



INSOL International

The Role of Artificial Intelligence (AI) and Technology in Global Bankruptcy and Restructuring Practices

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Acknowledgement

As the so-called “Fourth Industrial Revolution” gains pace, the emerging technological breakthroughs, including AI, are directly and indirectly impacting on almost every business and commercial activity globally.

Currently, AI is a buzzword and there is a trend / curiosity to explore what this means and better understand how artificial intelligence can be used positively within industries. The insolvency and restructuring practices are no exception and practitioners are keen to learn and keep abreast with these new technological developments.

INSOL International carried out a member survey with a view to producing a report on the role of AI, in relation to both global bankruptcy and restructuring practices. This was done to determine the extent such technology is currently being used and to gain insight as to what the future will look like with AI playing a major role. The survey included 32 in-depth questions and the results contained in this report are quite varied and interesting.

INSOL would like to sincerely thank Christian Toms and Jane Colston of Brown Rudnick LLP, UK for leading this project which took over a year to complete due to the extensive work that was carried out to formulate the survey and thereafter produce this excellent report. We appreciate their hard work and continued interest throughout this period.

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The Role of Artificial Intelligence (AI) and Technology in Global Bankruptcy and Restructuring Practices

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1. Introduction and background

The topic of technology / artificial intelligence (AI) and its potential use has actively been on people's lips for a number of years now and it shows little sign of diminishing in either relevance or importance.

The developments in computing and technology-aided processes are set to continue to grow exponentially. Little if any aspect of legal, commercial and business life is therefore likely to pass unscathed, with restructuring and insolvency practices impacted right alongside them. As the so-called 'Fourth Industrial Revolution' gains pace there are already exciting things afoot, with more just on the horizon and beyond. The question is just how far the insolvency world has already embraced such matters and is it currently best positioned to surf each new wave of advancement as they break?

Based on the responses to a hot topic survey INSOL International carried out, AI came in right at number one, demonstrating that Insolvency Practitioners (IPs) were already keenly aware of its potential importance and relevance to their profession. Accordingly, a follow-up piece of research was undertaken by INSOL to explore the extent and depth of members' awareness and views on the role of AI - current and prospective - in global bankruptcy and restructuring practices. This was done by way of an online survey circulated to all INSOL members, canvassing views on certain matters under the following broad heads:



- The developing impact of technology on a business
- Use of technology in insolvency practice
- Contentious matters and court process
- Legislation / regulation

This paper considers the results of this survey and in so doing will seek to identify common themes, as well as providing a wider context to the developing use of AI and its potential impact on IP's and global bankruptcy and restructurings.

2. So what is AI – really?

AI is not a new concept, or even a product of the 21st Century; the terminology and underlying scientific discipline is now over sixty years old. In reality the term "AI" is often misused, being deployed as a catch-all term when seeking to discuss advancing computer intelligence and the systems that continue to be developed to exploit such advances.

* The views expressed in this report are the views of the authors and not of INSOL International, London.



At its core, AI is what makes it possible for computers and other advanced systems to use experience to learn and to apply such learning to familiar as well as new scenarios they are presented with - ultimately in the long run enabling them to undertake human-like tasks often to a higher standard of accuracy than a human typically would be able to manage; at least on a consistent and timely basis. Without AI it would be impractical for data sets of 10m, 20m, and 50 million plus documents to be reviewed and analysed to find the documents relevant to the matter in hand. The Serious Fraud Office of England and Wales was recently reported to say that this size of data set was usual in all cases they now manage and they have already been very open as to how AI tools (specifically the RAVN-created document review system) were instrumental in their high-profile investigation of Rolls Royce.

AI may use some or all of Machine Learning, Deep Learning and Natural Language Processing (NLP). Machine Learning focuses on the ability of computers to access data and to learn from it, in turn enabling AI systems to move beyond reliance on specifically pre-programmed instructions and / or parameters. Deep Learning is then a more developed and complex form of Machine Learning that seeks to imitate the approach taken by our brains when reviewing, processing, collating and linking data for later use. Finally, NLP concerns the development of systems able to comprehend human language as humans do; including being able to deal with inferences and the true meaning that a sentence may be seeking to convey, versus the literal meaning of the words being used. Utilising all of these concepts, the real selling point of AI systems is that they are constantly learning by doing.

AI

AI is often subdivided into two main types: Narrow AI and Strong AI.

Strong AI is what most people would regard as true "artificial intelligence", that is, a machine's ability to comprehend and reason as a human would, applying judgements across a wide range of decisions or tasks, based on what it has learned not what it may specifically have been trained (or programmed) to do.



Narrow AI is presently more common and familiar to us, being the systems and software designed to perform single or consecutive tasks repeatedly, and in so doing to learn the most efficient and effective way to complete such tasks.

NLP

in our offices / homes

The current most recognisable, albeit still relatively rudimentary utilisation of NLP can be found in the forms of Google's Home Assistant, Apple's Siri and Amazon's Alexa. These all take spoken commands and translate them into a specific operation, drawing on databases of information and/or music, as well as triggering basic online searches to deliver results by way of response.

3. The developing impact of technology on a business

In 1874 the first commercial typewriters revolutionised professional correspondence. A similar revolution then came around a century or so later with the first commercially available personal computer. Then only a couple of decades after that, we saw the birth of the Internet, websites and our old friend e-mail. The pace of technological change continues to increase, with new technologies emerging (and some being rendered obsolete) in increasingly shorter timescales.



The Internet has been a key game-changer, creating the ability to communicate and to share thoughts and work products across vast distances in no time at all. The advent of cloud computing has in turn enabled businesses to quickly and easily access essential infrastructure required for them to develop and to grow to their full potential much sooner. Similarly, e-commerce has helped grow multi-billion dollar concerns like eBay and Amazon and new forms of decentralised finance have emerged in the form of cryptocurrencies such as Bitcoin, Litecoin (and others) that have the potential to revolutionise payments and create a new web economy.

Unsurprisingly, many such developments appear increasingly set to become key features of today's business and therefore likely to feature in any subsequent insolvencies and restructurings. These are accordingly issues which IPs are going to have to get to grips with. Below we discuss some of these current issues.

3.1 Cloud computing

The use of cloud storage services appears to be relatively widespread and growing, as over half the IPs who responded to the INSOL survey indicated that they either “often” or “almost

Cloud Computing?

Rather than utilising the traditional model of a local server or a personal computer, utilising the cloud is the practice of relying upon a network of (often third party) servers, remotely hosted via the Internet (that is, off-site).



This provide the ability to store, manage, and process data, as well as to have remote access to the latest computer programmes (e.g. Microsoft office) and other administrative functions, software and / or hardware typically utilised by a business or service provider, including in respect of its back-office and related functions. Gmail, OneDrive and Dropbox are all examples of cloud computing services/storage solutions that can be accessed from anywhere, at any time, and from a variety of devices (PC, Mac and handheld).

always” encountered some element of cloud storage, with around another 30% confirming they at least “sometimes” encountered such matters. On the other hand, only about a quarter of responders indicated that they regularly encountered cloud-based processing (whether as part of a business's client-facing product or internal back-office function). Indeed, almost two-fifths collectively confirmed they hardly ever, or never, came across such usage of the cloud.

Where IPs did encounter such cloud usage, around 43% of those who responded to the INSOL survey said this brought additional issues for them. Key concerns included:

- data integrity and security;
 - the risk of deletions and corruption of files, particularly where the proper software to read the files was unavailable;
 - the difficulties inherent in seeking to secure and access a virtual server, including having to handle demands for payments of service arrears to ensure ongoing access;
 - who might lawfully have access and passwords to the cloud service, whether the insolvent entity or in reality another party; and
- thorny jurisdictional issues that might arise depending on where the internet connected servers hosting the cloud might be physically located.



Nevertheless, over 80% of the IPs surveyed agreed that in their view cloud usage and related issues were set increasingly to become a feature of insolvencies. Perhaps unsurprisingly, this appears to be driven by the fact that the use of the cloud is becoming more common among businesses as they have an increased need for storage space and processing power and they recognise that expensive servers, on-site software and bulky hardware requiring maintenance and regular replacement, are part of the old model. The reduction in up-front costs in turn offers greater flexibility and frees up resources to be invested in an improved customer experience.

While the use of cloud-based services might risk causing headaches for some IPs, it was also recognised as potentially presenting some advantages, particularly from a practice point of view. As insolvency cases often require a large accumulation of information, the fact that large and complex data sets being more easily available and accessible for analysis in the cloud was identified as likely to be of assistance. A key consideration, though, is always to be sufficiently knowledgeable and familiar with the options to know where data can be stored (for example, Alexa recordings in the cloud and / or information and records on the Blockchain) and to collect in that data quickly. Once this material is available, AI tools can then be used to cluster and review in order to get to key information more quickly, allowing decisions to be taken (for example, as to the direction of travel or who to sue).

When asked if anything might need to change / develop in order to assist IPs and the broader industry to tackle Cloud-based matters / issues, around 77% of responders were collectively of the view that either “some” or “a great deal” of change was required. Specific comments identified the following key themes: -

- greater training and understanding on the broader technology, including the ability and best practice to secure digital assets;
- greater collaboration between the professional sectors to better understand the changes occurring in professional services, financial services and business due to digital disruption;
- legislation to prevent the ability to ransom information for non-payment and / or to specifically require co-operation with external administrators to recover data;
- more efficient and immediate access allowed to IPs for online customer accounts in order to reduce red tape and facilitate access to key records;
- modification of orders and cross-border recognition where cloud data is in a different jurisdiction; and
- more tech savvy judges to assist IPs seeking to gain urgent disclosure of / access to material stored in weird and wonderful places.

3.2 Blockchain / smart contracts

Blockchain is in essence a distributed database or ledger that is used to maintain a continuously growing list of records / entries of specific transactions or similar (blocks). It has grown out of the creation of cryptocurrencies such as Bitcoin, but given its versatility and relatively secure encryption (making it difficult to hack) “blockchain” technology has been recognised to have potentially far wider application.

So what is the Blockchain?

- A public and online ledger that records and updates records of transactions in real time. Art, diamonds, land, intangible assets (for example cryptocurrencies such as Bitcoin) and other financial instruments.
- There is no central administration.
- The ledger (or multiple copies of it) are stored on many record keepers' (miners) computers.
- It is a secure and permanent record of all transactions ever made on the blockchain.



A straightforward way of visualising the concept is first to imagine a list of transactions that is copied and then stored on multiple separate and unrelated computers (or nodes), all connected to the Internet. This ensures that numerous copies of the correct version of the records exist. Second, imagine now that this network of computers is utilised regularly



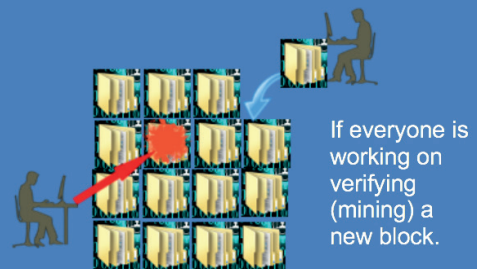
to check / validate previous entries in the list of transactions and then to update the record with any new entries. This is in essence how the blockchain works. Each new transaction entry or “block” created contains a timestamp and is linked to a previous block. This protects against tampering because to cheat the blockchain it would require every single block and network participant to take part.

Accordingly, it is said a blockchain can serve as an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way. The ledger itself can also be programmed to trigger transactions automatically – hence the concept of self-executing, smart contracts which would be self-executing upon certain conditions being met, with the terms of the agreement between buyer and seller being directly written into lines of computer code. Currently, finance and property transfers / transactions would appear to represent the most obvious spheres for the practical application for blockchain technology, a key attraction being potentially to cut out the middleman’s fees in certain types of transactions. For example, in 2016 Goldman Sachs expressed the view that blockchain technology may hold the key to streamlining the clearing and settlement of cash securities, saving capital markets USD 2 billion in the US and USD 6 billion globally on an annual basis.

In practice, however, it appears that such concepts still remain in their relative infancy as far as their widespread adoption by businesses is concerned. Therefore, the frequency with which IPs are being faced with such matters remains relatively low. Of the IPs surveyed, only 10% admitted to having come across smart contracts and / or blockchain in the preceding year or so and, even then, only “sometimes”. Conversely, around 64% stated they had “never” come across them and around a quarter said they “hardly ever” did. Of those who did have experience, it was found to have been mostly related to retail and the automotive industries.

As to IPs awareness and understanding of blockchain / smart contracts, this was similarly weighted as per the responses on practical experience of such matters in the field, that is, only an aggregate of 6% responded to the effect that they had either a comprehensive or practical / working understanding of such matters. On the other hand, 34% responded that they had no awareness or understanding at all, and around 27% only had a basic understanding. On the upside, a good proportion of responders (around 33%) cited a “developing” understanding, no doubt a product of IPs seeking to get to grips with the complexities and practical implications for this technology.

Why you can't easily cheat the blockchain



In order for someone to alter a prior block they'd have to alter that one AND all of the subsequent blocks up to the new block – and do so BEFORE the new block was mined / finished. That would take A LOT of computing power and time.



Perhaps unsurprisingly then, when asked whether such technology threw up any particular issues in insolvency matters, of those responders able to express a view around 60% believed that it did and that a lot of issues might arise in the future. Similarly, when asked if it was anticipated that such technology would become an increasing feature of insolvencies, only around 2% said no versus 48% who responded positively. The balance of opinion was then split between the 26% who were not sure, and the 24% who believed such matters were still a long way off.

While it appears that a good proportion of IPs are at least broadly cognisant of the developments in this area and a number may be proactively seeking to educate themselves, what remains abundantly clear is the extent of the information and understanding gap that presently exists around blockchain and related concepts. Of course, while the uptake of blockchain amongst businesses is still growing, this is unlikely to present any real issues for IPs but as and when a business determines more fully to embrace such technology, IP's will need to ensure they stay at least on the curve if they cannot get ahead of it.

3.3 Cryptocurrencies

Cryptocurrencies are a form of alternative, digital currency. They utilise decentralised control and ledgers distributed and secured via blockchain technology, as opposed to



a centralised digital currency and / or reliance on traditional central banking systems. Bitcoin is widely recognised to be the first decentralised cryptocurrency, having been launched in 2009. Since then, over 4,000 alternative variants of cryptocurrency have been created, including Litecoin, Ripple and Ethereum. Part of this growth is being funded by businesses in the crypto sector that are engaging in initial coin offerings (ICO). These are a means of raising funds for a new cryptocurrency venture by selling a percentage of the new cryptocurrency (usually in the form of “tokens”) to early backers of the project.

However, as with blockchain technology, it would appear that there is still a way to go before we see cryptocurrencies playing a key role in the operations of businesses and therefore appearing as a substantial asset in insolvencies and restructurings. In fact, of those IPs surveyed only around 7% had had to deal with cryptocurrencies or related issues in the preceding year or so. Again, just as with blockchain, the level of awareness and understanding of the use of cryptocurrencies remains relatively low, with only an aggregate of around 5% responding to the effect that they had either a comprehensive or practical / working understanding of such matters. Around 32% responded that they had no awareness or understanding at all and around 35% only had a basic understanding. 28% of responders did admit to a “developing” understanding.

