

Electronic discovery in Singapore: A quinquennial retrospective

By Zee Kin Yeong

It has been a quinquennium since the electronic discovery practice directions (e-discovery PD) was issued on 30 July 2009 as Practice Direction Number 3 of 2009.¹ Referred to in shorthand as PD3, it heralded a new chapter in maturity of Singapore's civil procedural rules.

PD3 was received in some quarters with the sense of excitement that comes with new opportunities – there was talk that e-discovery could be a new area of legal practice – but also with a healthy dose of dread in other quarters, as the march of technology compelled litigators to deal with new concepts like de-duplication, metadata and native format, while concomitantly having to navigate the e-discovery and inspection protocols. The one aspect of PD3 that was unusual – and in hindsight unnecessary – was that unlike other practice directions that had to be complied with in every applicable case, PD3 was optional. This concept was as alien as the concept of good faith collaboration that it introduced to the adversarial arena of high stakes civil litigation. As observed elsewhere, this fomented skirmishes on how the opt-in regime was to operate.² Interestingly, the opt-in regime was grafted into PD3 after practitioners who were consulted on an earlier draft requested that a more gradual introduction of the new procedural framework ought to be adopted, and suggested that an opt-in framework be adopted.

PD3 was incorporated into the Supreme Court Practice Directions 2010 as Part IVA. In 2012, following a review of discovery laws that took place in the latter part of 2011, it underwent a revision that excised the opt-in framework in favour of a tiered

approach, introduced the concept of electronic documents that are not reasonably accessible and included a checklist of questions that was intended to assist solicitor and client to prepare for the good faith meet-and-confer that is a crucial component of the e-discovery PD.³

Following a major revision of the Supreme Court Practice Directions in 2013 necessitated by the Singapore Judiciary's change to a new electronic filing service, the e-discovery PD is now found in Part V.⁴

Objectives

The e-discovery PD did not set out to change the law but to provide guidance on how existing legal principles on discovery are to be applied to the disclosure, inspection and provision of copies of electronic documents. This objective was articulated in *Sanae Achar v Sci-Gen Ltd*,⁵ at [11], in the following manner:

The e-Discovery PD was introduced in 2009 with the aim of providing guidance on how existing legal principles pertaining to the discovery process could be applied in respect of electronically stored documents. One of its objectives is to promote the exchange of electronically stored documents in a text searchable electronic form (in lieu of printed copies) so that parties may capitalise on the twin benefits of digitisation, *viz*, the ability to run keyword searches on the documents in question as well as easy management of the same. This also has the added benefit of avoiding unnecessary photocopying or printing of electronically stored documents. The e-Discovery PD also prefers the inspection and supply of copies of electronic documents

¹ Practice Direction No 3 of 2009, 'Discovery and Inspection of Electronically Stored Documents' (30 July 2009) at http://app.supremecourt.gov.sg/data/doc/ManagePage/temp/4nuc3c45i15f0f45uff11b55/practice_direction_no.3_of_2009.pdf.

² See Zee Kin Yeong and Serena Lim, 'Electronic Discovery: An Evolution of Law and Practice' in Seiu Kin Lee and Zee Kin Yeong, eds, *International Conference on Electronic Litigation* (Academy Publishing, 2012), at <http://www.litiedge.com/images/pdfs/anevolutionoflaw.pdf>.

³ Amendment No 1 of 2012, at <http://app.supremecourt.gov.sg/default.aspx?pgID=4122>.

⁴ Amendment No 3 of 2012, at <http://app.supremecourt.gov.sg/default.aspx?pgID=4122>.

⁵ [2011] 3 SLR 967; [2011] SGHC 87.

in their native formats without any interference with the documents' 'metadata information'. ... Paragraph 43G of the e-Discovery PD prohibits the deletion, removal or alteration of metadata information internally stored in the native format of discoverable electronically stored documents without consent by the relevant parties or leave of court.

The e-discovery PD performs its function by supplementing the main branches of discovery rules. The traditional test that is applied in determining whether documents are discoverable requires the consideration of whether a document is relevant, and if so relevant, whether its disclosure is necessary in order to facilitate the disposal of the action fairly and, even if its disclosure is necessary in this sense, whether its disclosure will save costs – these latter factors are frequently abbreviated to 'necessity'. The e-discovery PD articulates the traditional concepts of relevance and necessity in more modern formulation that is easier to grasp, especially when dealing with modern-day volumes of discovery – whether a document is material and whether its disclosure is proportionate and economical. A non-exhaustive list of factors that will have to be considered in this determination is also provided.⁶ Somewhat surprisingly, the past five years have seen only a single case that had to apply the considerations of proportionality in coming to a decision to adopt an e-discovery protocol.⁷ In all other cases, the issues between parties were focused in areas other than the threshold question of whether the adoption of an e-discovery protocol was proportionate.

