?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	7	21%	5	20%	2	25%	2	22%	16
Strongly agree	6	18%	2	8%	0	0%	0	0%	8
Neither agree nor disagree	11	33%	9	36%	2	25%	2	22%	24
Strongly disagree	2	6%	3	12%	2	25%	2	22%	9
Disagree	7	21%	5	20%	2	25%	3	33%	17
Other	0	0%	1	4%	0	0%	0	0%	1
Totals	33		25		8		9		75

Figure H1.2:

75 IRM Familiar – Q11.1 + Q2

11.1 Proposed by senior staff?	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	3	4	9	16
Strongly agree	3	1	4	8
Neither agree nor disa	4	5	15	24
Strongly disagree	5	2	2	9
Disagree	4	5	8	17
Other	1	0	0	1
Totals	20	17	38	75

Figure H1.3:

36 Non-IRM Familiar – Q11.1 + Q1

11.1 Proposed by senior staff?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	1	10%	3	19%	0	0%	1	10%	5
Strongly agree	3	30%	2	13%	0	0%	3	30%	8
Neither agree nor disagree	3	30%	4	25%	0	0%	4	40%	11
Strongly disagree	2	20%	6	38%	0	0%	0	0%	8
Disagree	1	10%	1	6%	0	0%	2	20%	4
Other	0	0%	0	0%	0	0%	0	0%	0
Totals	10		16		0		10		36

Figure H1.4:

36 Non-IRM Familiar – Q11.1 + Q2

11.1 Proposed by senior staff?	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	0	3	2	5
Strongly agree	2	4	2	8
Neither agree nor disa	2	4	5	11
Strongly disagree	2	2	4	8
Disagree	1	2	1	4
Other	0	0	0	0
Totals	7	15	14	36

Figure H1.5:

182 IRM Non-Familiar – Q18.1 + Q1

18.1 Proposed by senior staff?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	25	23%	10	23%	3	27%	2	11%	40
Strongly agree	16	15%	7	16%	1	9%	2	11%	26
Neither agree nor disagree	32	29%	9	20%	5	45%	5	28%	51
Strongly disagree	14	13%	2	5%	0	0%	2	11%	18
Disagree	21	19%	15	34%	2	18%	7	39%	45
Other	1	1%	1	2%	0	0%	0	0%	2
Totals	109		44		11		18		182

Figure H1.6:

182 IRM Non-Familiar – Q18.1 + Q2

18.1 Proposed by senior staff?	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	6	14	20	40
Strongly agree	5	9	12	26
Neither agree nor disa	9	14	28	51
Strongly disagree	2	8	8	18
Disagree	7	18	20	45
Other	1	0	1	2
Totals	30	63	89	182

Figure G1.7:

44 Non-IRM Non-Familiar – Q18.1 + Q1

18.1 Proposed by senior staff?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	2	8.7%	6	42.9%	0	0.0%	0	0.0%	8
Strongly agree	3	13.0%	2	14.3%	0	0.0%	3	60.0%	8
Neither agree nor disagree	8	34.8%	5	35.7%	0	0.0%	1	20.0%	14
Strongly disagree	5	21.7%	1	7.1%	1	50.0%	0	0.0%	7
Disagree	5	21.7%	0	0.0%	1	50.0%	0	0.0%	6
Other	0	0.0%	0	0.0%	0	0.0%	1	20.0%	1
Totals	23		14		2		5		44

Figure G1.8:

44 Non-IRM Non-Familiar – Q18.1 + Q2

18.1 Proposed by senior staff?	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	4	4	0	8
Strongly agree	2	3	3	8
Neither agree nor disa	5	4	5	14
Strongly disagree	2	1	4	7
Disagree	1	2	3	6
Other	1	0	0	1
Totals	15	14	15	44

Senior staff are open to new technologies

Figure H2.1:

75 IRM Familiar – Q11.2 + Q1

11.2: Open to new tech?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	10	30%	6	24%	3	38%	4	44%	23
Strongly agree	6	18%	12	48%	3	38%	2	22%	23
Neither agree nor disagree	13	39%	5	20%	0	0%	3	33%	21
Strongly disagree	1	3%	0	0%	1	13%	0	0%	2
Disagree	3	9%	1	4%	1	13%	0	0%	5
Other	0	0%	1	4%	0	0%	0	0%	1
Totals	33		25		8		9		75

Figure H2.2:

75 IRM Familiar – Q11.2 + Q2

11.2: Open to new tech?	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	8	2	13	23
Strongly agree	9	5	9	23
Neither agree nor disagree	2	8	11	21
Strongly disagree	0	1	1	2
Disagree	0	1	4	5
Other	1	0	0	1
Totals	20	17	38	75

Figure H2.3:

36 Non-IRM Familiar – Q11.2 + Q1

11.2: Open to new tech?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	3	30%	6	38%	0	0%	4	40%	13
Strongly agree	1	10%	5	31%	0	0%	0	0%	6
Neither agree nor disagree	4	40%	4	25%	0	0%	6	60%	14
Strongly disagree	1	10%	0	0%	0	0%	0	0%	1
Disagree	1	10%	1	6%	0	0%	0	0%	2
Other	0	0%	0	0%	0	0%	0	0%	0
Totals	10		16		0		10		36

Figure H2.4:

36 Non-IRM Familiar – Q11.2 + Q2

11.2: Open to new tech?	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	1	5	7	13
Strongly agree	3	2	1	6
Neither agree nor disagree	3	6	5	14
Strongly disagree	0	1	0	1
Disagree	0	1	1	2
Other	0	0	0	0
Totals	7	15	14	36

Figure H2.5:

182 IRM Non-Familiar – Q18.2 + Q1

18.2: Open to new tech?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	36	33%	18	41%	4	36%	8	44%	66
Strongly agree	17	16%	10	23%	2	18%	2	11%	31
Neither agree nor disagree	42	39%	10	23%	4	36%	5	28%	61
Strongly disagree	2	2%	1	2%	0	0%	1	6%	4
Disagree	12	11%	5	11%	1	9%	2	11%	20
Other	0	0%	0	0%	0	0%	0	0%	0
	109		44		11		18		182

Figure H2.6:

182 IRM Non-Familiar – Q18.2 + Q2

18.2: Open to new tech?	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	11	22	33	66
Strongly agree	6	10	15	31
Neither agree nor disagree	10	19	32	61
Strongly disagree	0	2	2	4
Disagree	3	10	7	20
Other	0	0	0	0
Totals	30	63	89	182

Figure G2.7:

44 Non-IRM Non-Familiar – Q18.2 + Q1

18.2: Open to new tech?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	4	17%	6	43%	1	50%	1	20%	12
Strongly agree	9	39%	2	14%	1	50%	1	20%	13
Neither agree nor disagree	7	30%	2	14%	0	0%	2	40%	11
Strongly disagree	2	9%	1	7%	0	0%	0	0%	3
Disagree	1	4%	3	21%	0	0%	0	0%	4
Other	0	0%	0	0%	0	0%	1	20%	1
Totals	23		14		2		5		44

Figure G2.8:

44 Non-IRM Non-Familiar – Q18.2 + Q2

18.2: Open to new tech?	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	5	4	3	12
Strongly agree	2	2	9	13
Neither agree nor disagree	4	5	2	11
Strongly disagree	1	1	1	3
Disagree	2	2	0	4
Other	1	0	0	1
Totals	15	14	15	44

There are means for all staff to raise innovative ideas

Figure H3.1:

75 IRM Familiar – Q11.3 + Q1

Q11.3: Means for all staff to raise innovative ideas?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	9	27%	11	44%	7	88%	4	44%	31
Strongly agree	7	21%	6	24%	1	13%	2	22%	16
Neither agree nor disagree	9	27%	8	32%	0	0%	3	33%	20
Strongly disagree	4	12%	0	0%	0	0%	0	0%	4
Disagree	4	12%	0	0%	0	0%	0	0%	4
Other	0	0%	0	0%	0	0%	0	0%	0
Totals	33		25		8		9		75

Figure H3.2:

75 IRM Familiar – Q11.3 + Q2

Q11.3: Means for all staff to raise innovative ideas?	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	10	5	16	31
Strongly agree	5	4	7	16
Neither agree nor disagree	5	8	7	20
Strongly disagree	0	0	4	4
Disagree	0	0	4	4
Other	0	0	0	0
Totals	20	17	38	75

Figure H3.3:

36 Non-IRM Familiar – Q11.3 + Q1

Q11.3: Means for all staff to raise innovative ideas?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	5	50%	5	31%	0	0%	2	20%	12
Strongly agree	1	10%	6	38%	0	0%	2	20%	9
Neither agree nor disagree	1	10%	5	31%	0	0%	4	40%	10
Strongly disagree	1	10%	0	0%	0	0%	0	0%	1
Disagree	2	20%	0	0%	0	0%	2	20%	4
Other	0		0	0%	0	0%	0	0%	0
Totals	10		16		0		10		36

Figure H3.4:

36 Non-IRM Familiar – Q11.3 + Q2

Q11.3: Means for all staff to raise innovative ideas?	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	2	7	3	12
Strongly agree	1	3	5	9
Neither agree nor disagree	4	3	3	10
Strongly disagree	0	1	0	1
Disagree	0	1	3	4
Other	0	0	0	0
Totals	7	15	14	36

Figure H3.5:

182 IRM Non-Familiar – Q18.3 + Q1

Q18.3: Means for all staff to raise innovative ideas?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	33	30%	15	34%	3	27%	7	39%	12
Strongly agree	13	12%	10	23%	2	18%	3	17%	10
Neither agree nor disagree	28	26%	10	23%	3	27%	5	28%	14
Strongly disagree	9	8%	4	9%	0	0%	0	0%	4
Disagree	26	24%	5	11%	3	27%	2	11%	3
Other	0	0%	0	0%	0	0%	1	6%	1
Totals	109		44		11		18		44

Figure H3.6:

182 IRM Non-Familiar – Q18.3 + Q2

Q18.3: Means for all staff to raise innovative ideas?	Q2: How many people are employed at your org?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	11	20	27	58
Strongly agree	7	8	13	28
Neither agree nor disagree	5	14	27	46
Strongly disagree	2	4	7	13
Disagree	4	17	15	36
Other	1	0	0	1
Totals	30	63	89	182