When asked whether crypto technology threw up any particular issues in insolvency matters, of those responders able to express a view around 75% believed that they did.

Why does this all matter?

- Understand the growth and value of what is a wholly new asset class.
- Relevant to asset tracing / enforcement of judgments.
- By 2140 there will be 21 million Bitcoins and likely billions of £/\$/€ in this and other forms of cryptocurrencies.



Key concerns included:

- a need for a much greater understanding of the technology on the part of the judiciary;
- the lack of transparency in accounting as to the book balance and value of the cryptoassets of a business;
- issues surrounding the practical seizure and control of cryptoassets;
- the volatility of cryptoassets and the impact of any decision to sell or hold;
- issues of applicable governing law and jurisdiction of assets; and
- issues arising from the insolvency of an issuer of cryptocurrencies and / or related exchanges.

When asked if it was anticipated that such matters would become an increasing feature of insolvencies, a majority of around 72% responded in the affirmative, with another 12.5% not necessarily disagreeing but instead taking the view that the role of such matters was still a long way off. Additionally, an aggregate in excess of 80% agreed that at least some change was required, if not a great deal was needed to be done in order to assist IPs to become more adept at tackling issues arising in respect of crypto and other digital assets.

While it was highlighted that cryptocurrencies were still some way off being a familiar part of the business environment IPs had to operate in, nevertheless the responses also identified the need:

- for greater education and training around the issues;
- for a real effort to demystify and to deconstruct any complicated techno language; and
- to address issues around jurisdiction which might arise, depending on where assets were deemed to be located.

How might you chase/trace crypto assets?

- Freezing / disclosure orders from local courts to compel disclosure of (i) details of crypto assets; (ii) bank statements to investigate purchases; (iii) records of use of software / crypto exchanges to convert currency etc.
- Search orders – enables imaging and forensic analysis of seized data and hardware; analysis of crypto wallets/software being used.
- Analysis by blockchain specialist investigators.

3.4 Cybercrime

Cybercrime, hacking, and ransomware are just three terms that regularly appear in media reports about online disasters befalling businesses. By way of example, 2017 saw the high profile Petya attack on DLA Piper, while the WannaCry ransomware attack infected more than 300,000 computers across around 150 countries, bringing the British National Health Service to a grinding halt and significantly impacting the international shipper, FedEx.

However, it is not only large and global enterprises being targeted, international criminal gangs are just as interested in using online opportunities to target small and medium-sized businesses; unfortunately, cybercrime can pay very well. According to a 2018 report by the Centre for Strategic and International Studies and the antivirus software company McAfee, “cybercrime may now cost the world almost USD 600 billion, or 0.8% of global GDP.”

When surveyed as to whether they had come across businesses impacted by cybercrime in the past year or so, only around a third of responders to the INSOL survey indicated that they had never had such experiences.



As to whether they or their clients had been specific targets of cyber-attacks / hacking efforts, unfortunately almost 40% of responders said that they had, including:

- trojan software / spyware;
- daily phishing attempts (email and phone);
- potential foreign state hacks; and
- daily suspicious / spam emails.

As to IPs' own preparedness to defend against cybercrime issues, of those who responded to the inquiry of whether they personally had a cybercrime / risk policy in place, it is perhaps of some concern that over a third said that they did not. Even of those that did, a proportion only had client - or issue-specific policies rather than a general policy in place. That said, in terms of efforts focused on improving their preparedness:

- around 46% of responders specifically identified reliance on robust IT services;
- 13% cited training as a key focus, often coupled with robust IT;
- a small percentage identified email updates;
- none specifically identified newsletters or "secret shopper" type tests; and
- around 34% cited they utilised most or all of the above strategies.

As to how often such areas of cyber risk were internally brought to IPs and their staff's attention, only around 4% said never, with another 7% saying it rarely was. At the other end of the spectrum, however, around 70% of responders said such matters were either brought to their attention daily, regularly or often.

Unfortunately, though, the bottom line is that no matter how sophisticated your security precautions may be, you can never assume your systems are completely safe from outside attack or interference. There is also always the human element to be managed. It is therefore crucial always to ensure systems and software are as up to date as may be feasible, your IT team keep their eyes firmly on the ball and that all staff are trained in the risks of, and regularly made aware of their vulnerability to, their use of e-mail and the Internet.

4. Technology and insolvency / restructuring practice

Only around 14% of responders to the INSOL survey disagreed that the use of technology was either already a key part, or was likely soon to become, an integral part of their service-offering in the future. It therefore does not appear to be the case that IPs are in any way lacking in awareness of the issues presented by the increasing adoption of business-orientated technology and the growing role and likely importance of such in their own practices. That said, where does technology actually fit in?

Key examples of Cybercrime

- **Business email compromise (BEC / Spoofing)** - the cyber criminals use an email account closely resembling that of a key executive to request an employee to authorise a money transfer to the cyber criminals' account.
- **Phishing** - an email attaches a harmful file, or a link to a harmful file. When you open the file or click the link, the virus / trojan is activated.
- **Ransomware** - viral infection of system which encrypts / threatens to delete files and demands a Bitcoin ransom to unlock.
- **Data leaks** - accidental (or deliberate) leak of sensitive data capitalised on by criminals.
- **Website Hack** - targeted attack on website.
- **DDoS** - denial of service attack whereby your internet/website is deliberately crashed.
- **Outdated software** - External hack / access to system via outdated software i.e. not updated.
- **State sponsorship** - Hackers targeting key infrastructure.



4.1 Data analysis and analytics

With so much progress being made in the use and uses of information technology in businesses, IPs now find themselves in an era of so-called “big data”. This means an increasing amount of electronic data is being produced and stored every day; the current statistic is that around 2.5 quintillion bytes of data come into existence per day, but this is at the current pace which of course continues to increase. This data comprises both structured data (for example, accounting, payroll and other organised transaction data); unstructured data (including things such as e-mail, voice mail, and e-documents); and what has been termed by some as non-traditional data, covering things such as online feeds from social media and news services, including services such as Bloomberg. As a consequence, AI and big data analysis tools are increasingly being argued as essential in order to make any sense of the large amounts of available information. For example:

- when investigating complex and large insolvencies;
- when there exists limited time and resources to establish the workings of a business in order to determine the most appropriate next steps;
- in a turnaround scenario where analysis and data analytics can be applied to raw, system-generated information to speed up the identification of issues and assist in identifying key drivers of performance to inform the most effective strategies to impact business performance;
- when tracing assets; and
- when considering potential litigation and scans are conducted of key data sets in order to identify trends, anomalies and potential individuals and time periods of specific interest.

In such scenarios, the utilisation of some form of technology-aided review (TAR) is employed in order to enhance the conduct of any review of the company’s books and records. The technology is able from the outset to cluster documents by concepts so that humans can more quickly and easily begin reviewing key subject areas and concepts, hopefully finding what they need before time or money runs out.

As a secondary stage, some TAR systems can be made actively to learn from the human reviewers as to what is relevant and what is not. This learning can then intermittently be applied by the system to the remainder of the data still to be considered, through a process of “predictive coding”, to serve up more relevant material for review at an earlier stage than a more linear human review process otherwise might have enabled.

However, it would appear that the use of such technology is far from widespread amongst IPs. Only around 35% of responders to the INSOL survey confirmed they had made use of any such tools in the past year or so and of that sub-group only around 28% of them had made use of the more sophisticated predictive coding capabilities of their TAR system.

Technology Aided Review (TAR)

- TAR 1.0 – Systems identify common themes and concepts across vast numbers of documents – systems cluster like documents together for review.
- Early Case Analysis tools let you interrogate and visualise communications / data flow, aiding identification of key persons and time periods.
- TAR 2.0 - users review a ‘seed set’ of documents and train system to understand what is relevant and what is not – system then can ‘predictively code’ material.
- TAR 3.0 - no seed set required; ongoing learning. As human reviewer identifies relevant material, system learns and helps to prioritise unseen material for a speedier, more focused review.



This slower uptake of TAR and related tools is perhaps partially explicable in light of the present overall assessment of IPs of the utility and necessity of such tools; only around 15% of responders presently regarded such technology as essential, with a similar number merely of the view it had proven to be useful. Interestingly, cost may be a factor in IPs' determinations, as only 4% of those surveyed deemed such tools to be value for money. Of other discouraging factors identified, the following were the most cited:

- unfamiliarity over capabilities of TAR;
- cases not being large enough to warrant the use and / or cost of deploying TAR; and
- TAR not commonly being utilised in the IPs' respective jurisdictions.

While IPs are far from being alone in such views, in reality the usage and uptake of TAR is fast developing across various sectors and already can be fairly cost-effectively deployed to deal with both relatively "low" amounts of data as well as for very large data sets. In either scenario the argument, accepted already by a number of courts to date, is that significant time and cost savings can be made versus a traditional "human only" review model.

IPs and lawyers slow to use TAR

Confusion / Concerns:

- Lots of technical as well as inconsistent and interchangeable jargon.
- Tech not as advanced as you may think.
- Cost.
- Practical utility to individual cases.
- Might key material be missed by system.

Need to be interested / aware:

- Know and understand what you are buying and its abilities.
- Know and understand the proper nexus between human reviewers and TAR system.
- What you need to agree with other, adverse parties to ensure a robust exercise.
- How to defend own use and to challenge opponents' use of TAR in more adversarial scenarios.
- Ability to explain to a Court what you need, why, and how you will be doing it.

Example of parameters for effective TAR use

Suggested Minimum Dataset	Nature of documents	Minimum sample for initial seed set review (TAR 2.0)	Set-up time	Cost (est.)	Documents reviewed (per day)
50,000 documents	Language based data including foreign languages	1600 - 2000	1-2 weeks	3.1m docs GBP182k - GBP469k 500k docs GBP132k - GBP250k	(1) Keyword, human manual review = c. 500 docs (2) TAR = 600k docs

Further, while parties' own usage of TAR systems is in and of itself spreading and becoming more commonplace, a growing number of courts in certain jurisdictions have also expressly approved the use of such technology. Judges too appear to recognise its potential benefits, particularly in terms of time and money, given the explosion in available data that may need to be reviewed for any number of purposes (for example, fraud / regulatory investigations, search orders, litigation etc.).



Jurisdictions where professionals' use of TAR growing / already established

Australia Court Approval: Practice Direction of 2017 TAR use can be compelled.	Cayman Islands	England & Wales Court Approval: Pyrrho Investments v MWB Property & Ors [2016] EWHC 256 (Ch) - Parties agreed Brown v BCA Trading [2016] EWHC 1464 (Ch) – Court imposed January 2018 - High Court pilot scheme (disclosure) launch promoting use of TAR	Ireland Court Approval: Irish Bank Resolution Corporation & Ors. v Quinn & Ors. [2015] IEHC 174
Jersey	Lithuania	Singapore	US Court Approval: Da Silva Moore v Publicis Groupe, 287 F.R.D. 182, 193 (S.D.N.Y. 2012). Court imposed: Show cause why not, but not compelled parties

5. The future / conclusions

Looking to the immediate term, only around 32% of survey responders took the view either that they still saw no reason why they would utilise review technology, or that they expected their usage of such technology to decline over the next couple of years. The overwhelming expectation of responders was that usage of technology was only likely to grow. Indeed, a recent survey amongst the City of London law firms stated that nearly 70% of them were already using AI systems for client work, or were piloting it to use and such trends are likely to be reflected across other professional sectors.

This is far from surprising given the exploding growth of AI and TAR systems and the various cases to which such technology is being found to apply. For example, the ability / possibility of:

- more quickly and easily identifying key information, evidence and themes;
- more accurately build a picture of and to scrutinise directors' behaviour in the pre-insolvency stage;
- creating evidence-based key performance measures that might assist to provide advance warning signs on external administrations;
- systems that can advise IPs what forms might be required to be lodged when they are due to be filed and confirm compliance obligations have been met during any external administration; and
- an analysis of firms' and liquidators' performance in terms of the number and nature of matters they have handled, the average length of time, the costs incurred and the level of realisations / returns.



It has been said that humans are terrible at predicting the future, but the obvious attraction of using large scale data processing solutions means that there seems little doubt they will be increasingly applied to IPs' investigations across a huge spectrum of matters, in particular the forensic collection of data and documents and their review for key information. Moreover, as technology breaks into new space and fraudsters and other wrongdoers invariably seek to exploit these new technologies, being able to unpick the threads will be a necessity.

Overall, however, it would appear that while progress may be gathering apace, change will be more of an augmentation proposition and not necessarily a widespread adoption of automation of assessment. In other words, the technology is still quite some distance from being able to replace humans, for example by producing judicial decisions and precedent by algorithm, or to be able to deliver a more granular review of documents which goes beyond merely identifying what documents appear similar, but rather looking for responsive constructs across other documents and data sets which in themselves may look entirely different.

The growing use and impact of technology in and around our practices therefore seems inevitable and this will present an obvious issue for any professionals who may remain reluctant to learn new tricks, likely putting them at a disadvantage with clients, their opponents and the courts. Of course, for those who want to stay on the cutting edge and who understand the need for close partnerships with other tech-savvy professionals such as lawyers and accountants, they will ensure their whole team stays abreast of the latest industry developments, and understand how and what technology (including AI) can be effectively deployed in order to continue to deliver cutting edge, value for money services to their clients and end users. Fortunately, it appears that many IPs already recognise the difference between each camp and are actively working to educate themselves in order to integrate such matters into their practices.