A second objective of the e-discovery PD is to promote the exchange of electronic documents in their native format and – by implication – in softcopy. Underpinning this is a return to first principles: if the document that is to be disclosed lies in parties' possession as a softcopy document, for example in the hard disk of a notebook or personal computer, then the discovery obligation attaches to that electronic document in its native format and that is the version that has to be made available for inspection,⁸ and it is a softcopy of that electronic

document which has to be disclosed. Further, the e-discovery PD exhorts that any metadata information that exists in the electronic document in its native format should not be intentionally deleted or altered.⁹

The provision of discoverable electronic documents in their native format is intended to facilitate easy management of these documents: it enables solicitors to make use of document review systems to conduct searches, and to review and mark documents as they prepare for the eventual trial. In this context, the traditional method of printing electronic documents and providing printouts is going to be increasingly unacceptable, both from a professional perspective (for instance, the loss of metadata that may potentially be relevant to the case when electronic documents are printed) and from a costs perspective (such as the increased costs associated with managing printouts will soon become significant as access to affordable document review systems increase and the costs differential may be increasingly unacceptable to discerning clients, particularly corporate clients).

Overview of Part V

The e-discovery PD mirrors the procedural steps that are traditionally practised during discovery. I had summarised this in *Fermin Aldabe v Standard Chartered Bank*¹⁰ at [27] – [28], in the following manner:

Discovery and inspection: law and practice

27. Without delving into the case law relating to discovery, I propose first to set out briefly the classical sequence in which discovery and inspection takes place under Order 24.

Discovery of documents is given by enumerating them in a list of documents, the completeness of which is to be verified by affidavit. The list typically contains a notice stating the time and place at which the party served with the notice may inspect the documents referred to in the list. The list and affidavit verifying are served on the other parties in the action. At the appointed time and place, the enumerated documents are produced for physical inspection and the inspecting party is entitled to take a copy of the inspected documents during inspection.

⁶ Para 48, Part V.

⁷ See *Deutsche Bank AG v Chang Tse Wen and others* [2010] SGHC 125, at [22], and following.

⁸ Para 50, Part V.

⁹ Para 52, Part V.

¹⁰ [2009] SGHC 194.

28. Hence, inspection and the taking of copies occurs concurrently in the classical sequence. However, there is a common practice for parties to agree that copies of all documents enumerated in each party's list of documents be exchanged first and for physical inspection of documents to be deferred. After copies of documents have been exchanged, a party is still entitled to request for inspection of specified documents pursuant to the agreement to defer physical inspection. ...

General discovery

The e-discovery PD commences by describing the categories of cases that it applies to: cases where the amount in dispute is above SGD 1 million, or where discoverable documents exceed 2,000 pages or where the discoverable documents are predominantly electronic documents.

For these categories of cases, parties have an obligation to consider the adoption of the e-discovery PD. In aid of this, the e-discovery PD provides a checklist of questions that solicitors are encouraged to use as a guide in their discussions with client. When going through the checklist, parties will have to address their minds to who the key witnesses are and who has custody of the majority of discoverable documents, how these are stored and may be retrieved, whether it is proportionate to search and review all repositories of electronic documents that have been identified or whether it is feasible to proceed with discovery in stages, and whether keyword searches should be used (instead of traditional ocular review) to identify discoverable documents. I had opined that 'keyword searches of *unallocated space* ... as part of general discovery would usually be unnecessary by reason of their costs and the uncertainty that such searches will turn up anything which may contribute to the fair disposal of the cause or matter' [emphasis added].¹¹ The 2012 revision of the e-discovery PD has included this aspect of discovery, which provides, in the template e-discovery plan, that electronic documents that are not reasonably accessible are not within the scope of general discovery.¹²

¹¹ *Robin Duanne Littau v Astrata (Asia Pacific) Pte Ltd* [2011] SGHC 61, at [29].

¹² Para 1(c), Agreed Electronic Discovery Plan, Appendix E Part 2, e-discovery PD.

Having discussed with their clients, solicitors are to exchange the checklists and to engage in good faith discussions in a collaborative effort to come to an agreement as to how general discovery should be conducted. This is a marked departure from the tradition of unilateral decision making in disclosure. Taken in the right spirit, good faith discussions will provide an early insight into what the adversary considers to be relevant and necessary for discovery and some discovery disputes may be avoided if such differences are addressed during the good faith discussions.¹³ Given the more involved nature of providing disclosure and copies of electronic documents, the e-discovery PD provides a template e-discovery plan that parties can modify and adopt. The e-discovery plan sets out the entire process of how discoverable documents are to be disclosed, inspected and softcopies provided.

Further and better list and specific discovery

Oftentimes, general discovery is found wanting and the other party will request for a further and better list, on the basis that certain classes of documents that ought to have been disclosed had not been. Or the other party, having reviewed the documents disclosed as part of general discovery, identifies train-of-inquiry documents and makes a request for specific discovery. Without changing the established principles that mark out the boundaries of permissible requests for further or specific discovery, the e-discovery PD adapts these principles in providing for a new manner of describing a class of documents by making use of search terms. In order to avoid embarking on a fishing expedition – the trawling an unlimited sea¹⁴ – and to ensure that the line is dropped at an identifiable spot, the e-discovery PD requires that requests for further or specific discovery that make use of search terms be limited by custodians and repositories, as well as time periods.