Figure G3.7:

44 Non-IRM Non-Familiar – Q18.3 + Q1

Q18.3: Means for all staff to raise innovative ideas?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	7	30%	3	21%	1	50%	1	20%	12
Strongly agree	6	26%	3	21%	1	50%	0	0%	10
Neither agree nor disagree	7	30%	5	36%	0	0%	2	40%	14
Strongly disagree	2	9%	2	14%	0	0%	0	0%	4
Disagree	1	4%	1	7%	0	0%	1	20%	3
Other	0	0%	0	0%	0	0%	1	20%	1
Totals	23		14		2		5		44

Figure G3.8:

44 Non-IRM Non-Familiar – Q18.3 + Q2

Q18.3: Means for all staff to raise innovative ideas?	Q2: How many people are employed at your org?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	3	6	3	12
Strongly agree	2	1	7	10
Neither agree nor disagree	7	4	3	14
Strongly disagree	1	2	1	4
Disagree	1	1	1	3
Other	1	0	0	1
Totals	15	14	15	44

Technological change is slow

Figure H4.1:

75 IRM Familiar – Q11.4 + Q1

Q11.4: Tech change is slow?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	11	33%	4	16%	3	38%	2	22%	20
Strongly agree	8	24%	5	20%	0	0%	2	22%	15
Neither agree nor disagree	6	18%	8	32%	3	38%	1	11%	18
Strongly disagree	6	18%	3	12%	0	0%	1	11%	10
Disagree	2	6%	5	20%	2	25%	3	33%	12
Other	0	0%	0	0%	0	0%	0	0%	0
Totals	33		25		8		9		75

Figure H4.2:

75 IRM Familiar – Q11.4 + Q2

Q11.4: Tech change is slow?	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	6	3	11	20
Strongly agree	2	5	8	15
Neither agree nor dis	4	3	11	18
Strongly disagree	4	3	3	10
Disagree	4	3	5	12
Other	0	0	0	0
Totals	20	17	38	75

Figure H4.3:

36 Non-IRM Familiar – Q11.4 + Q1

Q11.4: Tech change is slow?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	2	20%	3	19%	0	0%	2	20%	7
Strongly agree	2	20%	3	19%	0	0%	3	30%	8
Neither agree nor disagree	4	40%	5	31%	0	0%	3	30%	12
Strongly disagree	1	10%	2	13%	0	0%	1	10%	4
Disagree	1	10%	3	19%	0	0%	1	10%	5
Other	0	0%	0	0%	0	0%	0	0%	0
Totals	10		16		0		10		36

Figure H4.4:

36 Non-IRM Familiar – Q11.4 + Q2

Q11.4: Tech change is slow?	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	0	3	4	7
Strongly agree	1	3	4	8
Neither agree nor dis	3	6	3	12
Strongly disagree	2	1	1	4
Disagree	1	2	2	5
Other	0	0	0	0
Totals	7	15	14	36

Figure H4.5:

182 IRM Non-Familiar – Q18.4 + Q1

Q18.4: Tech change is slow?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	28	25.7%	20	45.5%	4	36%	6	33%	58
Strongly agree	37	33.9%	7	15.9%	5	45%	4	22%	53
Neither agree nor disagree	22	20.2%	11	25.0%	2	18%	3	17%	38
Strongly disagree	7	6.4%	4	9.1%	0	0%	1	6%	12
Disagree	14	12.8%	2	4.6%	0	0%	3	17%	19
Other	1	0.9%	0	0.0%	0	0%	1	6%	2
Totals	109		44		11		18		182

Figure H4.6:

182 IRM Non-Familiar – Q18.4 + Q2

Q18.4: Tech change is slow?	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	11	20	27	58
Strongly agree	6	17	30	53
Neither agree nor dis	7	11	20	38
Strongly disagree	3	5	4	12
Disagree	3	9	7	19
Other	0	1	1	2
Totals	30	63	89	182

Figure G4.7:

44 Non-IRM Non-Familiar – Q18.4 + Q1

Q18.4: Tech change is slow?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	8	35%	5	36%	0	0%	2	40%	15
Strongly agree	6	26%	5	36%	1	50%	0	0%	12
Neither agree nor disagree	4	17%	0	0%	0	0%	1	20%	5
Strongly disagree	2	9%	4	29%	0	0%	0	0%	6
Disagree	3	13%	0	0%	1	50%	1	20%	5
Other	0	0%	0	0%	0	0%	1	20%	1
Totals	23		14		2		5		44

Figure G4.8:

44 Non-IRM Non-Familiar – Q18.4 + Q2

Q18.4: Tech change is slow?	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	3	8	4	15
Strongly agree	5	3	4	12
Neither agree nor dis	2	1	2	5
Strongly disagree	3	1	2	6
Disagree	1	1	3	5
Other	1	0	0	1
Totals	15	14	15	44

Technological innovation is not a priority

Figure H5.1:

75 IRM Familiar – Q11.5 + Q1

Q11.4: Tech change is slow?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	7	21%	1	4%	2	25%	0	0%	10
Strongly agree	7	21%	1	4%	0	0%	0	0%	8
Neither agree nor disagree	8	24%	7	28%	1	13%	4	44%	20
Strongly disagree	4	12%	3	12%	2	25%	1	11%	10
Disagree	7	21%	12	48%	3	38%	4	44%	26
Other	0	0%	1	4%	0	0%	0	0%	1
Totals	33		25		8		9		75

Figure H5.2:

75 IRM Familiar – Q11.5 + Q2

Q11.4: Tech change is slow?	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	1	3	6	10
Strongly agree	0	4	4	8
Neither agree nor disagr	5	5	10	20
Strongly disagree	3	0	7	10
Disagree	11	5	10	26
Other	0	0	1	1
Totals	20	17	38	75

Figure H5.3:

36 Non-IRM Familiar – Q11.5 + Q1

Q11.4: Tech change is slow?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	0	0%	3	19%	0	0%	1	10%	4
Strongly agree	1	10%	0	0%	0	0%	3	30%	4
Neither agree nor disagree	2	20%	3	19%	0	0%	2	20%	7
Strongly disagree	3	30%	4	25%	0	0%	0	0%	7
Disagree	4	40%	6	38%	0	0%	4	40%	14
Other	0	0%	0	0%	0	0%	0	0%	0
Totals	10		16		0		10		36

Figure H5.4:

36 Non-IRM Familiar – Q11.5 + Q2

Q11.4: Tech change is slow?	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	0	1	3	4
Strongly agree	0	3	1	4
Neither agree nor disagr	3	1	3	7
Strongly disagree	2	3	2	7
Disagree	2	7	5	14
Other	0	0	0	0
Totals	7	15	14	36

Figure H5.5:

182 IRM Non-Familiar – Q18.5 + Q1

Q18.4: Tech change is slow?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	17	16%	10	23%	2	18%	3	17%	32
Strongly agree	15	14%	5	11%	0	0%	4	22%	24
Neither agree nor disagree	32	29%	10	23%	3	27%	4	22%	49
Strongly disagree	15	14%	6	14%	1	9%	2	11%	24
Disagree	30	28%	13	30%	5	45%	3	17%	51
Other	0	0%	0	0%	0	0%	2	11%	2
Totals	109		44		11		18		182

Figure H5.6:

182 IRM Non-Familiar – Q18.5 + Q2

Q18.4: Tech change is slow?	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	6	12	14	32
Strongly agree	6	9	9	24
Neither agree nor disagr	9	15	25	49
Strongly disagree	5	7	12	24
Disagree	3	19	29	51
Other	1	1	0	2
Totals	30	63	89	182

Figure G5.7:

44 Non-IRM Non-Familiar – Q18.5 + Q1

Q18.4: Tech change is slow?	Q1: What sector do you currently work in?								
	Public		**Private**		**Fin/Bank**		**Other**		**Totals**
Agree	2	9%	1	7%	0	0%	1	20%	4
Strongly agree	4	17%	4	29%	0	0%	0	0%	8
Neither agree nor disagree	5	22%	3	21%	1	50%	3	60%	12
Strongly disagree	6	26%	4	29%	0	0%	0	0%	10
Disagree	6	26%	2	14%	1	50%	0	0%	9
Other	0	0%	0	0%	0	0%	1	20%	1
Totals	23		14		2		5		44

Figure G5.8:

44 Non-IRM Non-Familiar – Q18.5 + Q2

Q18.4: Tech change is slow?	Q2: How many people are employed at your organisation?			
	1 - 100	**101 - 1000**	**1001 +**	**Totals**
Agree	1	1	2	4
Strongly agree	4	2	2	8
Neither agree nor disagr	3	6	3	12
Strongly disagree	4	2	4	10
Disagree	2	3	4	9
Other	1	0	0	1
Totals	15	14	15	44

Appendix I

Matrix: Connecting Questions with Goals

	Aims	Hypothesis/aim	Qs
General	Explain BT • What it is • What its uses are	None – just background	
Aim 1	Explain current knowledge and use of BT in IRM • Do people know about it (and, if so, how)? • Do people use it (and, if so, how do they view it)?	H1 – Knowledge + Use	Knowledge – 6 and 7 Use - 8 Experience of it - 12
Aim 2	Explain why BT is or is not used in IRM • Drivers • Barriers	H2	Barriers – 9 and 11 Drivers – 10 and 11
Aim 3	Set out whether the research results show that there is potential for further use in IRM	H3 - Future	RB's own analysis of results
H1	Blockchain technology is both an under recognised and little used tool within the IRM community.	Aim 1	[Analyse by type of respondent – Qs 1-5]
H2	IRM factors do not explain why organisations use or do not use Blockchain technology	Aim 2	[Analyse by type of organisation – Qs 1-5]
H3	Blockchain technology has significant potential to improve and enhance existing IRM practices.	Aim 3	[Use evidence from lit review and survey results, as appropriate – esp. comments]

APPENDIX K

Re: Request to use a diagram in my dissertation

R

robert.begley

Fri 8/4, 12:37 PM

mmontgom <m.montgomery@ieee.org>

...

Sent Items

Sent Items

Thank you very much Mr Montgomery.