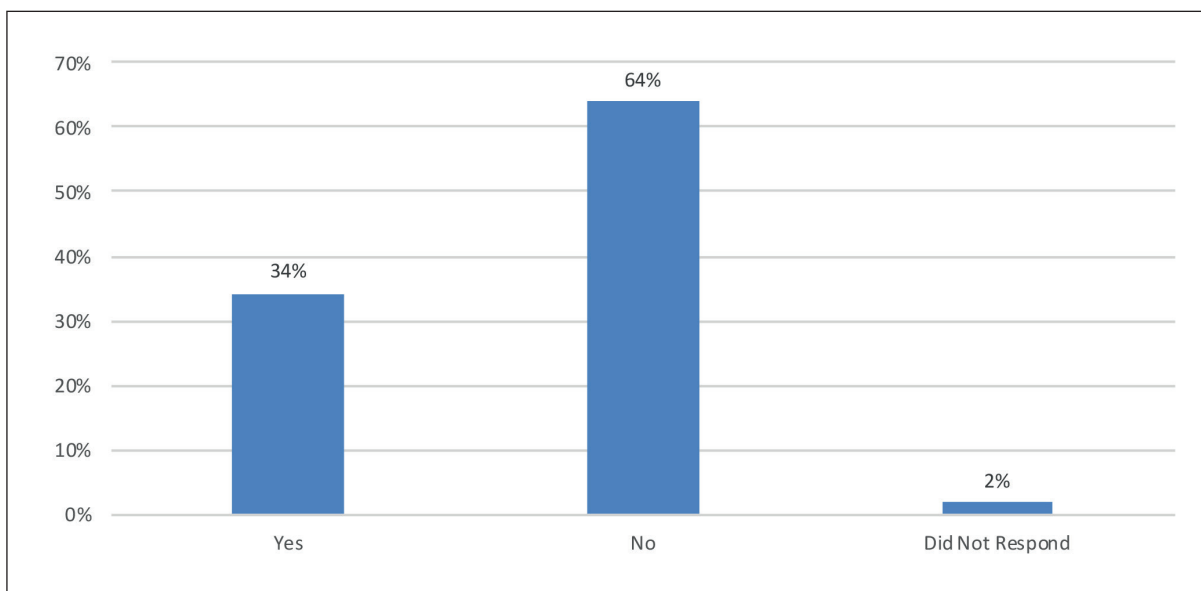
ANNEXURE

Artificial Intelligence Survey Results

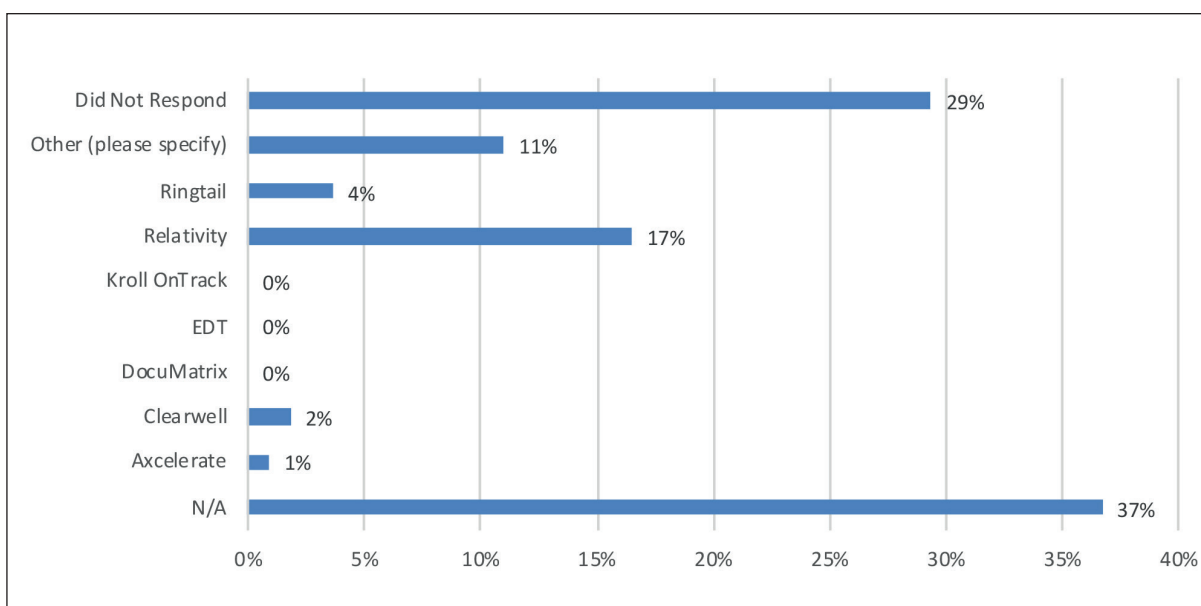


Artificial Intelligence Survey Results

1. In the past 12 - 24 months have you made use of any technology assisted review products / services e.g. in connection with the analysis of documents and / or the forensic review of information?

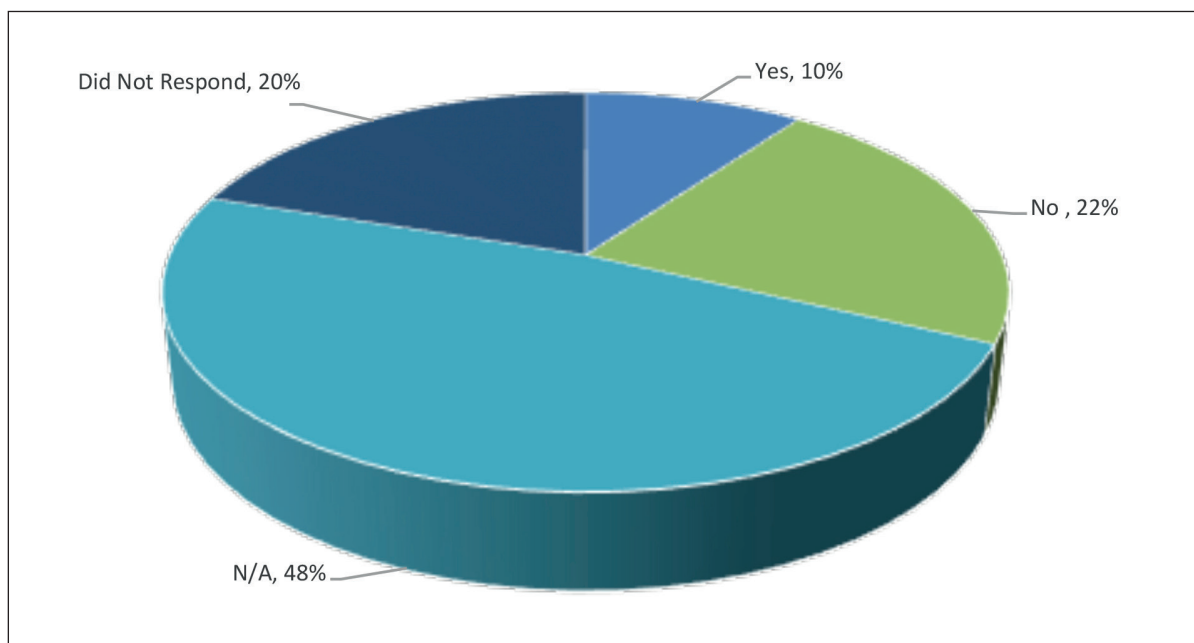


2. If Yes, which services / suppliers have you used?





3. If Yes, did your review / investigation also use any element of Artificial Intelligence i.e. the coding of initial 'seed set' batches of documents in order to train an algorithm to review the remainder of the document population?

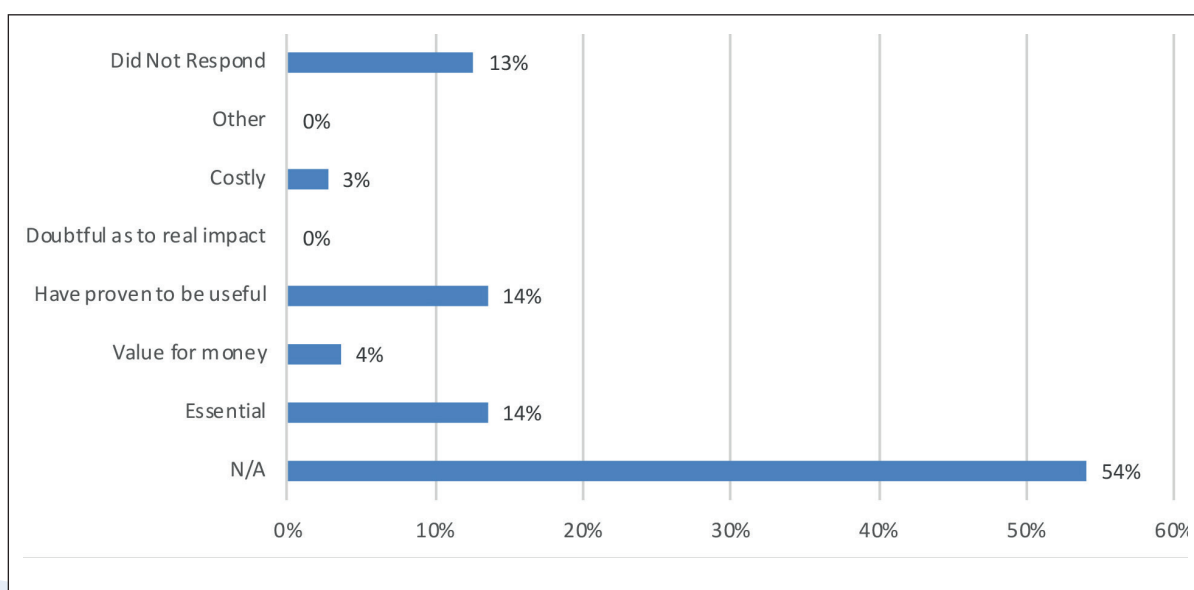


4. In the event you do have experience of seed sets and training algorithms for document review - In respect of one or two representative examples please provide approximations of:

- (i) the total document population;
- (ii) the approximate set up time for the IT solution; and
- (iii) the number and population of the seed sets used to train the IT system.

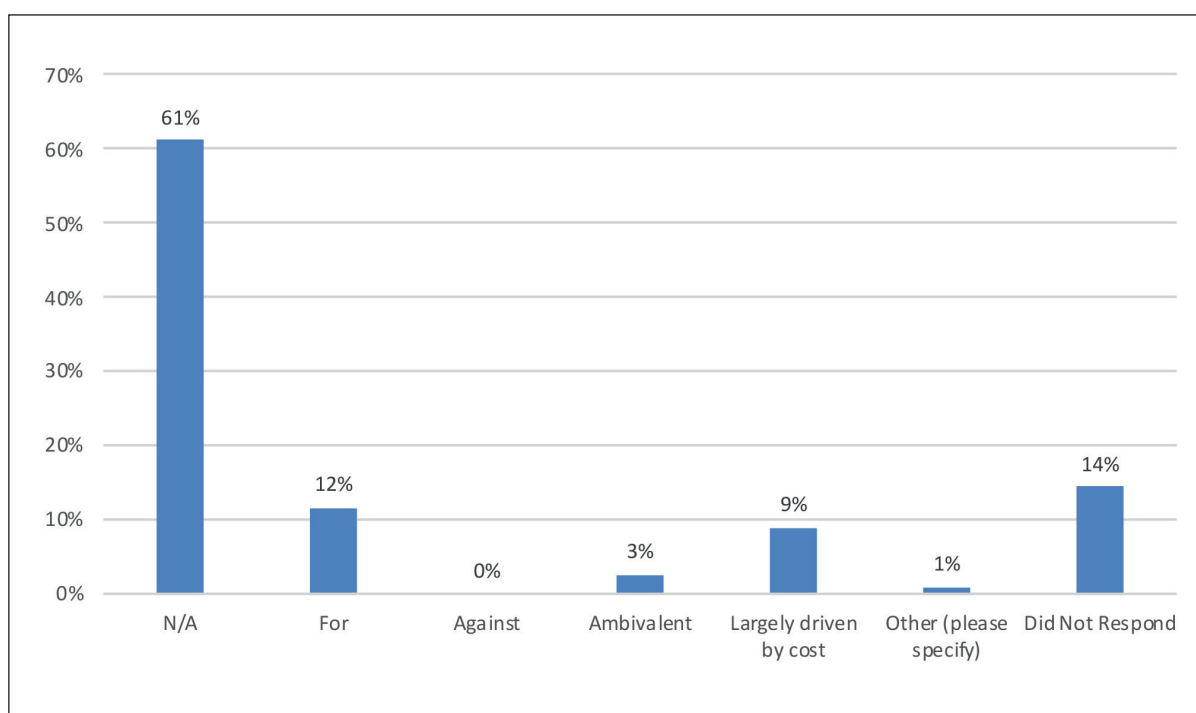
Due to the open-ended nature of this question a graph is not available.