When it comes to a request for discovery of documents that are not reasonably accessible – which are defined to include '(a) deleted files or file

¹³ See *Deutsche Bank AG v Chang Tse Wen and others* [2010] SGHC 125, at [38], and following.

¹⁴ *Per Choo Han Teck JC* (as he then was) in *Thyssen Hunnebeck Singapore Pte Ltd v TTJ Civil Engineering Pte Ltd* [2003] 1 SLR(R) 75; [2002] SGHC 247, at [6]: 'In my view, I would hold that a "fishing expedition" in the context of discovery refers to the aimless trawling of an unlimited sea. Where, on the other hand, the party concerned knows a specific and identifiable spot into which he wishes to drop a line (or two), I would not regard that as a "fishing expedition".'

fragments containing information which may be recovered only through the use of computer forensic tools or techniques; and (b) documents archived using backup software and stored off-line on backup tapes or other storage media'¹⁵ – it must additionally be demonstrated that 'the relevance and materiality of the electronically stored documents sought to be discovered justify the cost and burden of retrieving and producing them.'¹⁶

Inspection and supply of copies

Flowing from the principle that the right of inspection attaches to the electronic document in the format that it exists in within the possession, custody or power of the party giving discovery, inspection of electronic documents has to be given in their native formats. Unlike hardcopy documents, electronic documents require more than a well-lit room for inspection to take place. The e-discovery PD articulates the fundamental obligation that the party disclosing the electronic documents ought to provide reasonable means and assistance in order to give effect to the right of inspection. I had observed in *Fermin Aldabe v Standard Chartered Bank*,¹⁷ at [40] – [42], that:

40. ... It has been held (in the context of inspection of documentary samples by experts) that inspection is not limited to ocular examination and equipment may be used to inspect documents: per Sundaresh Menon JC, in *UMCI Ltd v Tokio Marine & Fire Insurance Co (Singapore) Pte Ltd and Others* [2006] 4 SLR 95; [2006] SGHC 142, at [66]. In *Grant and Another v Southwestern and County Properties Ltd and Another* [1975] 1 Ch 185, the court had to decide whether a tape recording was a document which was discoverable. In holding that a tape recording was a document for the purposes of discovery, Walton J observed as follows (at page 198C-F):

... it seems to me that the simplest and most foolproof method of 'inspection' in these cases is for the party giving discovery to play the tape to the party to whom discovery is

being given, and for that party to make his own recording as it is played.

41. The principle of law which was articulated here is that where a document cannot be meaningfully examined by ocular examination, the party giving discovery has an obligation to provide the technical means necessary in order to give effect to the inspecting party's right of inspection. This is the approach which is adopted in Practice Direction 3 of 2009: the party producing electronically stored documents has to provide reasonable means and assistance for inspection (paragraph 43F).

42. In the present case, the email messages are stored electronically on the Defendant's email servers. The Defendant has to provide the technical means necessary in order to give effect to the Plaintiff's right to inspect the 14 email messages which he had identified. At a minimum, the Defendant has to provide a computer system from which the relevant email mailboxes may be accessed and the 14 email messages displayed on screen for the Plaintiff to view. However, this is not to say that the Plaintiff would be given full access to the email mailboxes of the Defendant's employees. I am mindful of Vinelott J's observations in *Derby & Co Ltd v Weldon (No 9)* [1991] 1 WLR 652 concerning the difficulties in providing inspection of databases, and also of the Defendant's concerns of breaches of confidentiality and banking secrecy. The Plaintiff had also articulated his intention to view the header information of the 14 email messages. I thought that a sensible approach would be for the Defendant to assist by providing an operator who would retrieve each of these 14 email messages and display them on screen for the Plaintiff's inspection, and call up the metadata information (eg header information) which the Plaintiff intended to inspect. However, it is prudent for the Defendant to be given an opportunity to review the metadata information for the purpose of determining if there was any basis for objecting to production for inspection before it is shown to the Plaintiff.

¹⁵ Para 44(6), e-discovery PD.

¹⁶ Para 47(5), e-discovery PD.

¹⁷ [2009] SGHC 194.

In Singapore, the courts have defined documents to include compendious documents such as electronic databases and storage devices (for instance hard disks).¹⁸ It has also been held in *Alliance Management SA v Pendleton Lane P* that for the inspection of such compendious documents, an inspection protocol should be put in place to prevent trawling and to safeguard confidential or privileged documents from disclosure.¹⁹ The e-discovery PD provides a template inspection protocol that is tailored for these purposes and – following the principle laid down in *Alliance Management SA v Pendleton Lane P* – requires that every application for inspection of electronic databases or forensic inspection of hard disks be accompanied by an inspection protocol.

This concludes our quick overview of the e-discovery PD. Before we turn our attention in the following section to specific areas where e-discovery disputes have provided opportunities for our courts to articulate the applicable policies and principles, it is pertinent to consider the following exhortation in *Earles v Barclays Bank Plc*²⁰ at [71], that solicitors ought to be familiar with the e-discovery PD:

It might be contended that CPR 31 PD 2A and electronic disclosure are little known or practised outside the Admiralty and Commercial Court. If so, such myth needs to be swiftly dispelled when over 90% of business documentation is electronic in form. The Practice Direction is in the Civil Procedure Rules and those practising in civil courts are expected to know the rules and practice them; it is gross incompetence not to.