Regards

Rob

From: mmontgom <m.montgomery@ieee.org>
Sent: Friday, August 4, 2017 12:15:54 PM
To: robert.begley
Subject: Re: Request to use a diagram in my dissertation

Rob: yes, you may use the diagram in your dissertation.
Good luck and thanks fir asking.

Mark Montgomery

On Aug 4, 2017, at 3:27 AM, robert.begley <robert.begley@northumbria.ac.uk> wrote:

> Good morning Mr Montgomery,
>
> My name is Rob Begley and I am a MSc student from Northumbria University in the UK and I am writing to you today to request permission to use one of your diagram for my dissertation.
>
> My Dissertation is about 'Blockchain technology and Information and Records Management' (IRM). I am trying to determine to what extent is Blockchain Technology understood and used within the Information Management community/profession, or if not, then what are the barriers encountered and why?

So as to bring some life to my written work I need some visuals and the particular diagram that I like is:
<pastedImage.png>

May I have permission to use this diagram? I would, of course, reference you properly.

I look forward to hearing from you.

Regards

Rob Begley

bos

Blockchain and IRM - Survey 2017

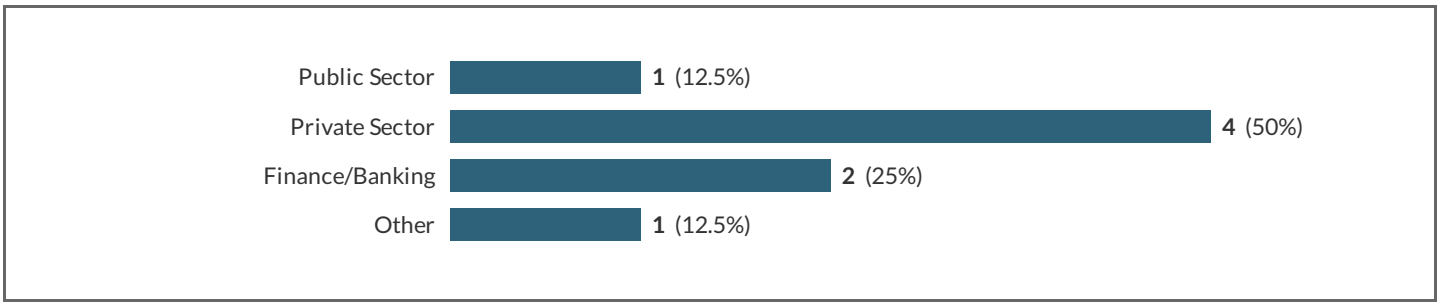
Showing 8 of 337 responses

Showing **all** responses

Hiding **7** questions

With filter **q4-is-yes-and-q6-is-very-familiar-and-use-it-regularly** applied

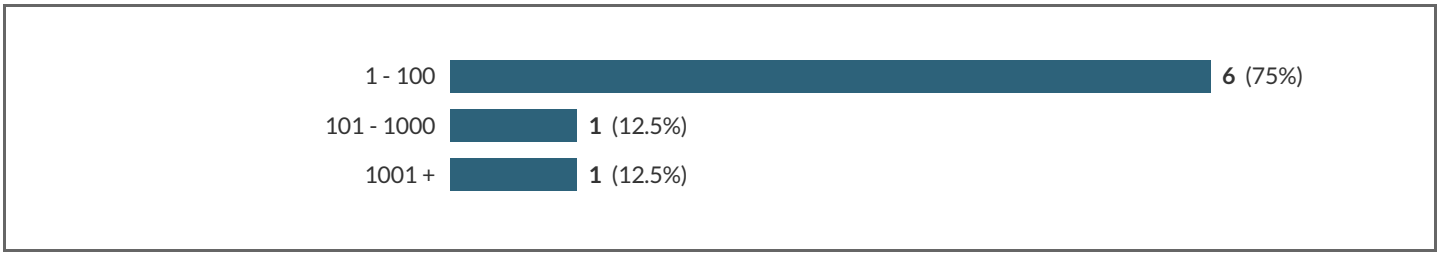
1 What sector do you currently work in?



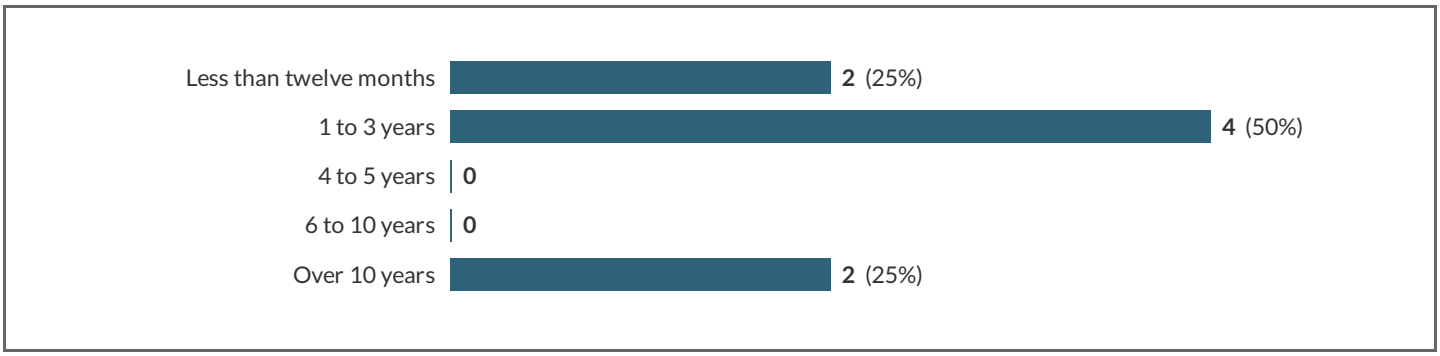
1.a If you selected Other, please specify:

Showing 1 response	
consultant working for both public and private sector clients	268514-268506-23475120

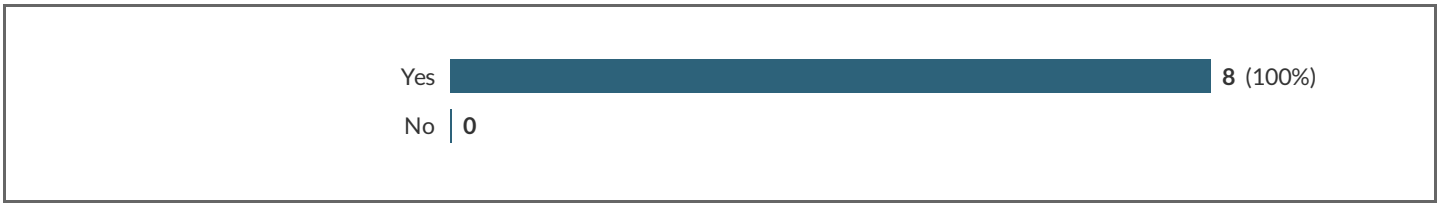
2 Approximately how many people are employed at your organisation?



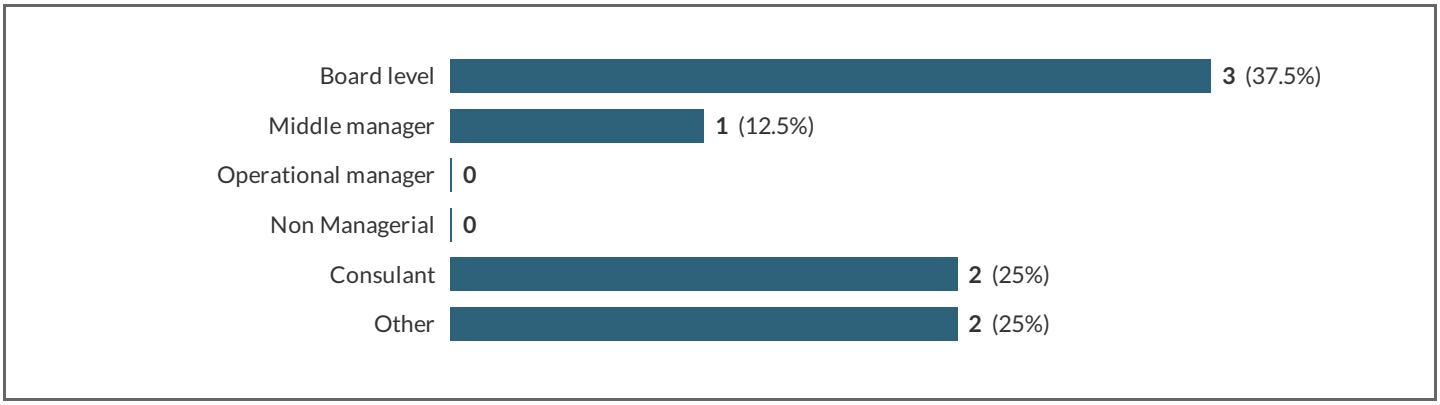
3 For how long have you been in your current role?