5. How would you assess such products and services?

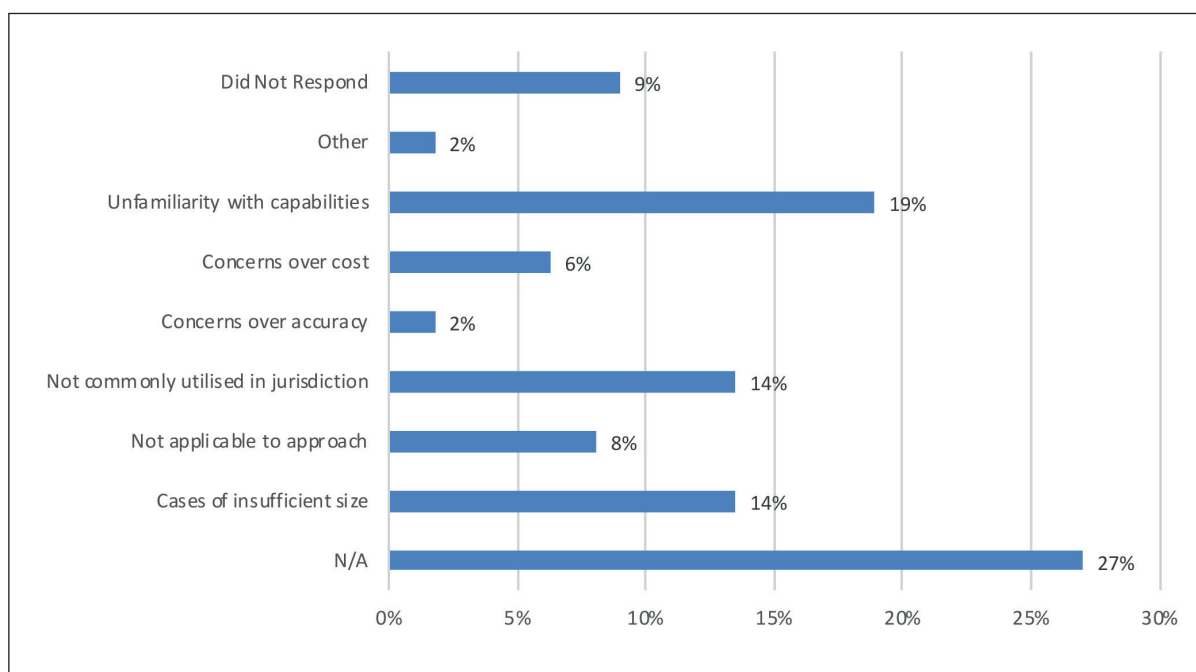




6. If relevant, what has client reaction been to the use of such services?



7. What would be your top 3 tips in respect of the use of TAR and / or Artificial Intelligence driven TAR?

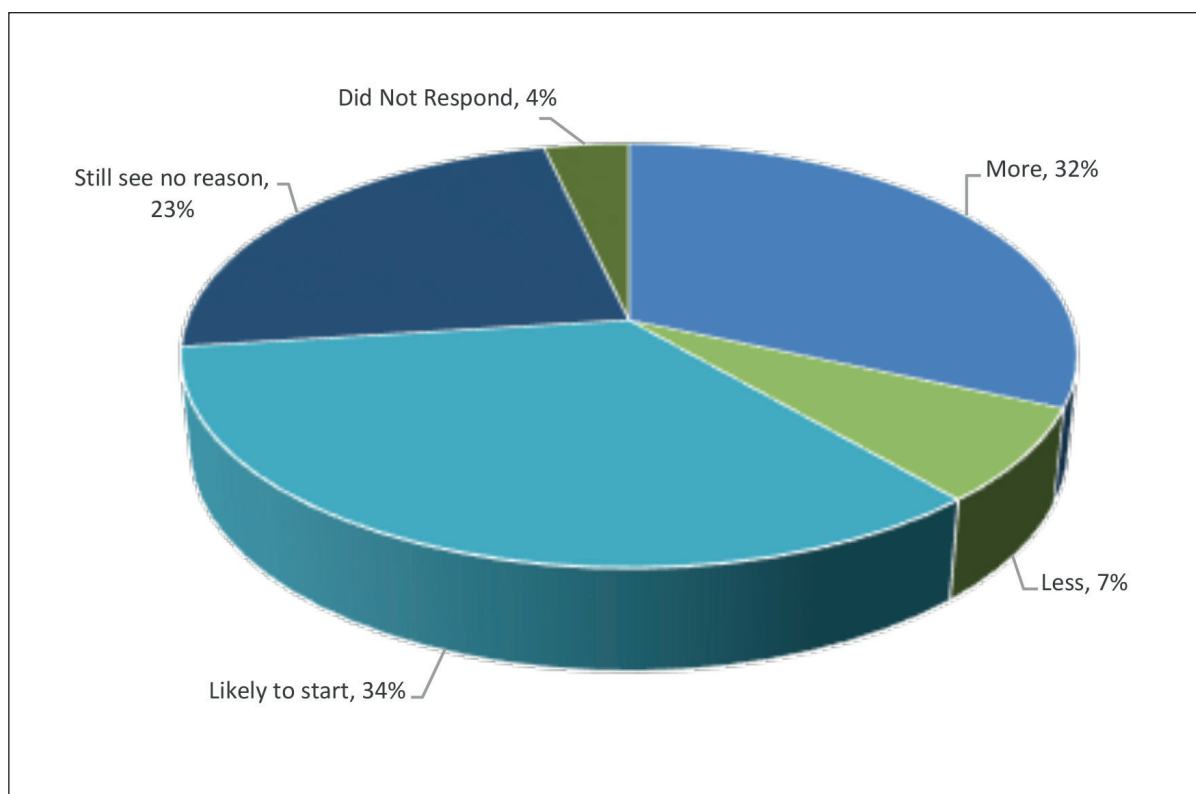


8. If No, i.e. you have not utilised such products / services, what is your dominant reason?

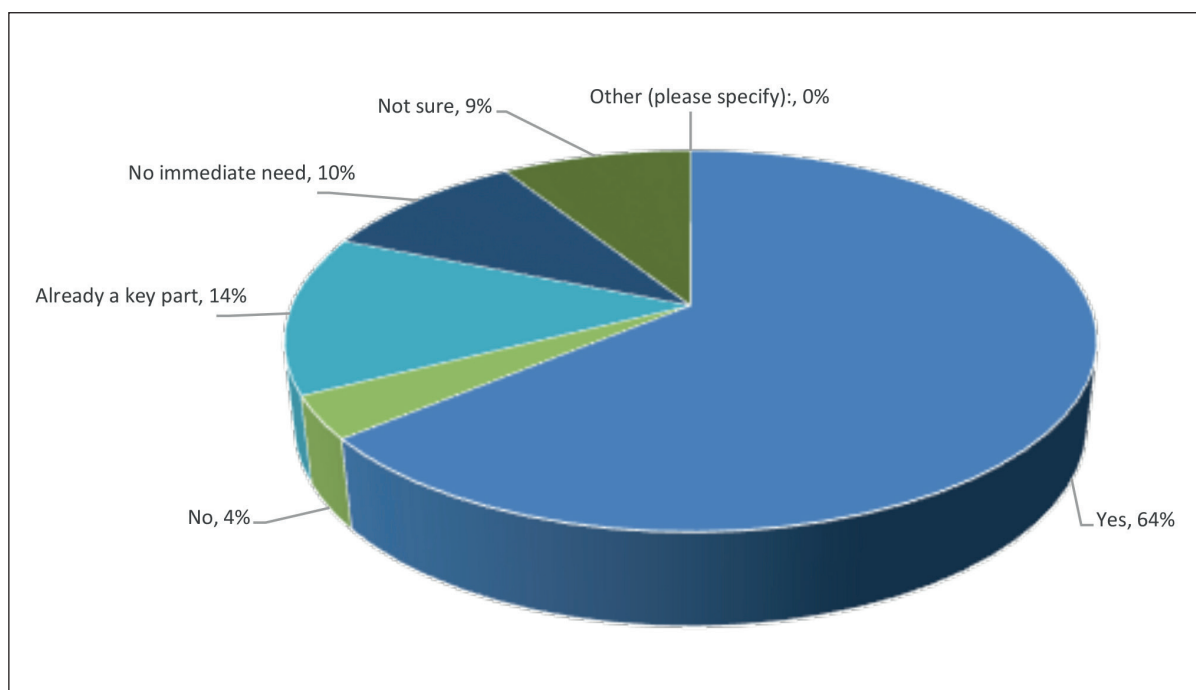
Due to the open-ended nature of this question a graph is not available.



9. Do you expect to utilise such products / services more or less over the next 12 - 24 months?

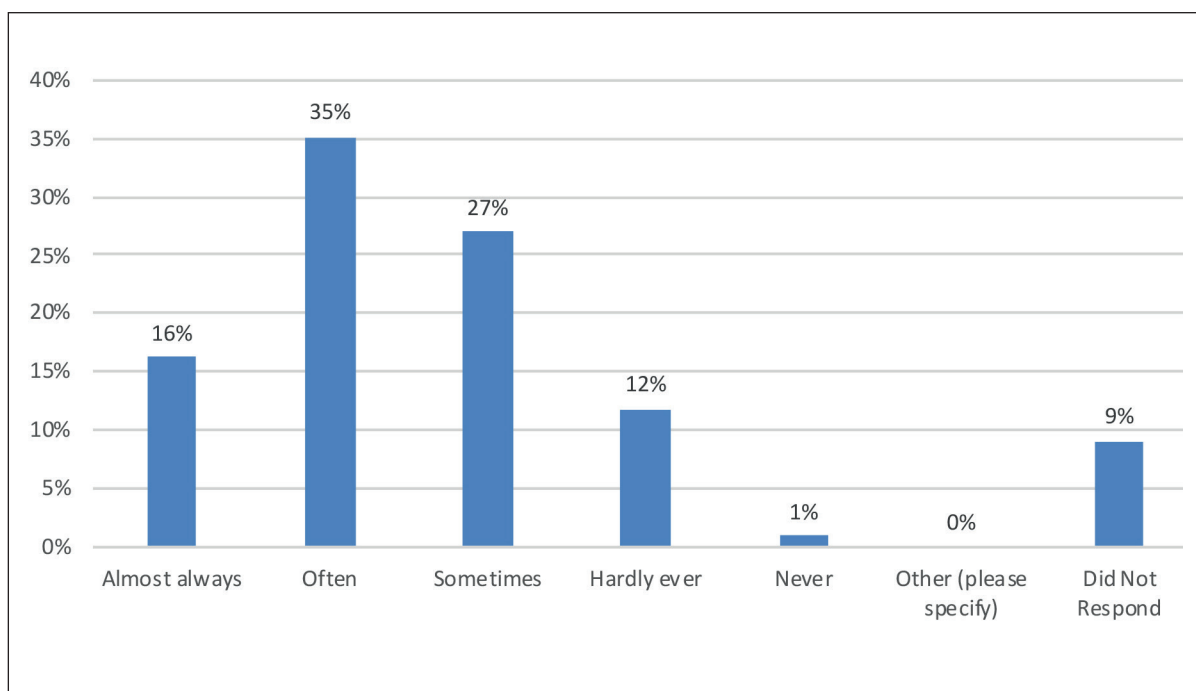


10. Do you see the use of technology becoming an integral part of your service offering in the future?

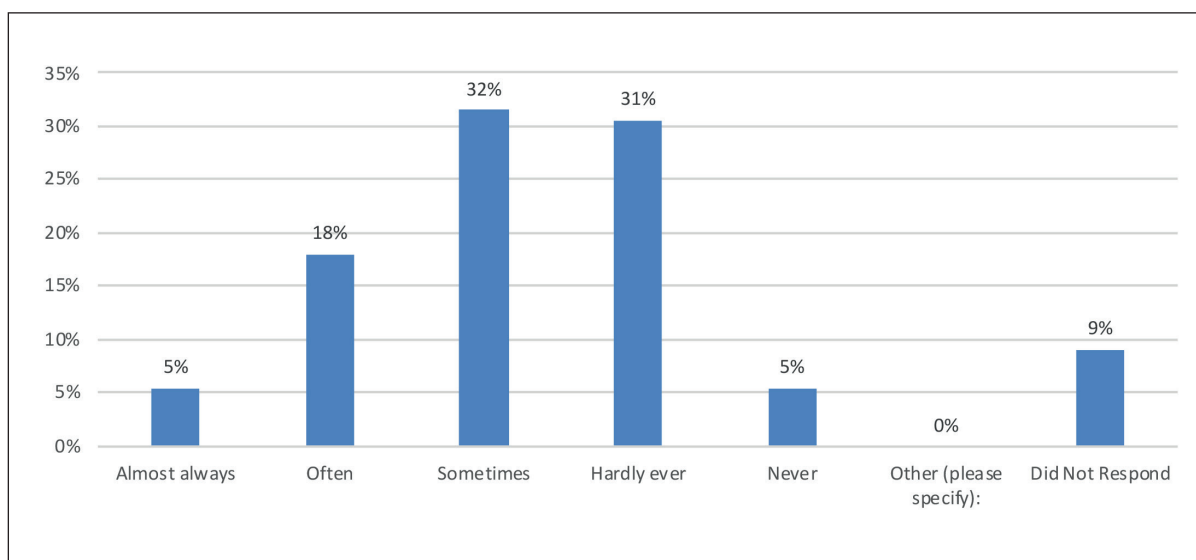




11. How often do you come across cloud storage of data and correspondence (whether client or other parties)?

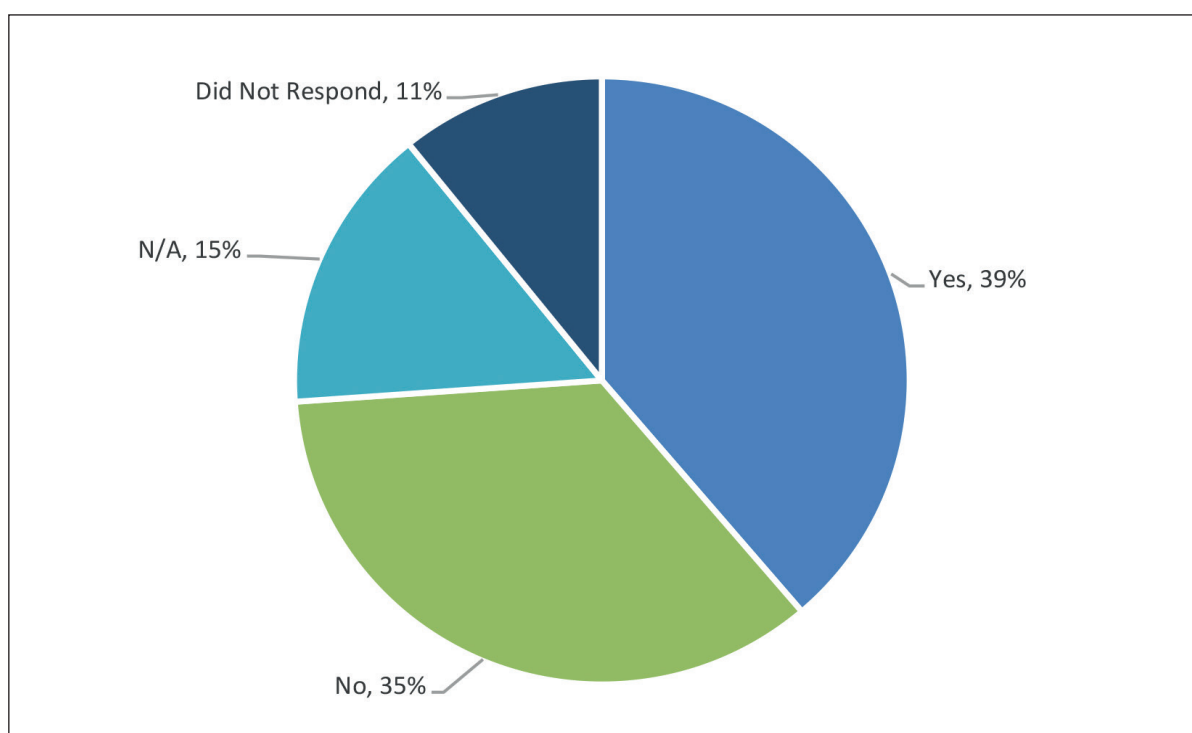


12. How often do you come across cloud processing – whether as part of a business' client facing product or internal administration / back office function?