Although these observations were made with respect to the practice directions relating to disclosure in England & Wales, the message is universal.

Discovery sans frontieres

Given the prevalence of web-based e-mail (or web mail) in this modern information age, it is not surprising that the jurisdictional boundaries of discovering web mail are tested. E-mails that are downloaded using the (relatively) more traditional

Post Office Protocol (POP) and that reside on our hard disks are undoubtedly within our possession, custody or power. The question becomes more challenging when the e-mails are viewed via a web browser (that is, web mail) or an e-mail client using a remote access protocol such as Lightweight Directory Access Protocol (LDAP). The e-mails reside on the mail server and is viewed remotely. The question is whether such e-mails are within the possession, custody or power of the account holder.

These issues were considered in the case of *Dirak Asia Pte Ltd v Chew Hua Kok*.²¹ The plaintiff was the former employer of the defendant. The claims were for breaches of the employment contract and included the usual claims of breaches of the former employee's duty of fidelity in the unauthorised disclosure of confidential information. The documents that the former employer sought were e-mails that the defendant had sent using the e-mail account that his current employer had provided. The relevant e-mails were in the online e-mail account of the defendant's current employer. The defendant objected to disclosure on the basis that these e-mails were not within his possession, custody or power.

The court undertook a two pronged analysis, examining whether the defendant had a legal right to the e-mails and also conducting a factual inquiry into whether the defendant had the practical ability to obtain access to or obtain the e-mails, before coming to its conclusion that the e-mails were within the defendant's power to obtain. It commenced its analysis with a consideration of the common premise that a document is within one's power if one has the legal right to obtain the document, which it rests on the holding in *Lonrho Ltd v Shell Petroleum*,²² at [635]:

... in the context of the phrase 'possession, custody or power' the expression 'power' must, in my view, mean a presently enforceable legal right to obtain from whoever actually holds the document inspection of it without the need to obtain the consent of anyone else.

The court went on to consider more recent decisions in England & Wales, where the Court of Appeal had adopted a more flexible contextual analysis to determine whether there was a practical ability to

¹⁸ For which see *Megastar Entertainment Pte Ltd v Odex Pte Ltd* [2005] 3 SLR 91; *Alliance Management SA v Pendleton Lane P* [2007] 4 SLR(R) 343; [2007] SGHC 133.

¹⁹ Per Belinda Ang J in *Alliance Management SA v Pendleton Lane P*, [2007] 4 SLR(R) 343; [2007] SGHC 133, at [35] – [36].

²⁰ [2009] EWHC 2500 (QB).

²¹ [2013] SGHCR 1.

²² [1980] 1 WLR 627.

obtain the documents. The rationale being that a strict compliance with the requirement of a legal right to obtain the documents was too rigid. The approach recently, in the Court of Appeal in England & Wales at least, is to consider the degree of control the party liable to disclose the documents had over the entity with actual possession of the documents. This contextual approach can be traced back to the speeches of Lord Denning MR and Shaw LJ in the Court of Appeal decision in *Lornrho Ltd v Shell Petroleum*.²³ The more recent decisions in *Re Tecnion Investments Ltd*²⁴ and *North Shore Ventures Limited v Anstead Holdings Inc*²⁵ developed the contextual approach by requiring the court to consider the facts of each case in order to determine whether the party that was under an obligation to disclose had in fact the practical ability, by virtue of its relationship with the party in actual possession of the documents, to obtain the documents.

The court concluded in *Dirak Asia* that the plaintiff did in fact have the practical ability to access his online e-mail account that was provided by his current employer and made an order for disclosure. Although it was not clear from the facts of this case whether the online e-mail account was hosted in mail servers within Singapore or beyond her shores, what is clear is that this case can now be cited as a precedent for compelling the discovery of electronic documents that expands beyond the traditional scope of either documents that are in the litigant's actual possession or custody (for instance in a notebook or electronic device) or that the party has a clear legal right to (for instance a personal online e-mail account with Google or Yahoo!), so long as the party had the practical ability to obtain access to them.

It has long been a practice that litigants are expected to give discovery of their online e-mails, even if these are web mail accounts hosted outside jurisdiction. The author is aware that the practice within the computer forensics community in Singapore at least is that they would set up a POP mail account in the litigant's personal computer in order to download the web mail. The review and production of e-mails will then be conducted utilising this POP mail account. This practice has thus far been rationalised because these

are the litigant's personal e-mail. The litigant has, by virtue of the terms and conditions that he had agreed to when he signed up for the web mail service, the legal right to obtain access to copies of these e-mails; in other words, they were within his power to obtain. With the decision in *Dirak Asia*, there is every possibility that this approach can now be applied to an enlarged scope of documents and no longer limited to those which the litigant has a legal right to access. The practical ability test is potentially wider and may lead into uncharted waters. One wonders when (and not whether) we will run up against other procedural rules that govern cross-border discovery.