4 Do you have responsibility for information and records management in your role?



5 Which account best describes the role do you currently hold?

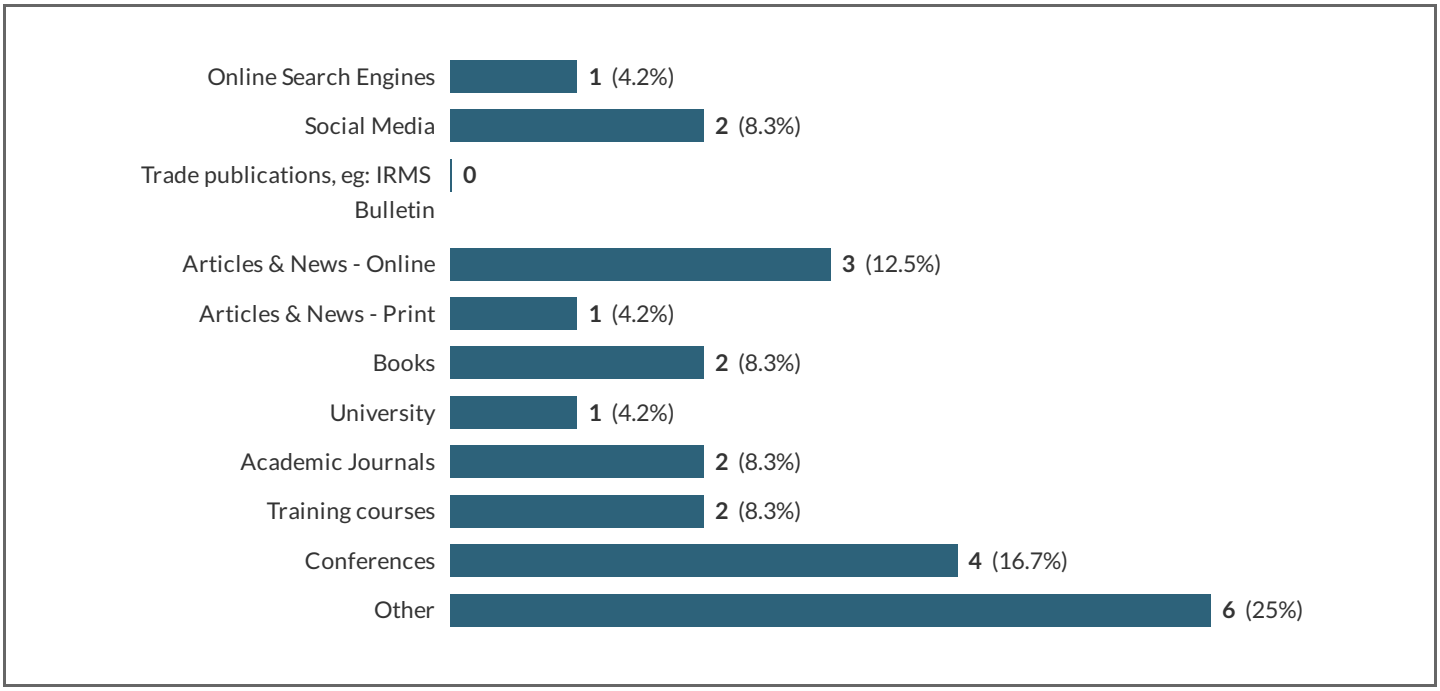


5.a If you selected Other, please specify:

Showing all 2 responses	
associate professor	268514-268506-23512258
Chief Medical Officer	268514-268506-23711770

6 Are you familiar with Blockchain technology?

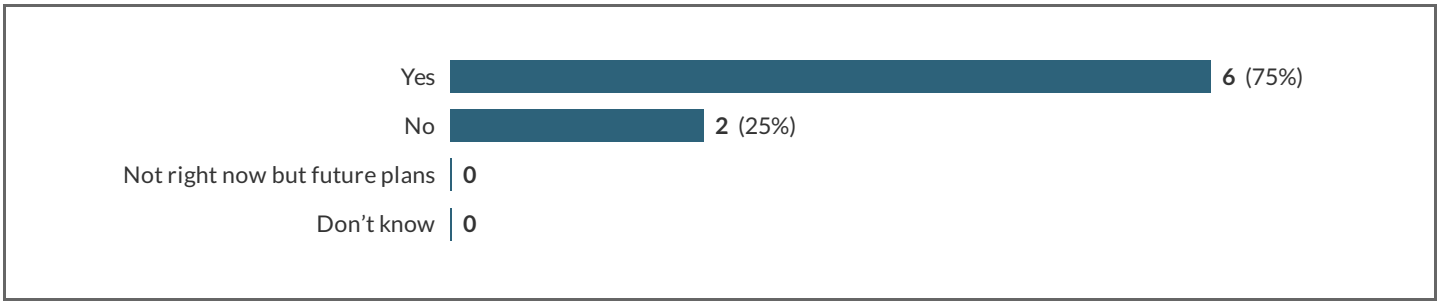
7 Where does your main familiarity/knowledge of Blockchain technology come from? (Please select as many as appropriate)



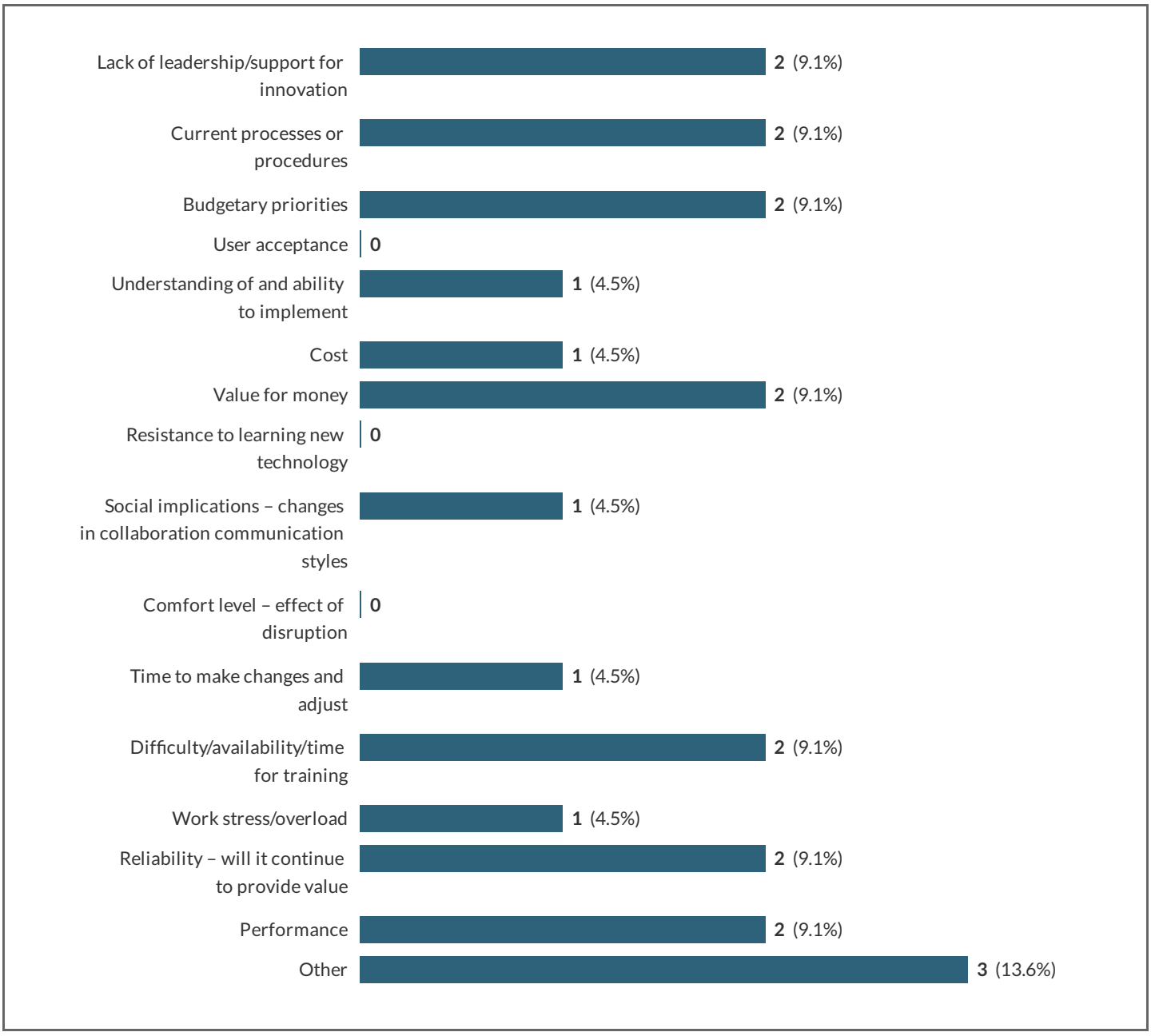
7.a If you selected Other, please specify:

Showing all 6 responses	
Bitcoin and other crypto currencies - using for the last 5 years	268514-268506-22517272
I am a Blockchain trainer	268514-268506-23369751
project white papers & website, reddit.	268514-268506-23475120
My research team	268514-268506-23512258
Hacking on them, writing code using the evm	268514-268506-23638708
job	268514-268506-23675223

8 Do you work for an organisation that uses Blockchain Technology?



9 What barriers did/could your organisation face during the implementation of Blockchain Technology? (Please select as many as appropriate)

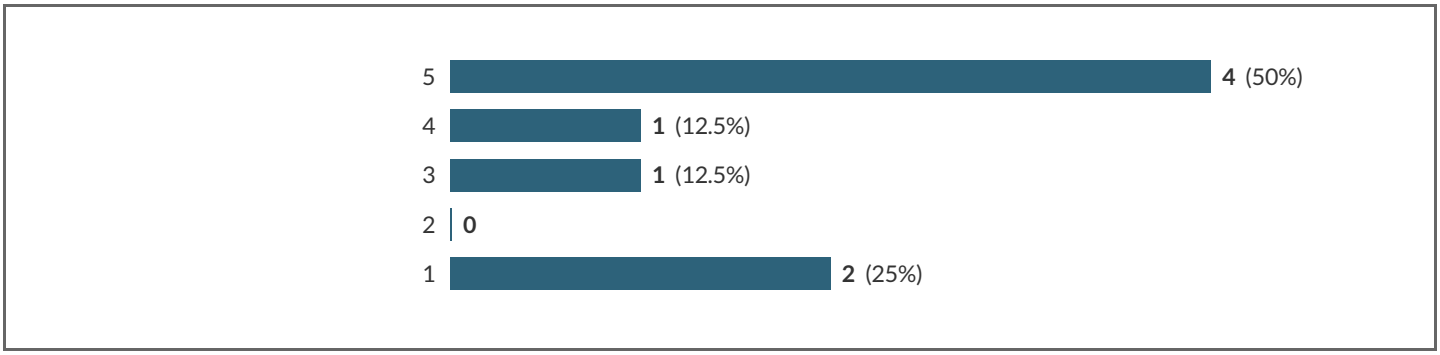


9.a If you selected Other, please specify:

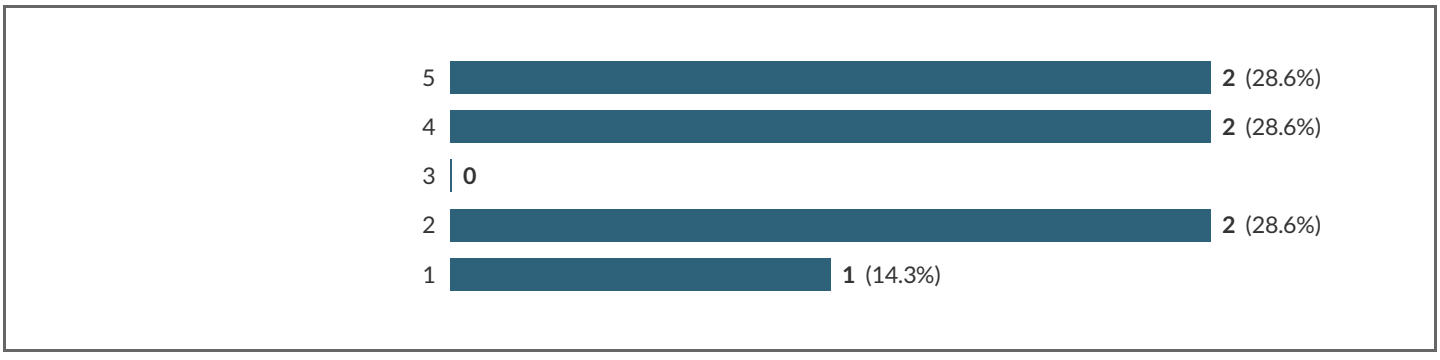
Showing all 3 responses	
No way to effectively archive older transactions in the blockchain - people running full nodes with an entire block chain history require vast resources and the file format of the stored blockchain itself is not a highly optimised database and is not build for past searchability or performance - only for capturing that the a transaction has taken place - the storage of the blockchain format also limits storage architecture to non optimal outcomes.	268514-268506-22517272
Nonr, we're a blockchain health company.	268514-268506-23638708
We are a blockchain company - we use it	268514-268506-23711770

10 Which business areas are/will be the drivers behind Blockchain Technology's implementation and use in your organisation? (5 being most likely to drive/lead and 1 being least likely)

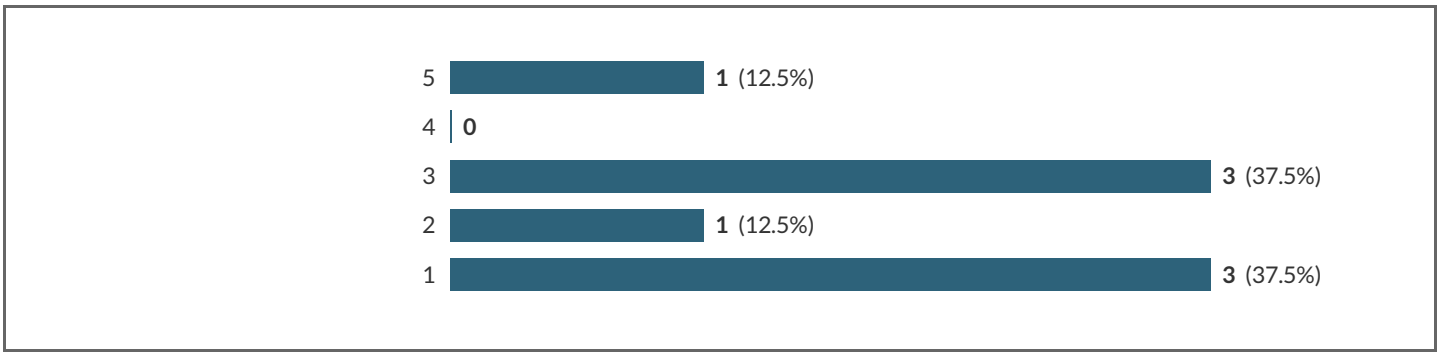
10.1 Information Technology



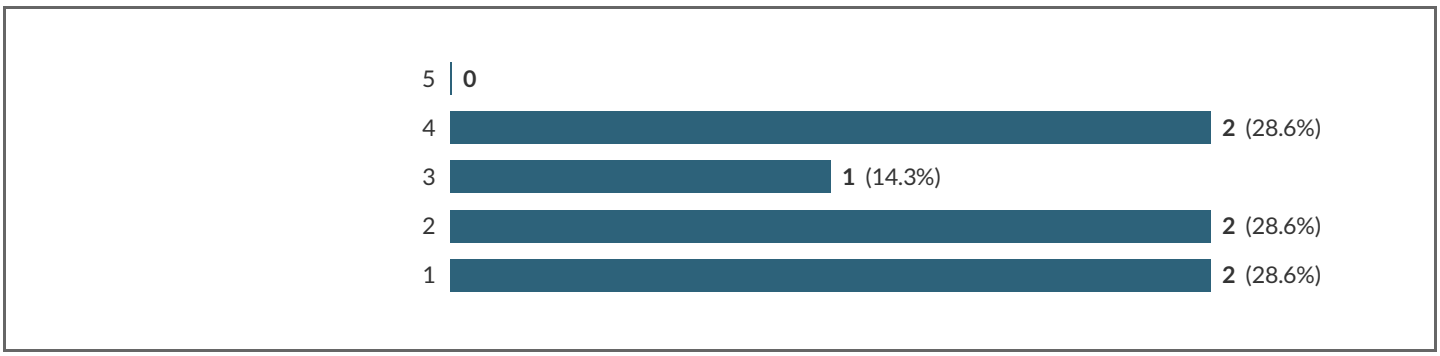
10.2 Information Governance



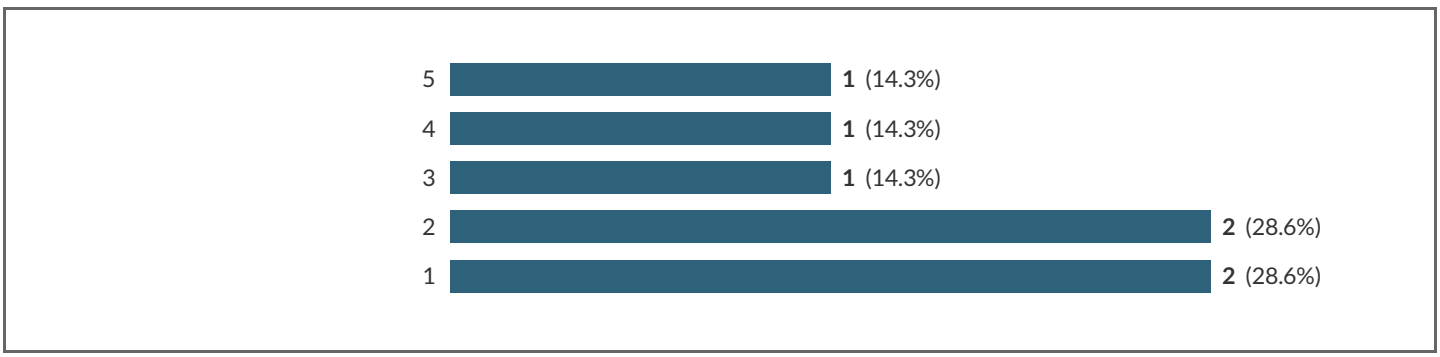
10.3 Professional Services



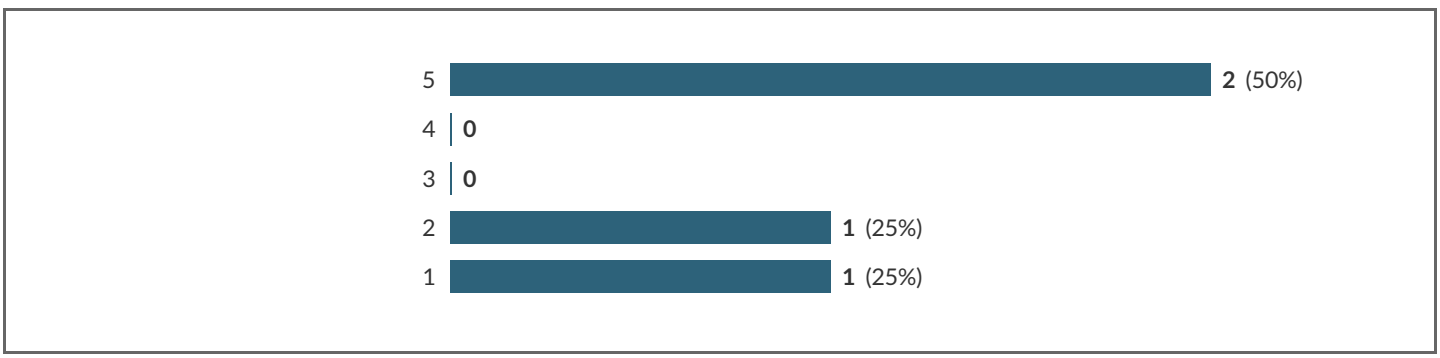
10.4 Executive



10.5 Finance



10.6 Other



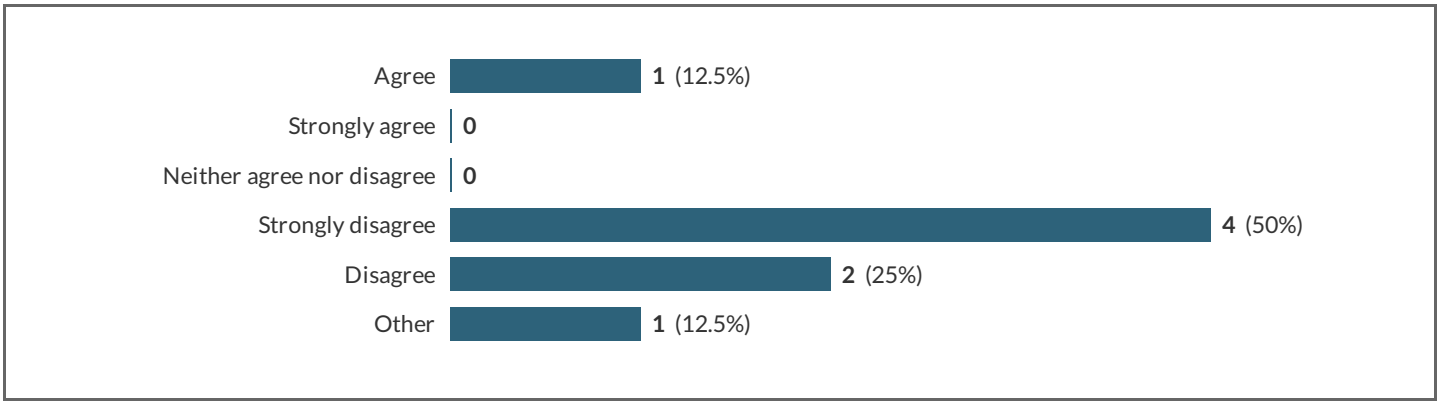
10.a If Other please specify here:

Showing all 3 responses	
I can't see that my institution (faculty) will implement blockchain in its operations soon.	268514-268506-23512258
Non financial applications	268514-268506-23675223
Unclear Question. Customer facing business solutions will drive Blockchain implementation.	268514-268506-23711770

11 To what extent do the statements below reflect your organisation's attitudes to the adoption of new technology, such as Blockchain Technology?