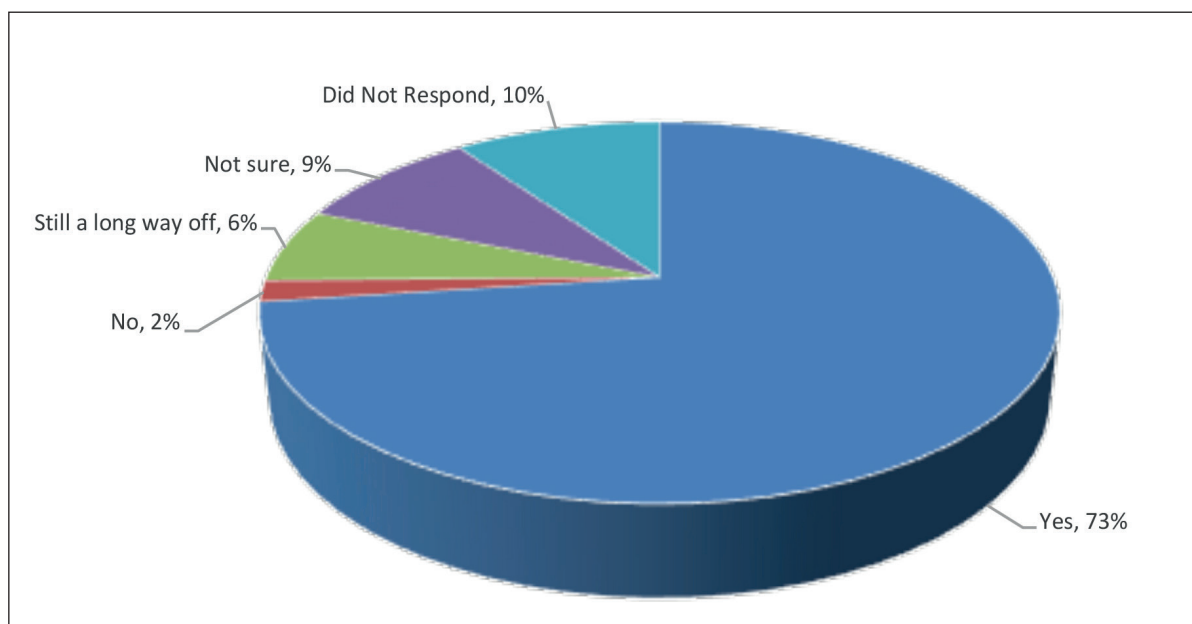




13. Where the Cloud is in use, does this create / has this created additional issues for you?

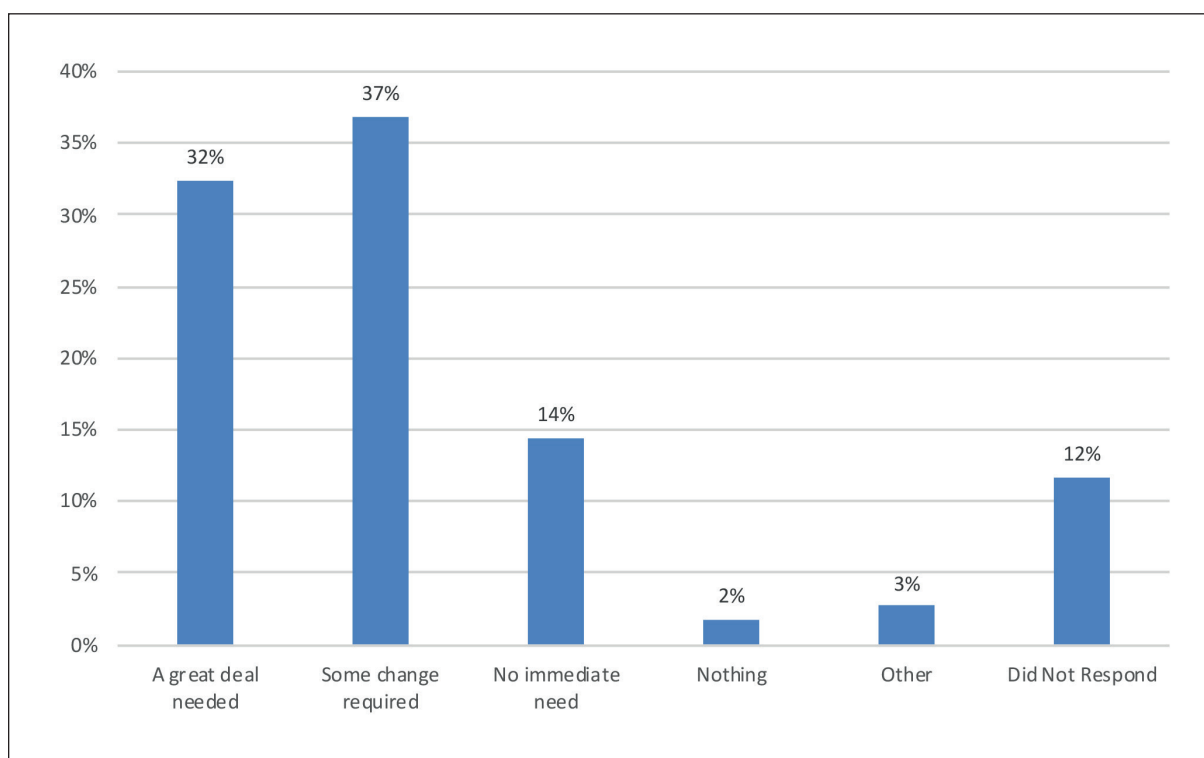


14. Do you anticipate Cloud usage and related issues will increasingly become a feature of insolvencies?

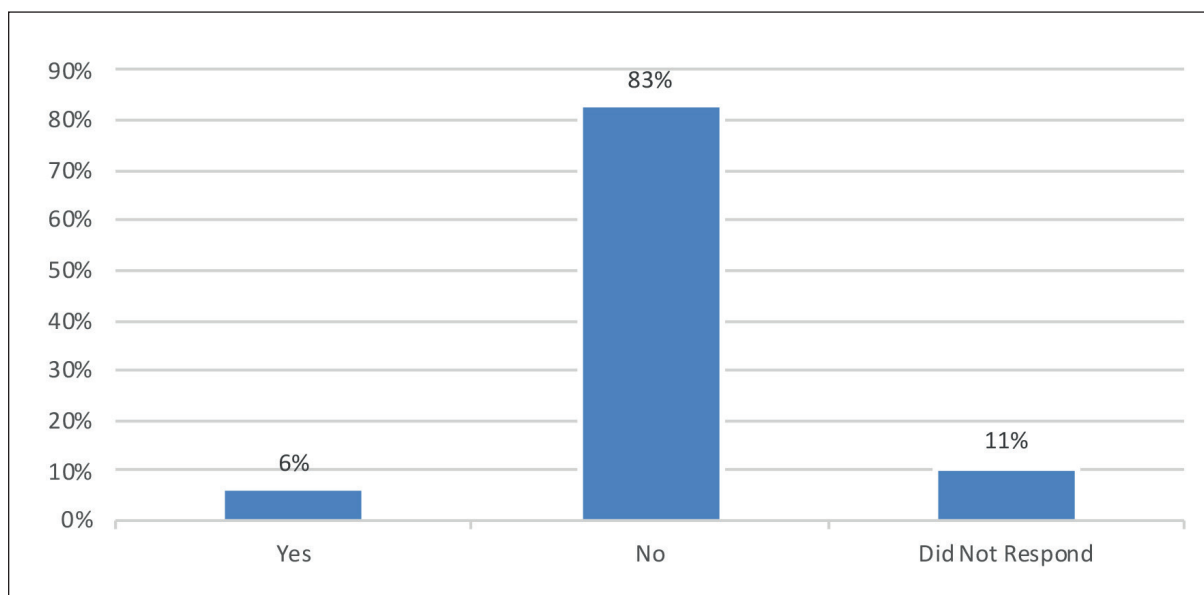




15. What, if anything, do you think may need to change / develop in order to assist IPs and the broader industry to tackle Cloud based matters / issues?

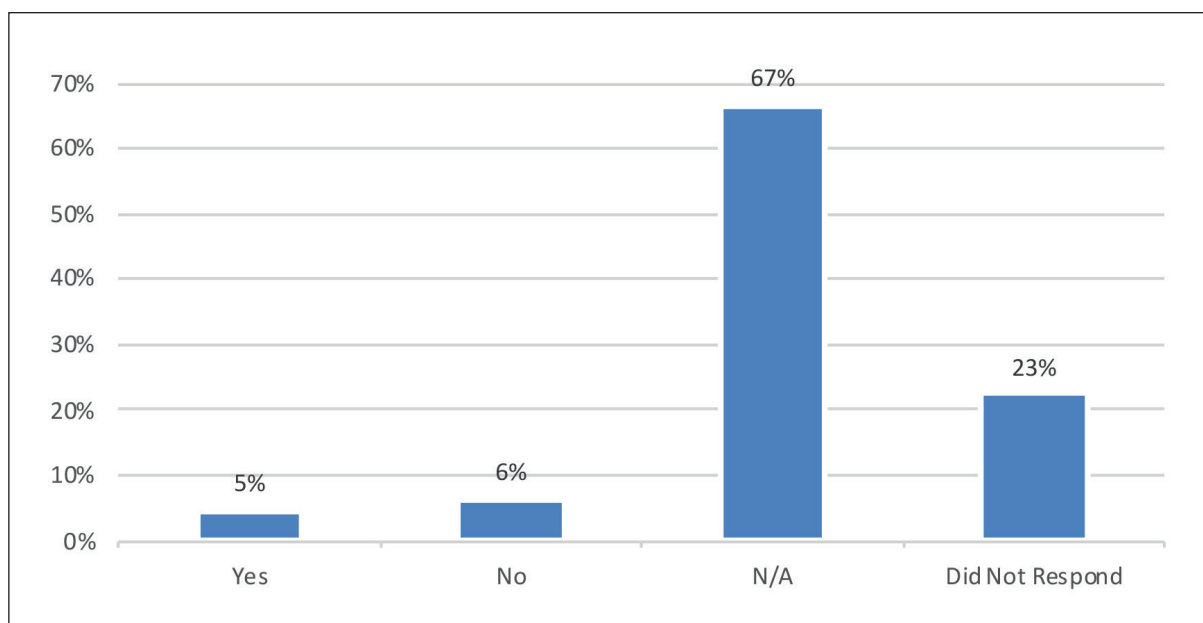


16. In the past 12 - 24 months have you dealt with any matters that featured elements of robotics / artificial intelligence at the heart of a business?