One potential hurdle in cross-border discovery is that the export of the discoverable documents from a foreign jurisdiction may be contrary to the domestic law of that jurisdiction. The experience of other countries have often been that the foreign blocking statutes are usually in the nature of privacy or data protection legislation (for instance in Europe), state secrecy laws (for instance, China) and banking secrecy laws (for instance, Switzerland). In a pending case before the courts in Singapore, a foreign blocking statute is now an issue. The case involves a claim by a former employee against his former employer. The documents involved in the discovery dispute are chat messages that the former employer has archived in a European country. The former employee has requested for discovery of these chat messages. The former employer is resisting discovery on the basis that it would be exposed to criminal sanctions in that European country if it were to disclose those messages. A *détente* was in place at the time this article was written, because the parties agreed to conduct discovery in stages and defer these documents to a subsequent stage.

In navigating these uncharted waters, we can draw on the experience of other common law jurisdictions. The common law principle is that orders for the discovery of documents are of a procedural nature and therefore governed by the law of the foreign jurisdiction. It was held in *Secretary of State for Health v Servier Laboratories Ltd*,²⁶ at [99], that:

... the fact that such orders might, if complied with, expose the parties subject to them to the risk of prosecution under a foreign law provides no defence to their making. The English court still retains a jurisdiction under

²³ [1980] 1 QB 358, at [371] and [375] – [376], cited at [21] and [22] of *Dirak Asia Pte Ltd v Chew Hua Kok* [2013] SGHCR 1.

²⁴ [1985] BCLC 434.

²⁵ [2012] EWCA Civ 11.

²⁶ [2013] WLR(D) 401, [2013] EWCA Civ 1234.

the *lex fori* to make them, although it has a discretion as to whether to do so in the particular circumstances.

In order to determine whether the discretion ought to be exercised, ‘the critical question is the likelihood of any prosecution’.²⁷ The assessment of the likelihood of prosecution under foreign law relies on the evidence of foreign law experts. Cases from the United States dealing with foreign blocking statutes are legion but do not stray from the common law position. US case law is instructive as to the depth of analysis that is undertaken in determining the likelihood of prosecution. As observed by a commentator:

The general tenor of the decisions by judges in the United States indicate that where there is an objection to the obtaining of evidence ... and the objection is made by one of the parties, it is more likely that disclosure will be ordered, especially when the objections tend to be argued in terms of vague principles.²⁸

One may expect that the likelihood of foreign prosecution may be minimised by a carefully crafted prayer that takes into account the legality of its performance under foreign law. Thus, in the spirit of keeping on the right side of data protection laws, one of the Sedona Conference’s International Principles of Discovery, Disclosure and Data Protection states:

Preservation or discovery of Protected Data should be limited in scope to that which is relevant and necessary to support any party’s claim or defense in order to minimize conflicts of law and impact on the Data Subject.²⁹

In addition to common law principles, the courts in Singapore will have to consider the applicability of civil procedure conventions. A list of civil procedure conventions may be found in Appendix C to the Rules of Court. Additionally, the definition of this term includes any convention relating to civil procedure in court, which in turn brings into focus the Convention on the Taking of Evidence Abroad in Civil and

Commercial Matters (‘the Hague Evidence Convention’), to which Singapore has acceded. Under the Hague Evidence Convention, evidence may be obtained from, and documents inspected during the examination of, a person who is subject to the jurisdiction of a foreign court pursuant to letters of request issued by the Singapore court; or by a diplomatic officer or consular agent taking evidence, without compulsion, of its own nationals. The Hague Evidence Convention obligations are implemented via the Evidence (Civil Proceedings in Other Jurisdictions) Act (Cap 98) and Orders 39 and 66 of the Rules of Court.³⁰ Section 4 of the Act empowers the High Court to, amongst other things, examine witnesses and order the production of documents. Under the Rules of Court, Order 39, rule 2 of the Rules of Court, provides for the taking of depositions of persons outside Singapore, and Order 66 provides for the taking of depositions of persons within Singapore for foreign courts. The formulation of the order set out in Form 75 contemplates that in the process of taking depositions by a Singapore consul, the deponent may be required to produce documents as well. The parallel provision under Order 66, rule 1 for the taking of depositions in aid of foreign courts similarly provides for the production of documents during the deposition. Curiously, Form 74 does not explicitly mention that the deponent may be required to produce documents when the deposition is taken by a foreign judicial authority.

Two questions come to mind in the consideration of the Hague Evidence Convention. First, whether the Hague Evidence Convention extends to the discovery of documents by themselves, or whether the focus is on the examination of witnesses with the production of documents ancillary to the deposition. Second, on the assumption that the Hague Evidence Convention may be used to compel discovery, it is questionable whether it is the exclusive mode of obtaining discovery from a foreign jurisdiction.

Article 23 allows a contracting state to exclude pre-trial discovery when signing, ratifying or acceding to the Hague Evidence Convention. It may therefore be surmised that the Hague Evidence Convention contemplates letters of requests for discovery of documents. Against this, however, are judicial

²⁷ *National Grid Electricity Transmission Plc v ABB Ltd & Ors* [2013] EWHC 822 (Ch), at [42].