11.1 Can only be proposed by senior staff?

11.1.a Can only be proposed by senior staff?

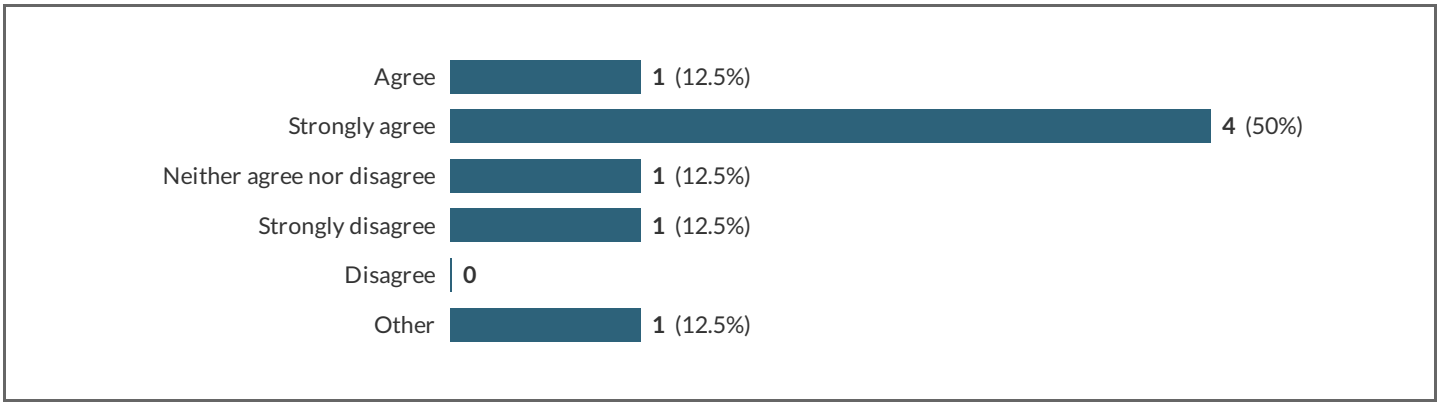


11.1.b Can only be proposed by senior staff? - If you selected Other, please specify:

Showing 1 response	
all we do as company	268514-268506-23711770

11.2 Senior staff are open to new technologies?

11.2.a Senior staff are open to new technologies?

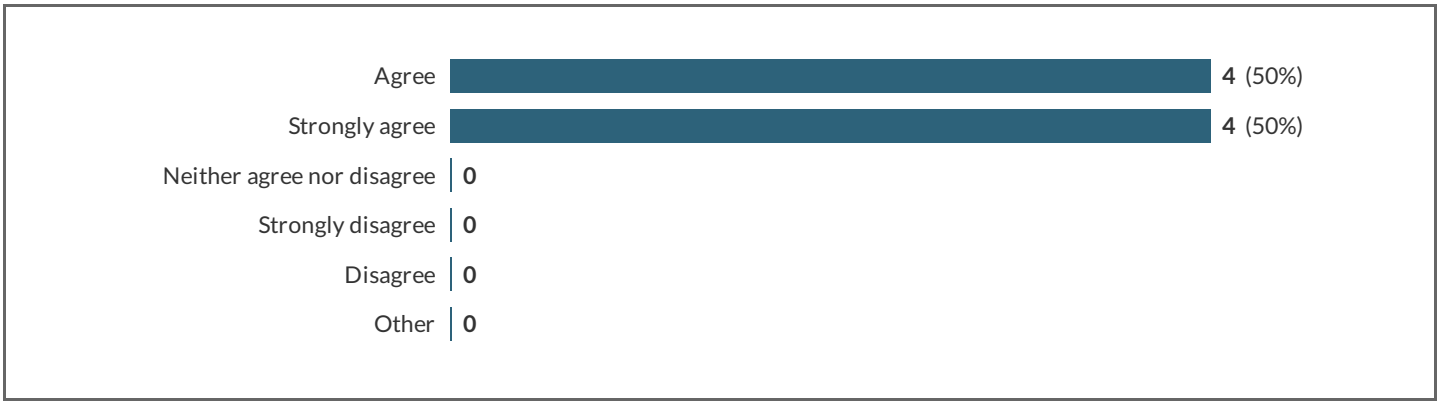


11.2.b Senior staff are open to new technologies? - If you selected Other, please specify:

Showing 1 response	
all we do as company	268514-268506-23711770

11.3 There are means for all staff to raise innovative ideas?

11.3.a There are means for all staff to raise innovative ideas?

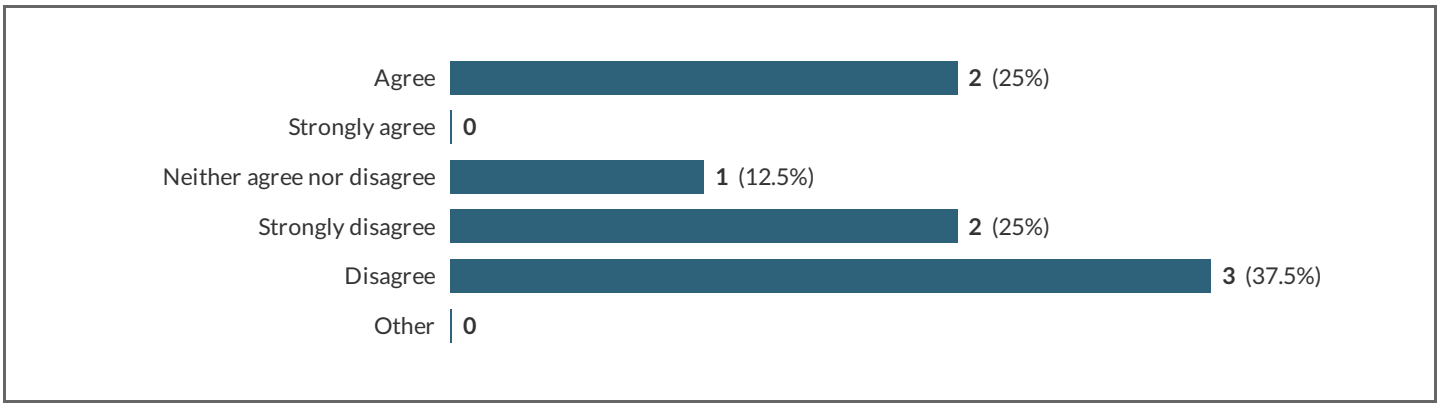


11.3.b There are means for all staff to raise innovative ideas? - If you selected Other, please specify:

No responses

11.4 Technological change is slow?

11.4.a Technological change is slow?

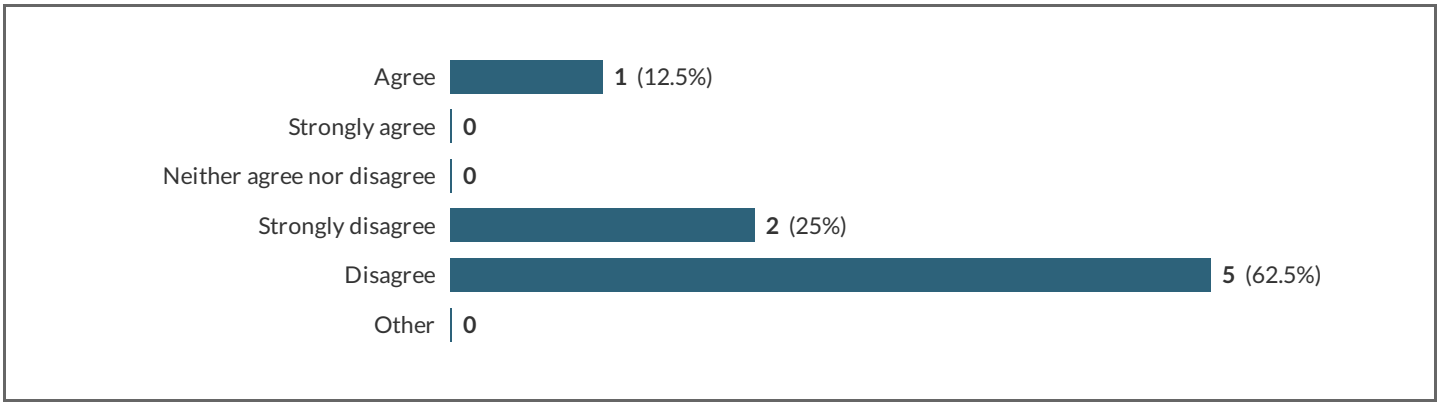


11.4.b Technological change is slow? - If you selected Other, please specify:

No responses

11.5 Technological innovation is not a priority?

11.5.a Technological innovation is not a priority?