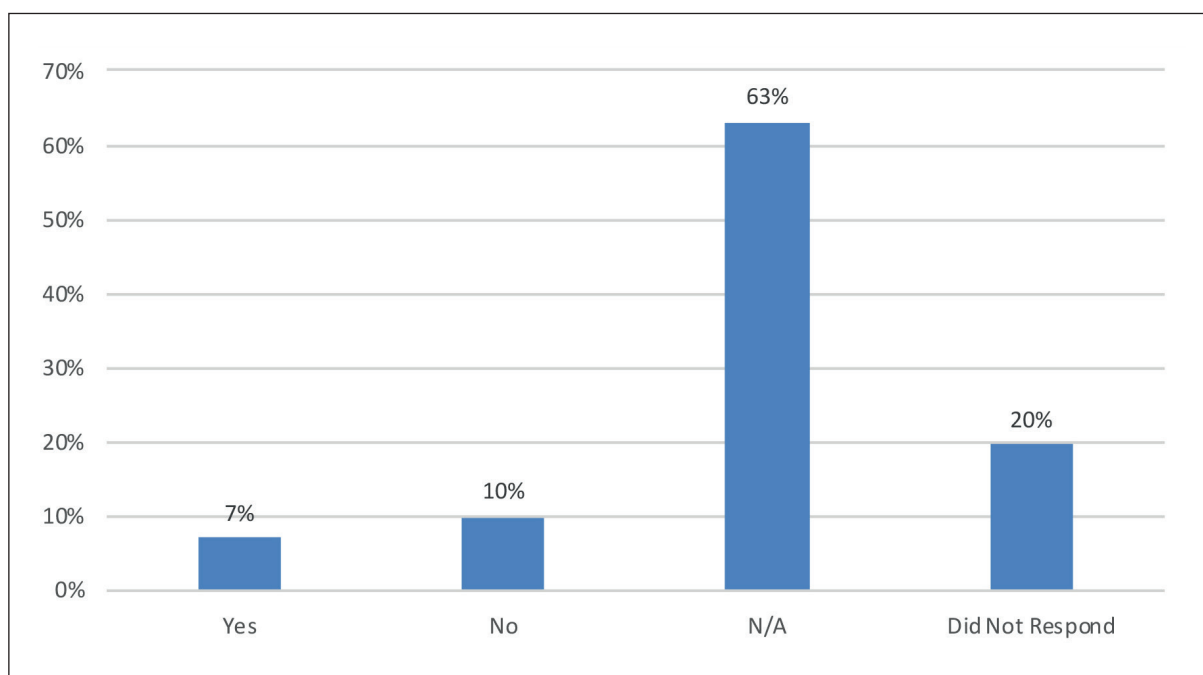




17. If yes, did the use of robotics / AI mean your approach to employment / staffing related issues was any different?

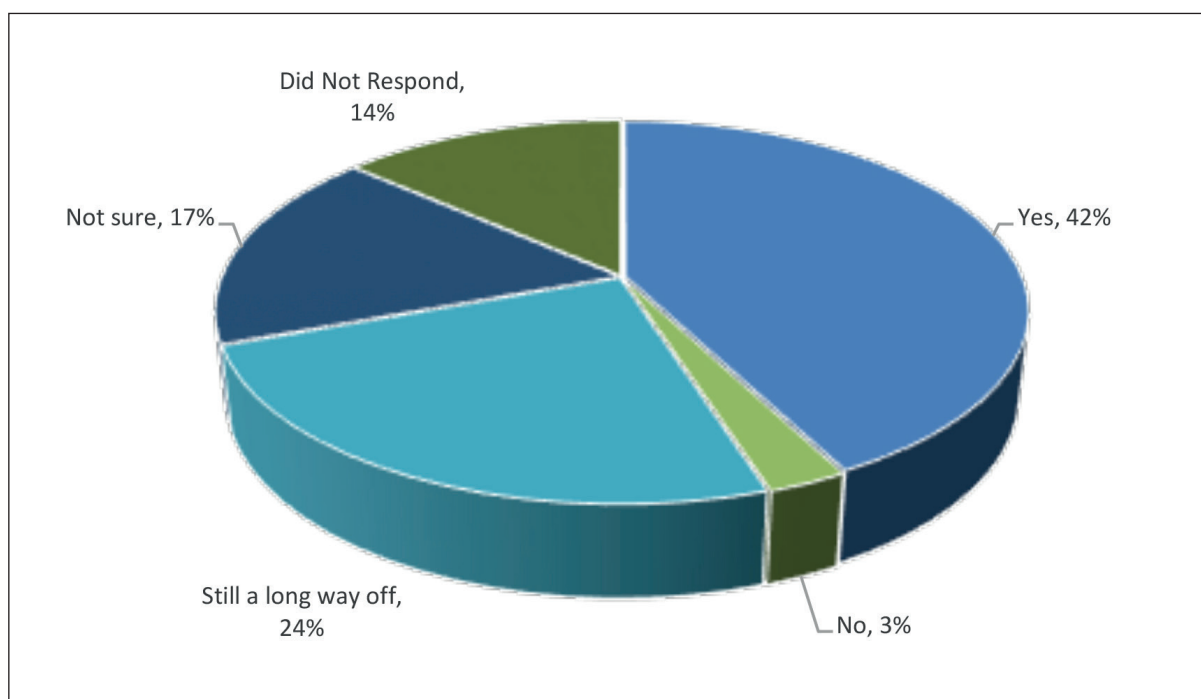


18. Did the use of robotics / AI in a business throw up any particular issues for insolvencies, novel or otherwise?

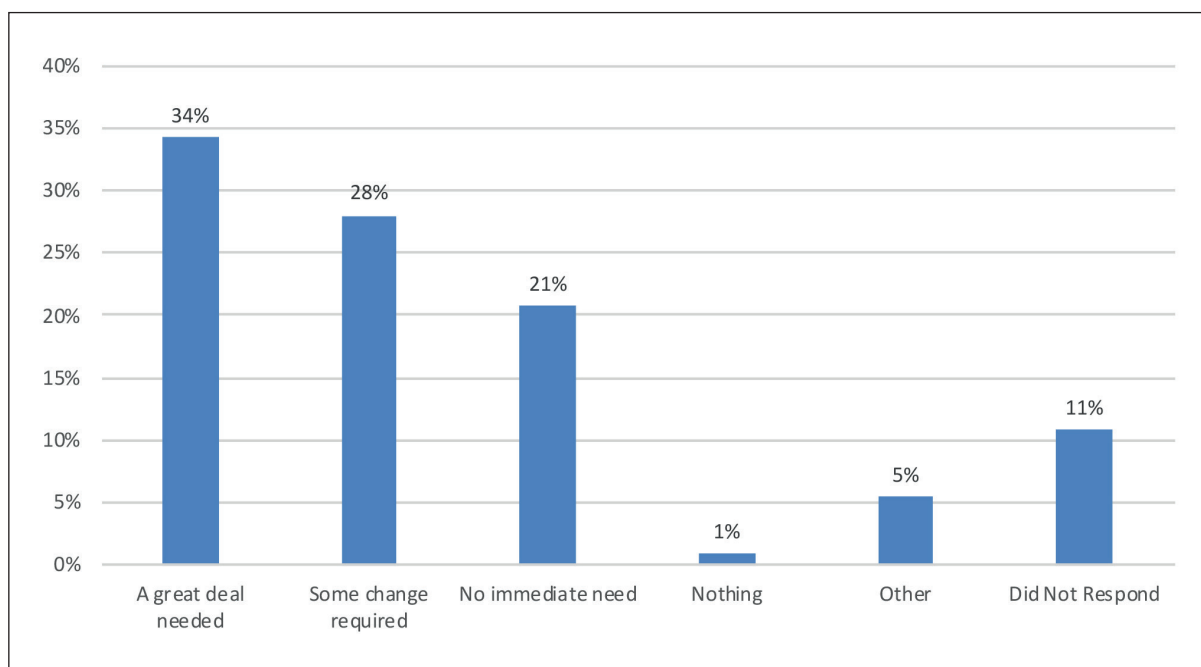




19. Do you anticipate robotics / AI related issues will increasingly become a feature of insolvencies?

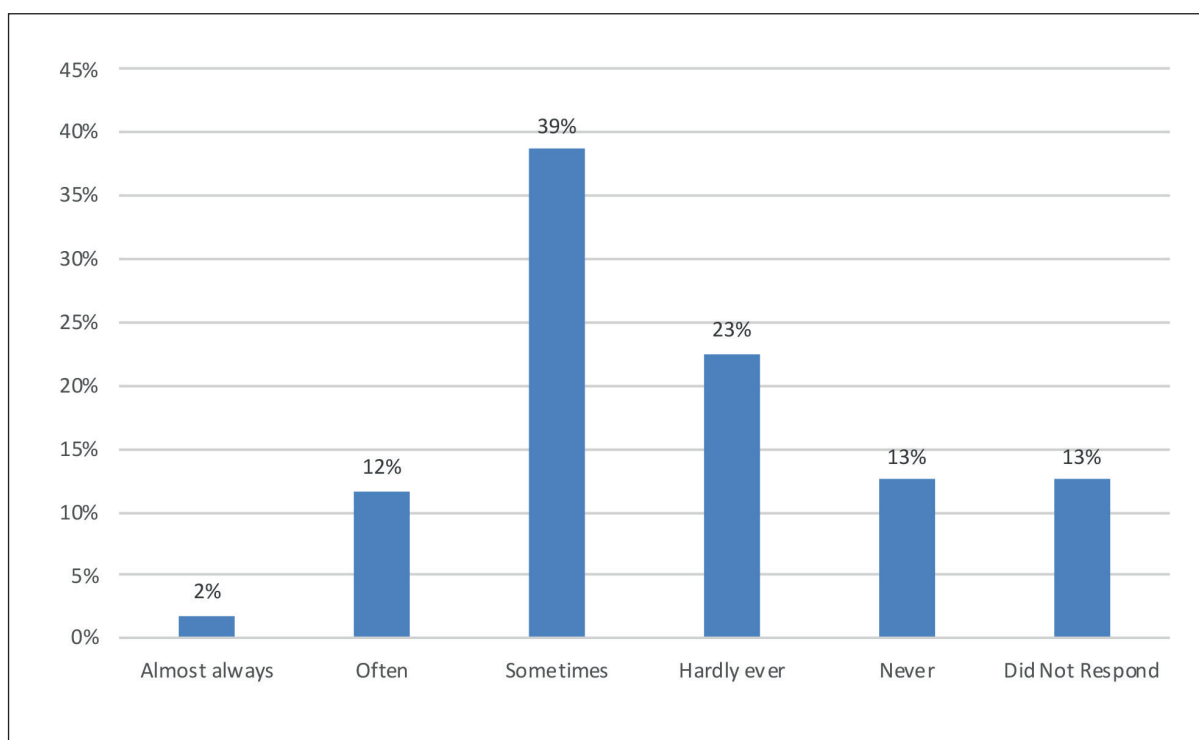


20. What, if anything, do you think may need to change / develop in order to assist IPs and the broader industry to tackle robotics / AI related issues?

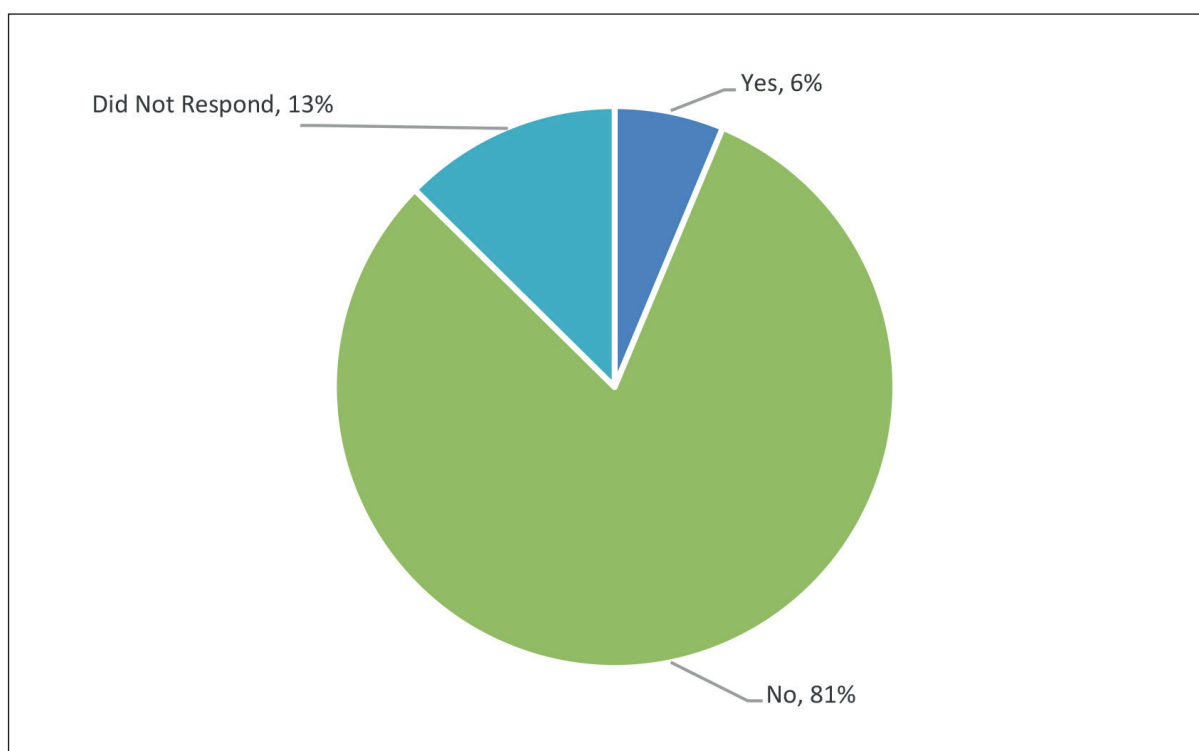




21. In the past 12 – 24 months to what extent have you come across situations where all, or a majority of relevant assets are digital (whether cash or IP rights)?

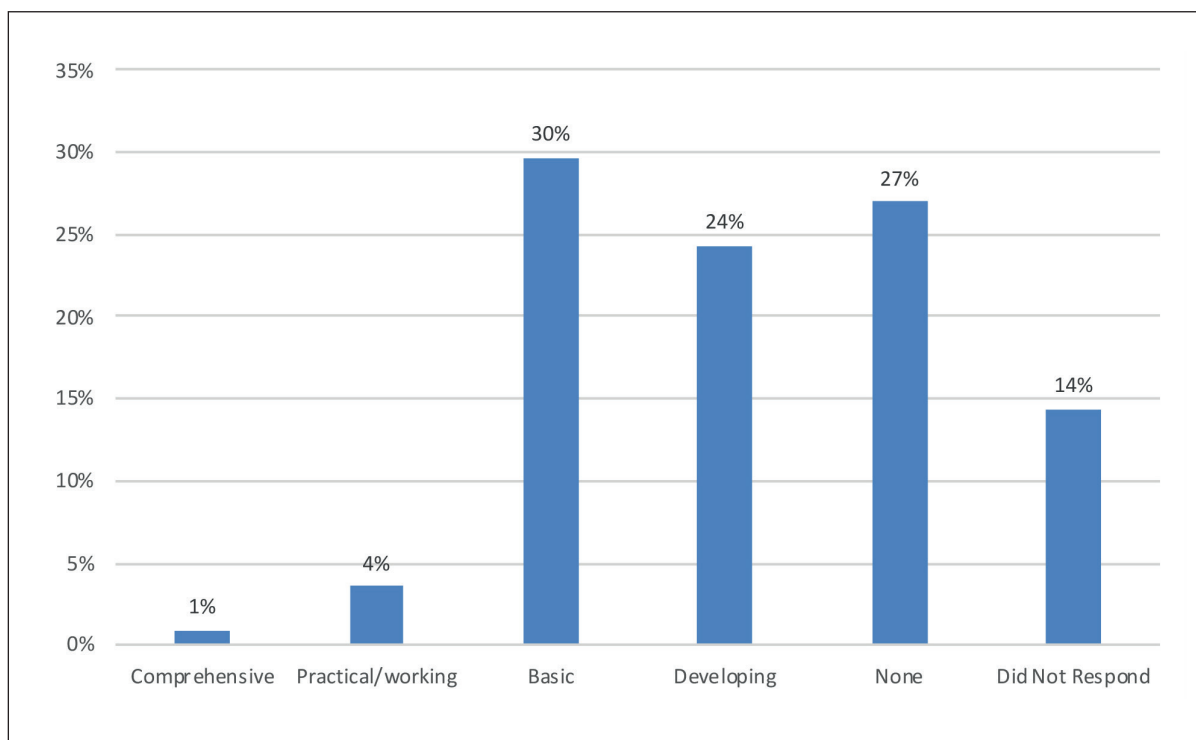


22. In the past 12 - 24 months have you had to deal with any matters featuring crypto currencies?





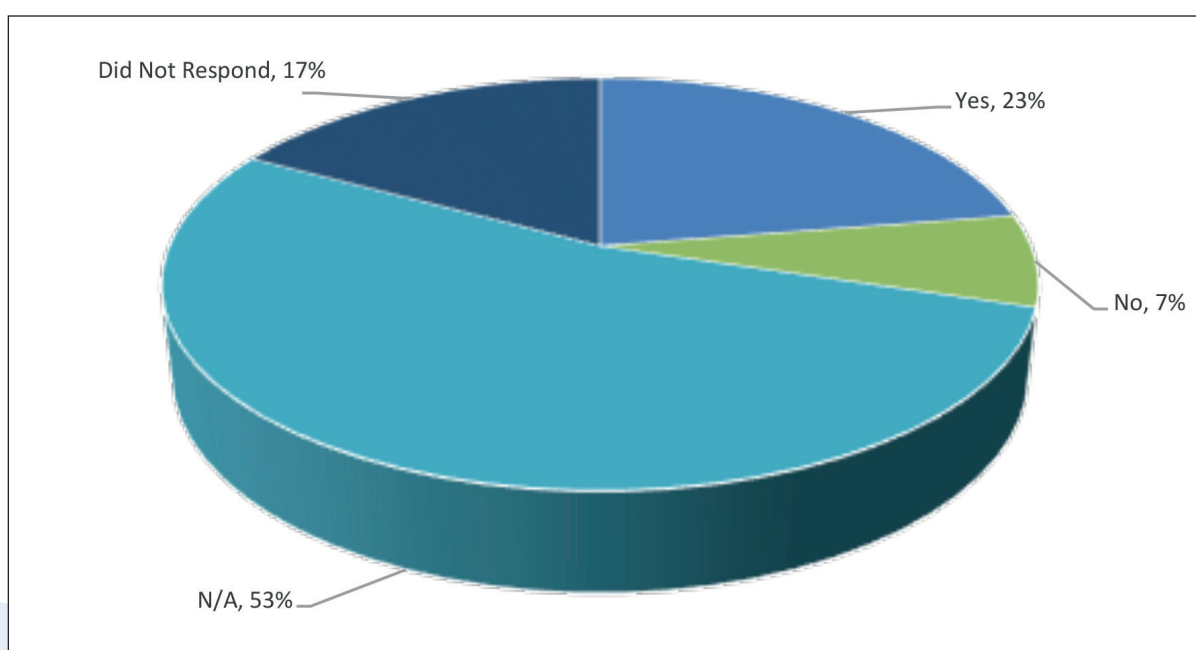
23. What is the level of awareness and understanding within your practice of the use of crypto currencies e.g. Bitcoin, Ethereum, Ripple etc.?



24. Where you have encountered such matters what, if any, differences were there in comparison with matters with more tangible asset bases?

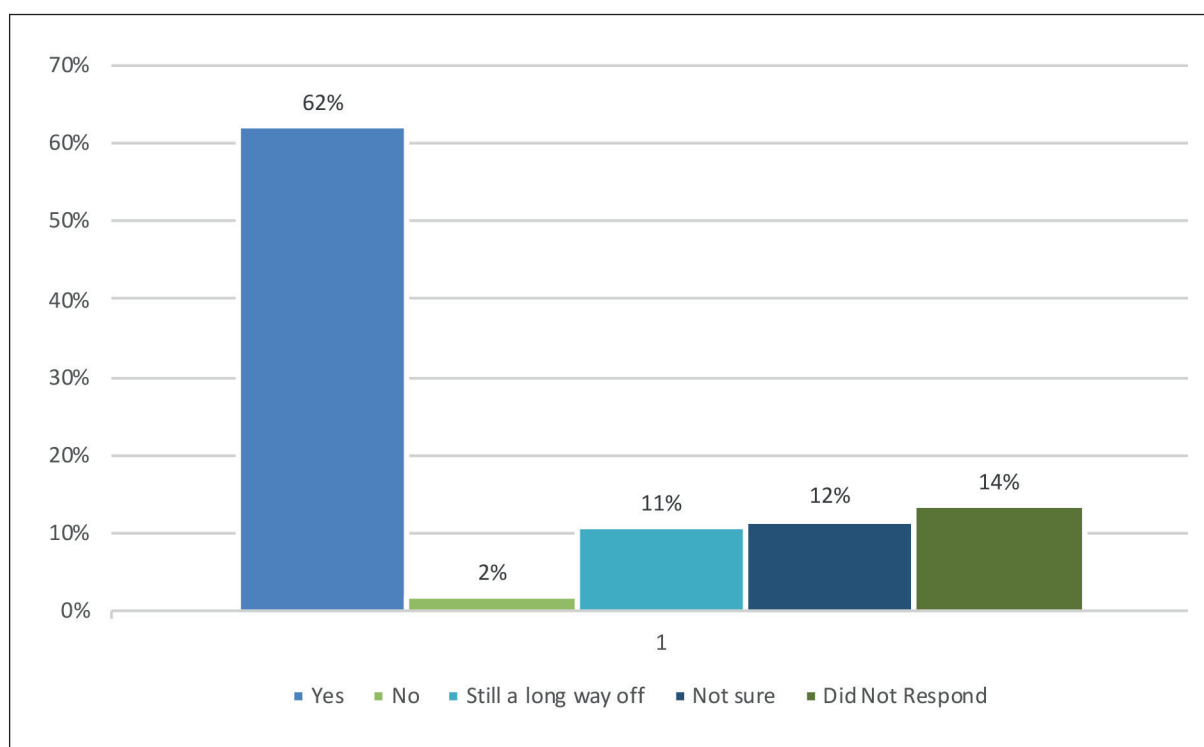
Due to the open-ended nature of this question a graph is not available.