²⁸ Stephen Mason, ‘Some international developments in electronic evidence’, *Computer and Telecommunications Law Review*, 2012, Volume 18, Issue 1, 23 – 32, at 28; for a survey of the salient US case law, see 23 – 28.

²⁹ Principle 3, The Sedona Conference International Principles on Discovery, Disclosure & Data Protection.

³⁰ See *Re Letter of Request from the Court of New South Wales for the Prosecution of Peter Bazos (Deposition Proceedings)* [1989] 1 SLR(R) 563; [1989] SGHC 49. Section 6 of the Evidence (Civil Proceedings in Other Jurisdictions) Act empowers the making of Rules of Court.

observations that the EU Evidence Regulation³¹ (also a civil procedure convention for the taking of evidence) is intended for taking evidence and that:

... an order for ordinary disclosure should not be equated with taking evidence in another State: see *Masri v Consolidated Contractors International (No 4)* [2008] EWCA Civ 876 at [45]. As Roth J observed (at [50]), to use Regulation 1206/2001 to obtain ordinary disclosure 'would be an extraordinary route'.³²

In the enactment of the Hague Evidence Convention in the Singapore Evidence (Civil Proceedings in Other Jurisdictions) Act, the power of the court (under section 4) to order, amongst other things, the examination of witnesses and production of documents is circumscribed in the following manner:

- (4) An order under this section shall not require a person —
- (a) to state what documents relevant to the proceedings to which the application for the order relates are or have been in his possession, custody or power; or
 - (b) to produce any documents other than particular documents specified in the order as being documents appearing to the High Court to be, or to be likely to be, in his possession, custody or power.

The effect of this sub-section is to limit production to documents expressly and clearly specified in the order for examination and production, but relieving him from making general disclosure of other documents within his possession, custody or power that may be relevant. It would therefore appear that, insofar as Singapore is the state which is responding to a letter of request, the Hague Evidence Convention has limited utility as a means of compelling discovery. To resort to the Hague Evidence Convention as a means of obtaining discovery of documents in Singapore in aid of foreign civil proceedings is therefore a potentially awkward and cumbersome exercise,

³¹ Council Regulation (EF) No 1206/2001 of 28 May 2001 on cooperation between the courts of the Member State in the taking of evidence in civil or commercial matters, OJ L 174, 27.6.2001, pp 1 – 24.

³² *Secretary of State for Health & Ors v Servier Laboratories Ltd & Ors* [2013] WLR(D) 401, [2013] EWCA Civ 1234, at [116].

requiring precise descriptions of the documents to be produced at the deposition. It would require skilful examination during the deposition in order to elicit information about other relevant documents without running afoul of the admonition in section 4(4) of the Act.

Hence, whether civil procedure conventions may be invoked for discovery by themselves depends on the text of each convention. Even if the civil procedure convention permits its use for compelling discovery, particularly if that is not their primary purpose, they may be a most inefficient mode of obtaining discovery. The procedure is cumbersome. In the course of a case, there may be multiple requests for discovery and each request runs the risk that it may be rejected by the foreign court and cause further delays.³³ Thus, whether this option will lengthen the proceedings for which evidence is required is an important consideration.

Even if a civil procedure convention can be invoked for discovery of documents located in a foreign jurisdiction, it is debatable whether it should be the exclusive mode of obtaining discovery. In *Secretary of State for Health v Servier Laboratories Ltd*,³⁴ at [101], it was held that a request between courts under the EU Evidence Regulation is mandatory only 'if the domestic court wishes to obtain evidence in another Member State of a nature that can in practice only be obtained with the assistance of that Member State's judicial or other public authorities'. The Court of Appeal went on to state, at [112], that:

... it is important to emphasise that the purpose of those procedures is to improve and accelerate the procedures for taking evidence in another Member State in civil and commercial matters. It was aimed at increasing and not reducing options in such a context and does not, on its face, remove or restrict existing forms of proceeding.

The view expressed holds equal weight with respect to the Hague Evidence Convention. Indeed, the US Supreme Court had similarly held in *Societe Nationale Industrielle Aerospatiale v U.S. District Court for the Southern District of Iowa*³⁵ that the procedures provided in the Hague Evidence Convention were of

³³ See *National Grid Electricity Transmission Plc v ABB Ltd & Ors* [2013] EWHC 822 (Ch), at [13].

³⁴ [2013] WLR(D) 401, [2013] EWCA Civ 1234.

³⁵ 482 U.S. 522 (107 S.Ct. 2542, 96 L.Ed.2d 461).

an optional character and did not pre-empt the law of the foreign jurisdiction. Hence, the US District Court could order a party before it to produce documents located in France under its powers in the US Federal Rules of Civil Procedure.

Thus, we can say with a fair amount of certainty that in the absence of express language that clearly pre-empts the law of the foreign jurisdiction, a party seeking discovery has the option of seeking a discovery order under common law or proceeding under a civil procedure convention.