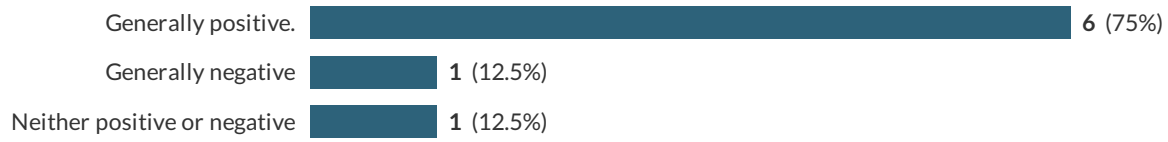
11.5.b Technological innovation is not a priority? - If you selected Other, please specify:

No responses

11.a Feel free to offer any comments to further explain your choices. (Optional)

Showing all 2 responses	
Budgetary restrictions often apply.	268514-268506-23512258
we are a blockchain company from the start	268514-268506-23711770

12 What are your experiences of Blockchain Technology as a record keeping/management tool?



12.a Please offer your reasons why

Showing all 5 responses	
For digital contacts it can effectively record when a transaction has taken place, although searching for previous transaction information in a large database is not efficient compared to other RDBMS instances Private organizations running their own blockchain also defeats the purpose of a large decentralised ledger decreasing the block chains effectiveness and in turn gives higher favour and project outcomes to existing technologies.	268514-268506-22517272
lack on inextricable links between merkle tree doc hashes on blockchains & authentic e-records for off-chain transactions.	268514-268506-23475120
I am researching the blockchain application in the context of archives so I would be biased to answer this question (of course it is positive). It is my field of research.	268514-268506-23512258
I understood the concepts before trying to design systems that leverage the cryptographic primitives provided, if you don't really understand these things at a low level, it's easy to make incorrect assumptions about how they work.	268514-268506-23638708
document flow and security is our area of interest for our customers	268514-268506-23711770

13 Please offer any other comments (Optional)

Showing all 3 responses	
As an individual involved in the blockchain for financial purposes and as an information management consultant implementing large scale edrms solutions my own personal view is that the blockchain is pretty much the latest buzzword For industry implementations on enterprise premises this limits blockchains effectiveness as it essentially remove the distributed component and essentially runs as an in house ledger - this gives rise to existing technology yielding better outcomes. I do remain open to other technology however the technology stack implemented for a project is ever only as good as it's intended purpose - think trying to hammer in a nail with a power drill. Sure the power drill is powerful and more efficient for its intended purpose however it is less optimal for the current situation.	268514-268506-22517272
I'm CTO of an early stage startup working that has solved the problem interoperability, privacy, and regulatory compliance for lifetime EMRs.	268514-268506-23638708
we are purely a blockchain company with solutions built on top of and anchored in public blockchains.	268514-268506-23711770

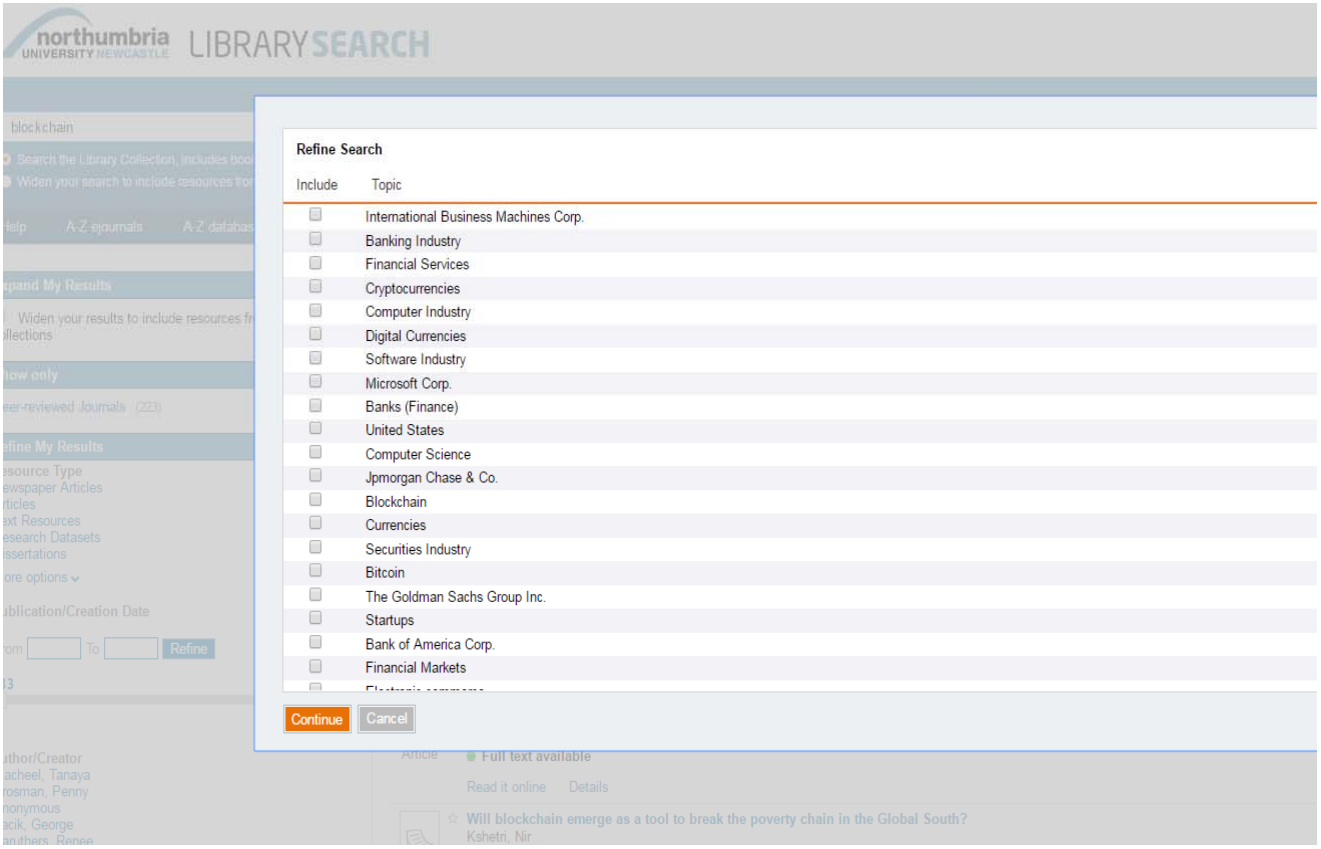
Appendix M

A basic search on the term ‘Blockchain’ returned 6374 results (See App A + 1). At first glance this seems promising and when the ‘Topic’ filter is utilised there are various categories to choose from yet there are no options for IRM, RIM, Information Management, or even Archives. Basic search terms for information management are lacking.

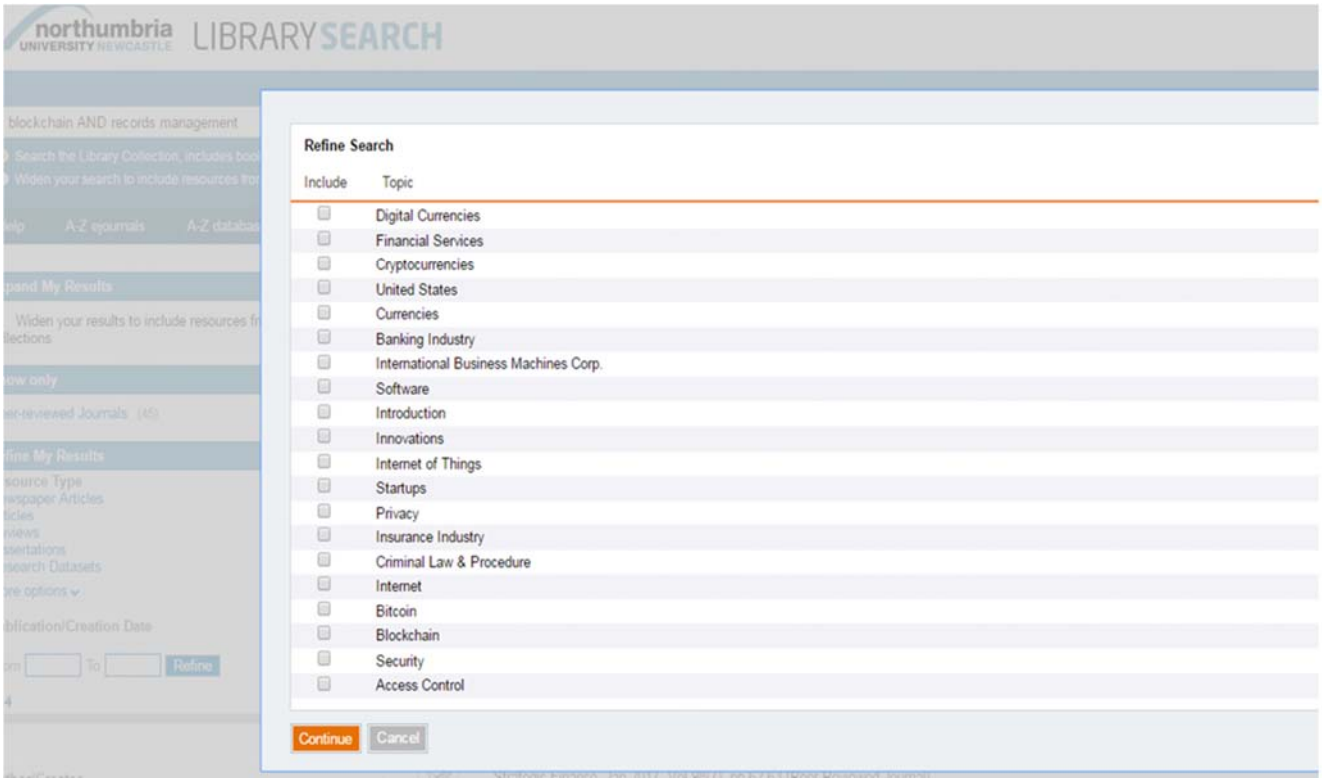
A second basic search was applied using the terms ‘Blockchain AND records management’ with Boolean logic applied in the form of ‘AND’. This returned 262 results but again once the ‘Topic’ filter is utilised there are numerous categories to choose from but there are no options for IRM, RIM, Information Management, or even Archives. Undeterred, I switched away from broad searches and decided to focus on two key locations within the library. Those being the Records Management Journal (RMJ) and the other being the Web of Science (WOS) database. A simple search in both locations on the term ‘Blockchain’ returned 20 results in RMJ (see App C) and only 2 in WOS (see App D). Yet again, when filters were applied – ‘Subject’ filter in RMJ with ‘Information management’ selected, and ‘Categories’ in WOS with ‘Information Science’ selected – they actually brought 2 instances of academic literature. One of these is from the Canadian academic Lemieux and is quoted in this paper, whilst the other was not of any use.

This research clearly demonstrates a distinct lack of academic research into Blockchain technology from the perspective of information (and/or records) management. I am, therefore, compelled to use and rely upon, contemporaneous opinions and views from news outlets and online publications.