25. Did / do such matters throw up any particular issues for insolvencies, novel or otherwise?

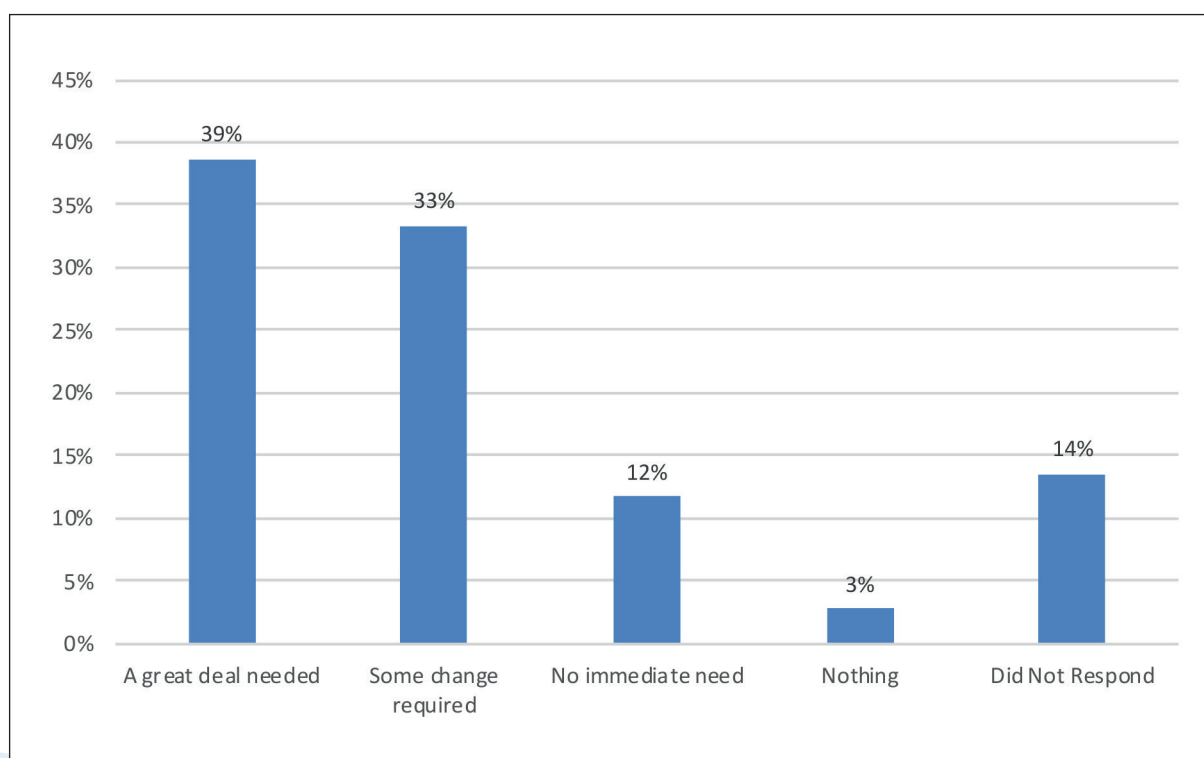




26. Do you anticipate Digital assets and related issues will become an increasing feature of insolvencies?

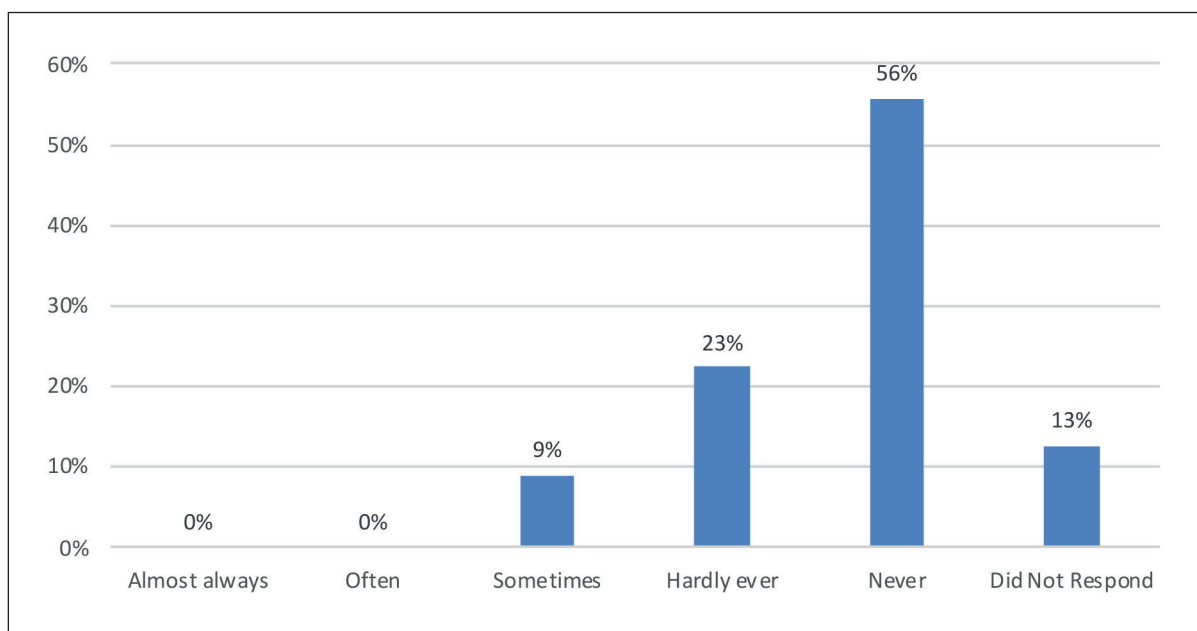


27. What, if anything, do you think may need to change / develop in order to assist IPs and the broader industry become more adept at tackling issues that arise in respect of Digital assets?

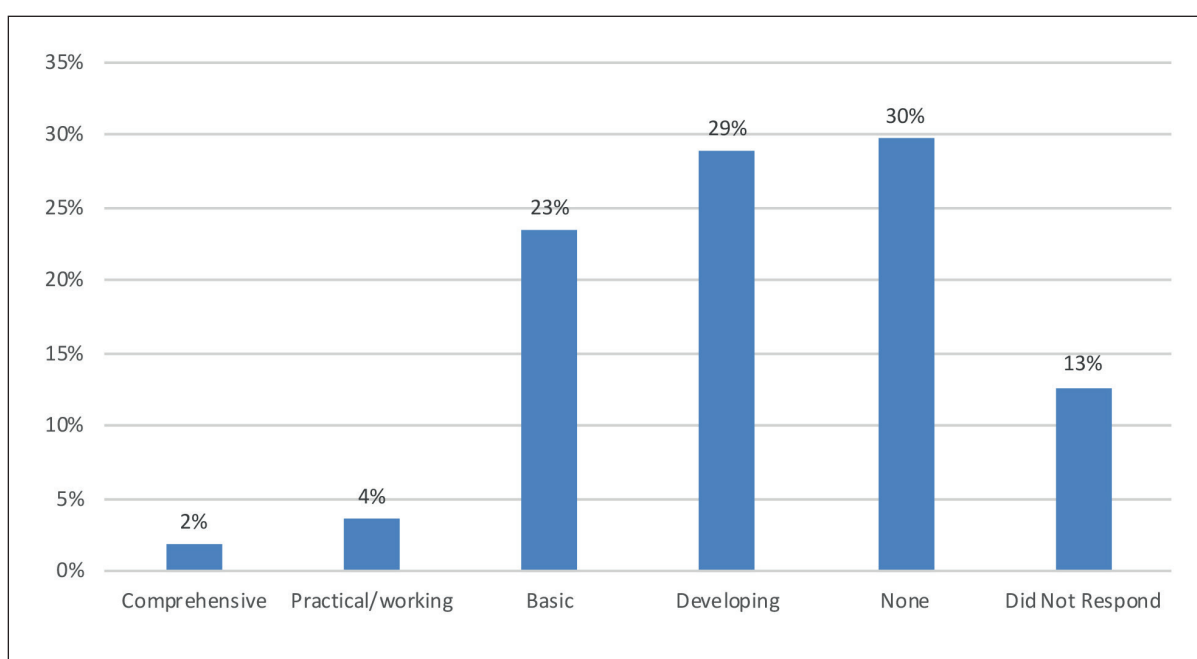




28. In the past 12 - 24 months to what extent have you come across the use of smart contracts or the use of block-chain or similar technology?