Discovery in stages

A practice that has started to take hold in some of the larger disputes involving voluminous documents is to conduct discovery in stages. When the e-discovery PD was first issued in 2009, the previous iteration of paragraph 43B encouraged the parties to 'collaborate in good faith and agree on issues relating to the discovery and inspection of electronically stored documents, including ... the giving of discovery in stages according to an agreed chronology'. This exhortation was retained and expanded upon during the 2012 revision, and paragraph 45 of the e-discovery PD now reads:

(1) Within two weeks after the close of pleadings, parties are encouraged to collaborate in good faith and agree on issues relating to the discovery and inspection of electronically stored documents. Such issues may include the scope and/or any limits on documents to be given in discovery, whether parties are prepared to make voluntary disclosures, whether specific documents or class of documents ought to be specifically preserved, search terms to be used in reasonable searches, whether preliminary searches and/or data sampling are to be conducted and the giving of discovery in stages according to an agreed schedule, as well as the format and manner in which copies of discoverable documents shall be supplied. Parties are encouraged to have regard to the list of issues at Appendix E Part 1 (Check list of issues for good faith collaboration) in their discussions. Parties should exchange their checklists prior to commencing good faith discussions.

The objectives and practical utility of this approach is famously articulated in *Goodale v The Ministry of Justice*,³⁶ at para 22, and bears repeating:

In terms of a search one should always start with the most important people at the top of the pyramid, that is, adopt a staged or incremental approach. Very often an opposing party will get everything they want from that without having to go down the pyramid any further, often into duplicate material.

The approach that the Singapore courts have adopted in managing the conduct of discovery in stages is outlined in *Breezeway Overseas Ltd v UBS AG*.³⁷ First, identify from amongst the main witnesses to the dispute those who are likely to be the custodians of repositories holding relevant documents. Next, identify from the potential repositories within their possession, custody or power those that are likely to produce relevant electronic documents. Through this exercise, litigants would have drawn up a short list of significant witnesses who hold most of the electronic documents. The parties can then decide whether discoverable documents should be identified through the traditional ocular review or by using a search tool and pertinent search terms. The discoverable documents thus identified will then be disclosed and copies provided to other parties in the case. This is the first stage. I had observed in *Breezeway*, at [15], that:

... in conducting discovery in stages, it is open to parties to proceed with a subsequent stage involving other custodians and repositories after the conclusion of the initial stage. Subsequent stages will be conducted in the same manner as the initial stage: identification of additional custodians and repositories, drawing up search terms and agreeing on the limits for reasonable searches, etc. In the limited experience of this court, a subsequent stage has not been necessary in any case thus far. However, that is very different from saying that subsequent stages will never be necessary. In any event, parties may always make an application for specific discovery under O 24, r 5 based on documents disclosed in the initial stage of discovery.

³⁶ [2009] EWHC B41 (QB).

³⁷ [2012] SGHC 41.

The experience of the past five years has been that the number of major witnesses who have been identified as custodians for the first stage has usually been small, between six and eight. As a testimony to the accuracy of the prescient passage in *Goodale* cited above, parties in almost all cases have not had to proceed onto a subsequent stage for general discovery. The experience affirms the prediction that most of the documents that are necessary for disclosure, at least for general discovery, would have been disclosed in the first stage. The parties can and do proceed to make specific discovery requests for what are traditionally referred to as train-of-inquiry documents arising from the review of documents disclosed during general discovery.

Conducting discovery in stages also has the added benefit of controlling the costs of discovery. In a pending case arising from the failure of a joint venture company that had its base of operations, and hence where most of the documents are kept, in a neighbouring country, the joint venture partners were able to retrieve and repatriate some 30 terabytes of electronic data and 660 boxes of documents. Faced with this electronic and paper mountain, the parties resorted to conducting discovery in stages in order to control costs and focus resources on the repositories that are most likely to yield relevant documents. Even so, the cost of conducting searches on the electronic repositories was significant and is on-going at the time of writing.

Discovery accuracy

The area which has generated, by far, the most judicial discussion is the use of search terms and whether the party producing the documents ought to be permitted to review the search results before handing over the responsive documents. In today's information driven society, the amount of information that is potentially discoverable can be overwhelming. The Singapore courts have endorsed the use of technology as a means to control the burgeoning mountain of electronic documents. Judicial pronouncements have made it clear that the use of search technology is intended to assist parties to strike a balance between identifying a corpus of relevant electronic documents and avoiding incurring a disproportionate amount of legal costs. In *Sanae*

Achar v Sci-Gen Ltd,³⁸ at [13] – [14], this sentiment was articulated in the following manner:

13. With technology fuelling an unprecedented explosion of the volume of discoverable documents and the ease of their duplication, it is not surprising that the traditional manner in which discovery has been carried out is proving increasingly inefficient in achieving the purposes for which the discovery process was developed. ...

14. One way to cope with the burgeoning volume of discoverable documents is to rely on technology itself. Technology has thrown up countless tools which make editing, copying, reviewing and searching through the textual content of documents considerably less cumbersome than before. For example, parties need not manually trawl through heaps of printed documents in order to identify relevant documents and weed out irrelevant ones. Running simple keyword searches using easy-to-use desktop search engines would suffice. It is also easier to manage and organise electronically stored documents, especially where printed copies of such documents run into tomes and cartons. The e-Discovery PD recognises the tremendous potential of technology in modernising the discovery process. Thus, it encourages the exchange and supply of copies of discoverable electronic documents in soft copy by creating a framework for the inspection and discovery of electronically stored documents within boundaries established by existing legal principles. ...