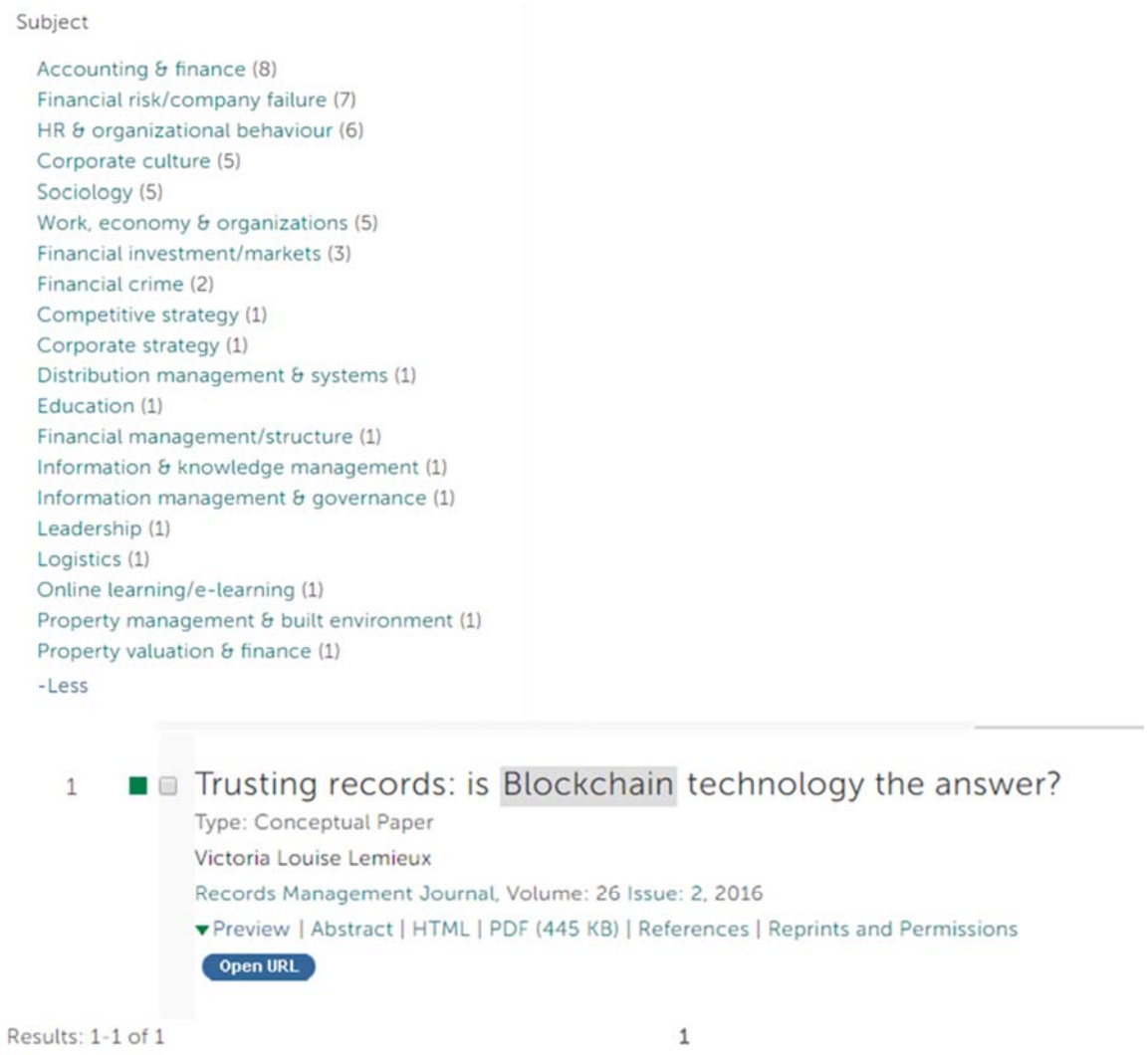
Screen shot of basic ‘Blockchain’ search. Results: 6,374 for Northumbria’s Library Collections. Various categories but no IRM, RIM, Info prof, Archive etc



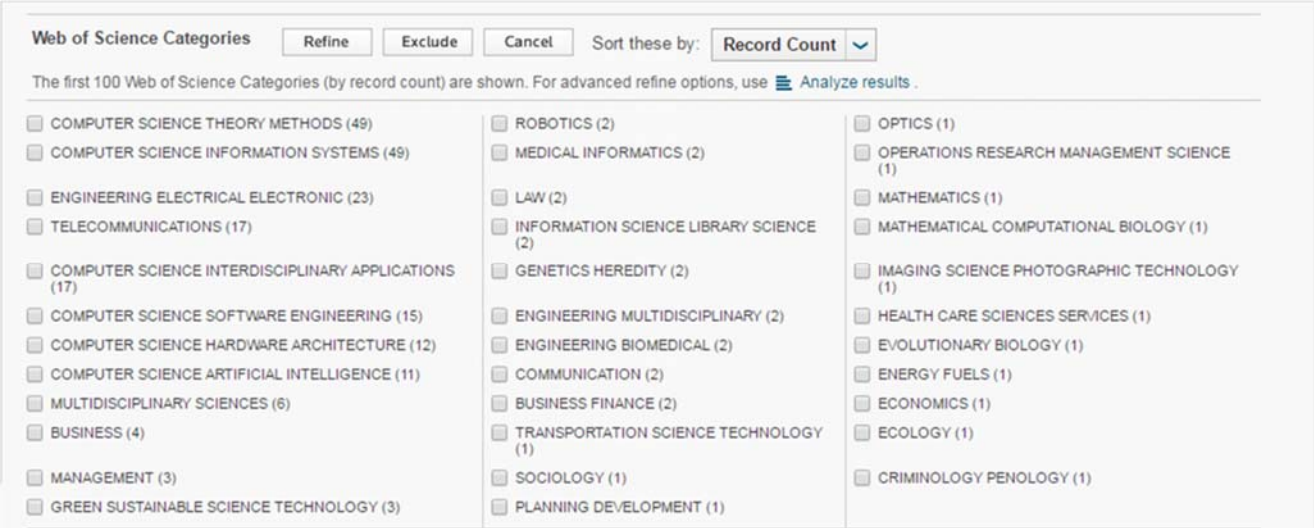
Basic ‘Blockchain AND records management’ search. Results: 262 for Northumbria’s Library Collections



Emerald search for ‘Blockchain’ - Results: 20



Web of Science ‘Blockchain’ search. Results: 130. Various categories but no IRM, RIM, Info prof, Archive etc



Information Science Library Collection – 2 Results

APPENDIX N

Request for permission to use IRMS LinkedIn for Dissertation Questionnaire

Inbox x

Robert Begley <xxxxxxxxx@gmail.com> Mar 27

to chair, bcc: Rob

Dear Sir,

My name is Rob Begley and as a current IRMS member I am writing to you to seek some assistance with regards to posting a questionnaire via the IRMS LinkedIn group so as to help me with my University dissertation. I am also seeking your endorsement so as to encourage greater participation.

I am currently studying as a long distance student in Northumbria University for my Master's Degree in Information and Records Management. My chosen topic for my dissertation is entitled:

> '*Information & Records Management and Blockchain Technology: Understanding its potential and application in Britain today*'

The aim of my research is to establish whether information and records professionals in Britain are accepting of, and using, this new Blockchain technology. As well as identifying current and potential uses of Blockchain technology, my research aims to understand people's experience who use this technology and what can we learn from this to promote the wider application of Blockchain Technology.

My chosen methodology is to use a quantitative method of data collection using a questionnaire aimed at information professionals. Whilst there are a selection of dissemination methods available to me, I view the IRMS (and its members) as being representative of information professionals in Britain and therefore as the ideal sample to solicit to gauge their behaviours and opinions.

As briefly noted above, my request for assistance to you is twofold: May I have permission to post my questionnaire on the IRMS LinkedIn group? With your approval, I expect to post it in April 2017. Also, quite importantly, may I request your endorsement for this questionnaire? I can send it to you directly for approval prior to posting it. I can also include you in the pilot if that helps? With your

support I believe that more people will respond to the questionnaire. As a way of thanks, perhaps I could do a small feature in a future IRMS *Bulletin* magazine explaining the results of my research?

Should you have any questions and/or concerns please contact me via this email address or by phone – 07970703388, and we could discuss matters further.

I look forward to hearing from you.

Kind regards

Rob Begley

IRMS Chair **<chair@irms.org.uk>** Apr 3

to IRMS, me

Hi Rob,

Thanks for your email below. I have spoken with the Executive and we are happy to promote this amongst members. We do however have some feedback for you which I hope you'll find useful.

- We find there isn't much interaction on the LinkedIn group. So you can post to that but we also recommend the jiscmail list as well as a reference in our all membership newsletter.
- We also recommend that where possible the responses are anonymous, or where you need contact details for people they 'opt in' to providing their contact information and for you to contact them.
- We recommend not using survey monkey. As the service is US based quite a few members point out the issues with sending their Personal Data to the US. If you can find a decent EU based system, that would get you more brownie points with your target market.

We are very interested by your survey so if you find anything (or indeed if you don't) we would be interested to see what you have learnt.

I've copied in Joe Chapman who is our Communications Officer. When you are ready to get going drop Joe a note and we can see how to proceed.

If there is anything further you need feel free to get in touch.

All the best,

Scott Sammons *CIPP/E, AMIRMS*

IRMS Chair

Web | Twitter | LinkedIn

Robert Begley **<xxxxxxxxx@gmail.com>** Apr 4

to IRMS, IRMS, bcc: Rob

Good morning Scott and Joe,

Thank you so much for your response and for offering to help me - it is very much appreciated.

Whilst I have my questions drafted, I plan to actually create and pilot the questionnaire later this week. Once I have received the relevant feedback, and make changes accordingly, I will post it. I will contact Joe first. If I use this communications address above is there an expected response time? Please let me know if you would like to be included in the pilot too?

As for the feedback that you offered, let me address each one in turn:

- I plan to use both the IRMS LinkedIn group and the JISCMail list but thank you for flagging your concerns.
- The questionnaire will be completely anonymous with no contact details required.
- My chosen questionnaire host is Bristol Online Surveys which is produced and run by the University of Bristol, and so is EU/UK based.

OK, many thanks again.

Regards

Rob