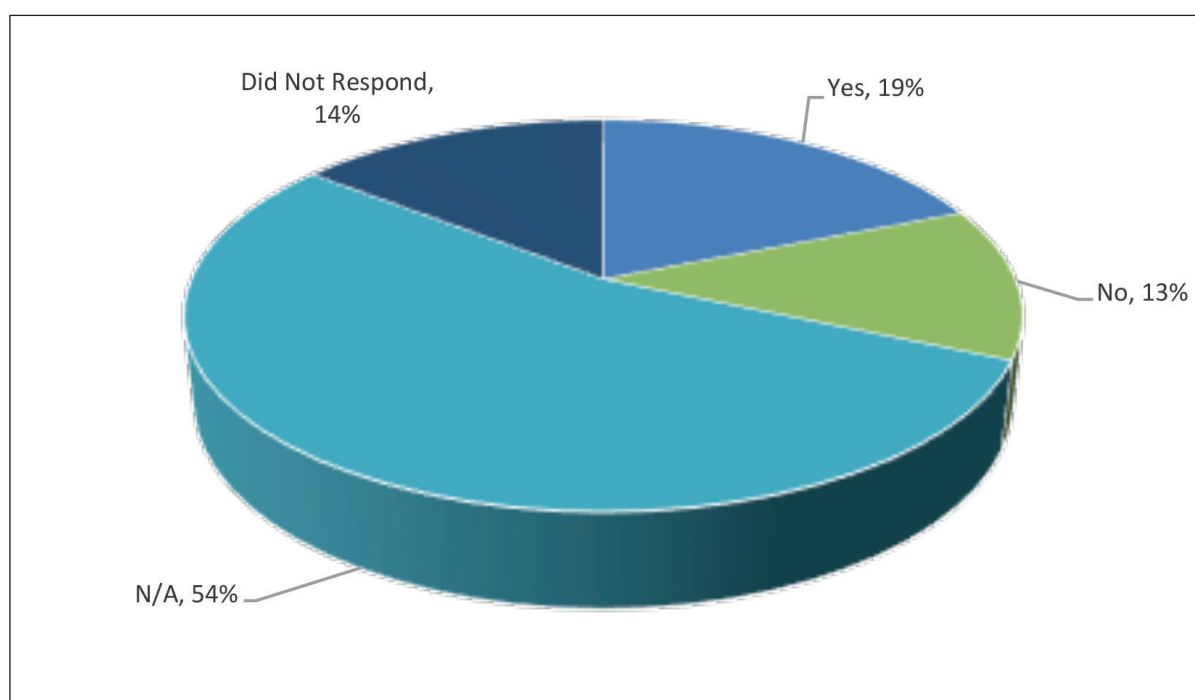


29. What is your level of awareness and understanding in practice of block-chain / smart-contracts?

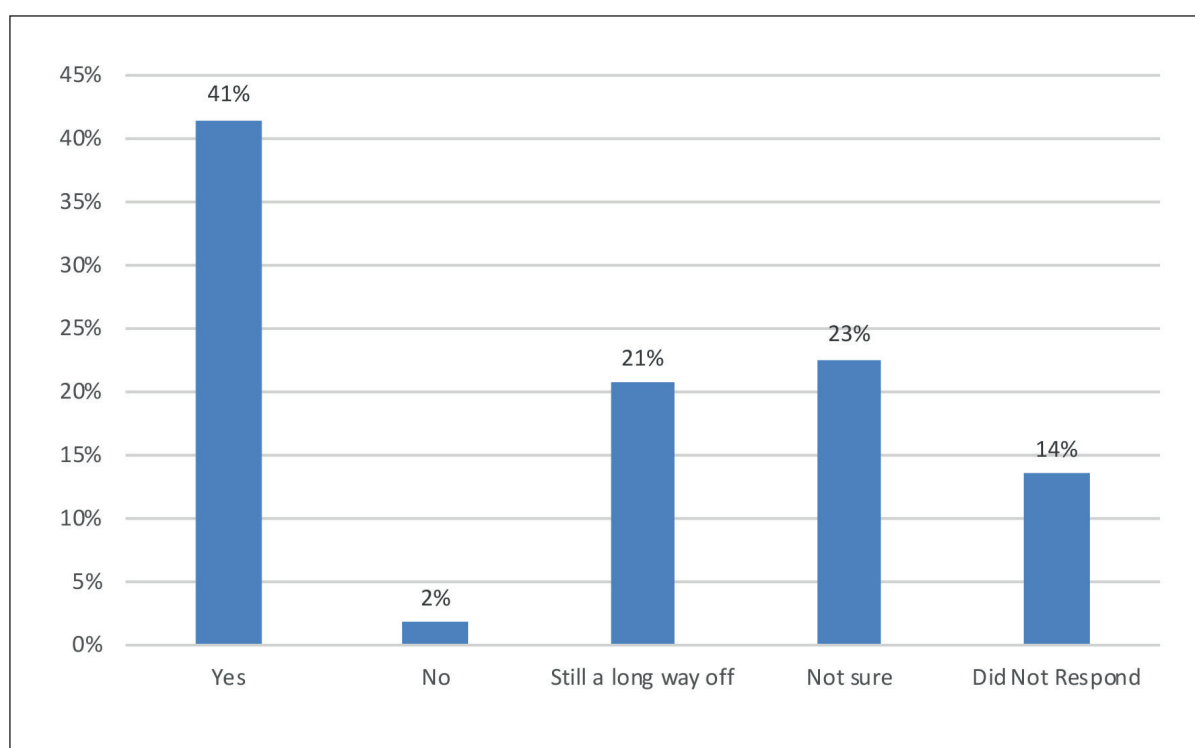




30. Did / do such matters throw up particular insolvency issues, novel or otherwise?

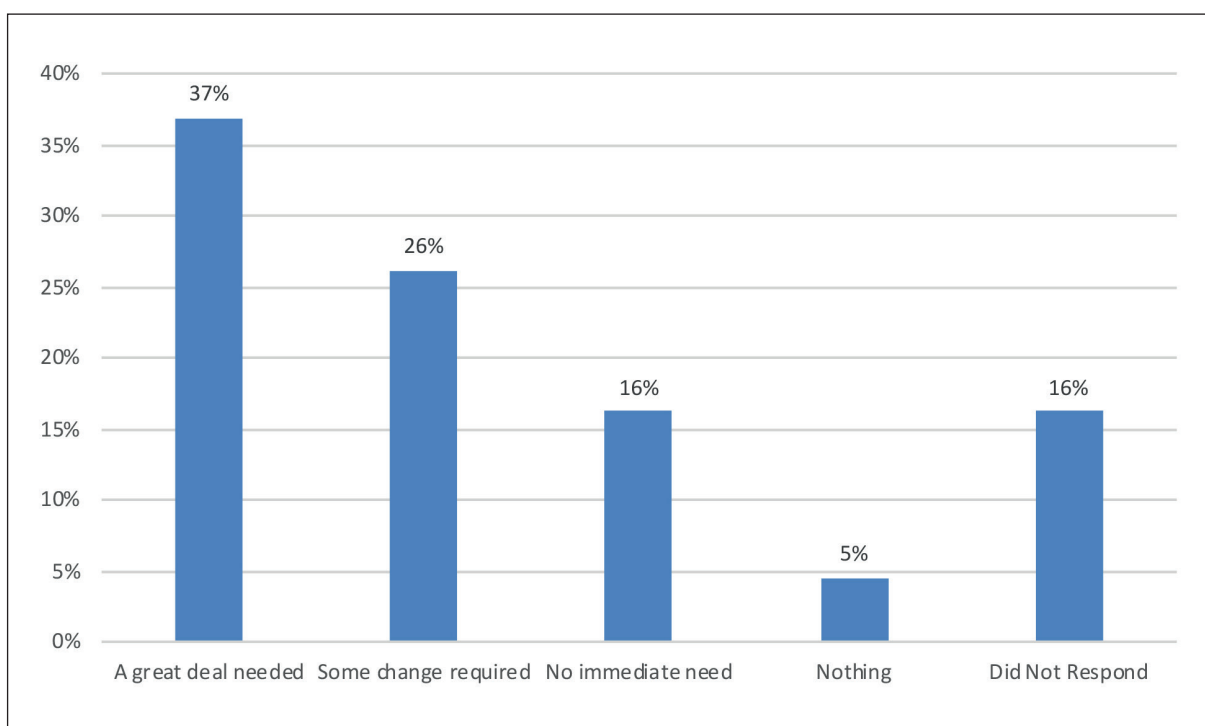


**31. Do you anticipate such matters will become an increasing feature of insolvencies?
Please provide details.**

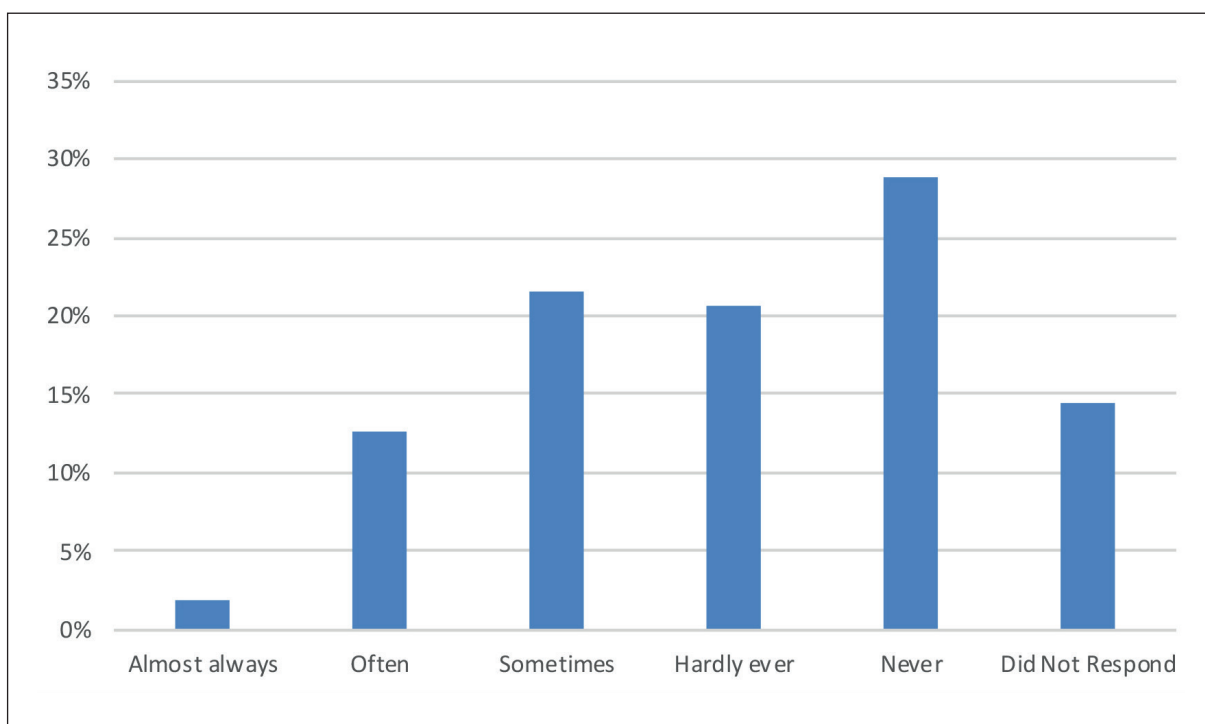




32. What, if anything, do you think may need to change / develop in order to assist IPs and the broader industry become more adept at tackling smart-contracts?

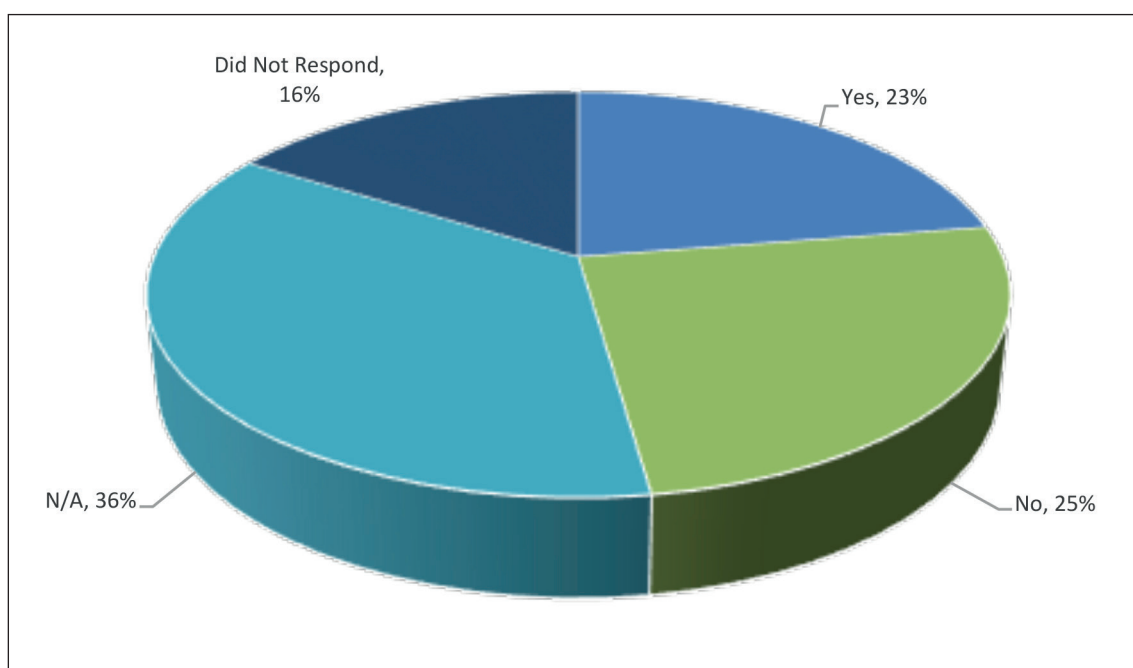


33. In the past 12 - 24 months to what extent have you come across businesses impacted by cyber-crime?





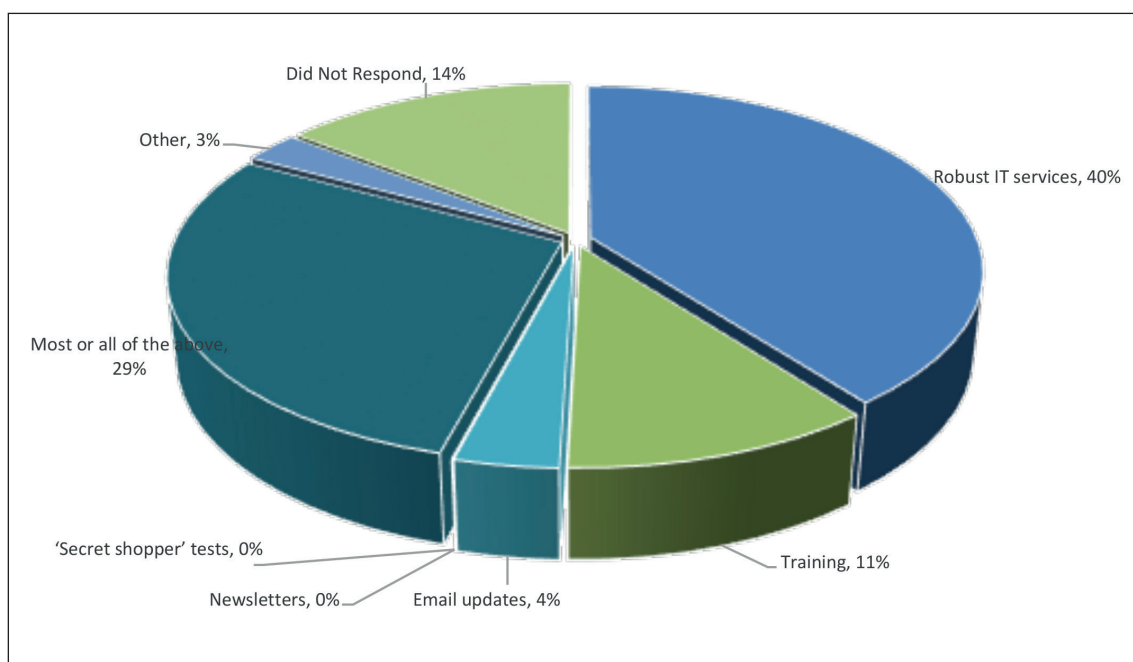
34. Did / do such situations throw up any particular issues, novel or otherwise for insolvencies?



35. Do you have a specific cybercrime / risk policy? Is it in writing? Please provide details.

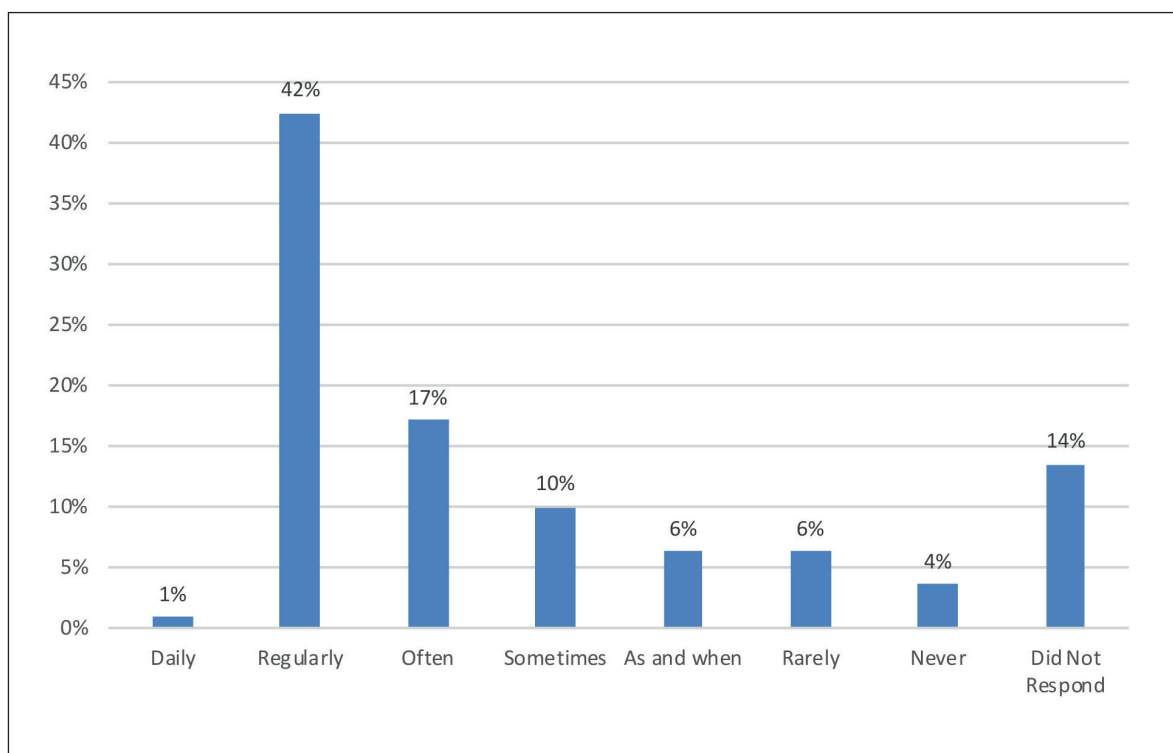
Due to the open-ended nature of this question a graph is not available.

36. What is your key focus in mitigating the risk of cyber-crime, ransomware, hacking etc?

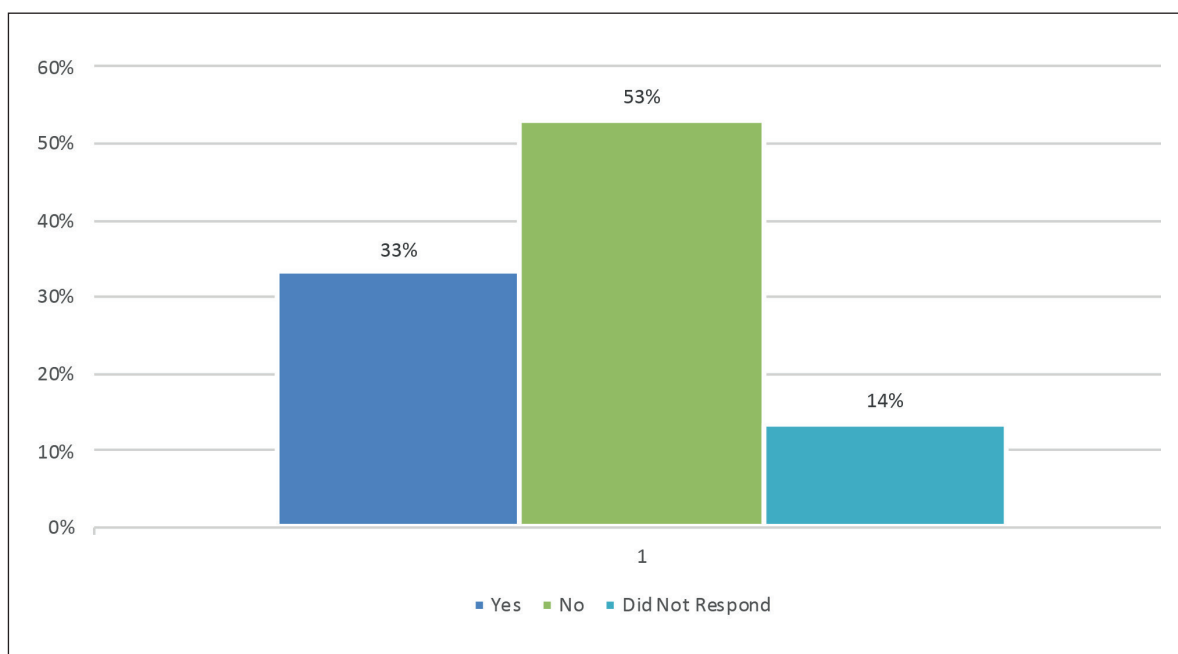




37. How often are you / staff reminded of cyber risks and the terms / enforcement of internal policy?



38. Cyber: In the past 12 - 24 months have you / any client suffered a cyber-attack / attempt? Please give details including any steps taken in response.





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