The courts do not endorse any particular technology but adopts an open-door policy while encouraging practitioners to adopt suitable litigation technology in pursuit of the ultimate goal of achieving efficiency in the civil litigation process and thereby managing litigation costs. These sentiments were expressed in *Global Yellow Pages Ltd v Promedia Directories Pte Ltd and another suit*,³⁹ at [41]:

In the interests of promoting efficiency in civil procedure, our courts do embrace and encourage the adoption of modern search

³⁸ [2011] 3 SLR 967; [2011] SGHC 87.

³⁹ [2013] 3 SLR 758; [2013] SGHC 111.

technologies and document review and management tools. Our courts adopt a technology-neutral approach, showing no preference for any particular type of search technology or document review and management tool. However, the march of technology means that there are and will be better tools available for use by lawyers or litigation support professionals in the future. Indubitably, the law and practice will evolve in tandem with such developments to refine and improve our discovery process so that it remains a force for justice and not injustice. The adversarial system will play its role in ensuring that advocates adopt trustworthy technology. As technology evolves to perform more efficiently and accurately, litigants will benefit from them. The courts have encouraged lawyers to harness search technologies and document review and management tools to bring efficiency to civil litigation practice, especially during discovery: these tools increase the efficiency and effectiveness of lawyers and, if used adroitly, will lower the costs of litigation, not only during discovery but downstream as well, eg, during the preparation of affidavits of evidence-in-chief and witness preparation for trial.

The use of technology to identify documents for review can be overly inclusive and produce a disproportionately large number of potential document. What is clear is the repeated reminder that an overly thorough review of all documents, and indeed all documents that are responsive to the search terms, may not be suitable in all cases. The principle of proportionality steers us away from a leave-no-stone-unturned approach in civil litigation in all but the most deserving cases. It has been observed in *Breezeway Overseas Ltd v UBS AG*,⁴⁰ at [20], that:

The perennial tension in the law of civil procedure, viz, the attempt to achieve both justice and efficiency, comes to the forefront in the discovery process. On the one hand, it is *ex hypothesi* in the interest of justice that all relevant material is discovered, while on the other, there is a pressing need to ensure efficiency lest injustice be occasioned through

the well-meaning but disproportionate attempt to ensure that all relevant material is disclosed.

Similarly, in *Global Yellow Pages Ltd v Promedia Directories Pte Ltd and another suit*,⁴¹ at [34], it was observed that:

The interests of efficiency requires that a case gets to trial as soon as possible with the best set of documents that can be amassed to assist in arriving at a decision on the merits. Commercial entities look for finality as it brings an end to disputes and, win or lose, they can put the dispute behind them, write off bad debts and get on with their business. Efficiency seeks to cull the volume of documents to be disclosed and it employs the scythe of proportionality and economy. The ultimate goal is to ensure that burgeoning volumes of discoverable documents do not translate into burgeoning legal costs that may prevent all but those litigants with the deepest pockets from seeing their cases tried on the merits. The Holy Grail is to arrive at a set of documents of the right size containing all relevant documents without expenditure of disproportionate costs.

In *Nichia Corporation v Argos Ltd*,⁴² at [50] – [51], Jacob LJ had famously cautioned that searching for perfect justice in every case by adopting a leave-no-stone-unturned approach would actually defeat justice. He articulated the ills of burgeoning legal costs, at [46] – [47], in the following manner:

46. ... It is wrong just to disclose a mass of background documents which do not really take the case one way or another. And there is a real vice in doing so: it compels the mass reading by the lawyers on the other side, and is followed usually by the importation of the documents into the whole case thereafter – hence trial bundles most of which are never looked at.

47. Now it might be suggested that it is cheaper to make this sort of mass disclosure than to consider the documents with some care to decide whether they should be disclosed. And at that stage it might be

⁴⁰ [2012] 4 SLR 1035; [2012] SGHC 170.

⁴¹ [2013] 3 SLR 758; [2013] SGHC 111.

⁴² [2007] Bus LR 1753; [2007] EWCA Civ 741.

cheaper – just run it all through the photocopier or CD maker-especially since doing so is an allowable cost. But that is not the point. For it is the downstream costs caused by over-disclosure which so often are so substantial and so pointless. It can even be said, in cases of massive over-disclosure, that there is a real risk that the really important documents will get overlooked – where does a wise man hide a leaf?

The case law dealing with search terms are clustered around the following topics: how to compose appropriate search terms to ensure that the search results will contain more documents with a high degree of relevance; and whether the party giving discovery should incur the costs of reviewing the search results in order to remove irrelevant documents before turning the set of documents over.

The use of search technology during discovery

Search technology may be used to assist with identifying documents for discovery at several junctures. It may be used by a party to identify that corpus of documents that he wishes to disclose. In this instance, the use of search technology and the crafting of search terms is a set of activities that the party undertakes wholly internally in consultation with his counsel. Often, the use of search technology in this sense is opaque to the adversary, as he may never be informed of its use. The e-discovery PD does not seek to regulate this practice and parties are left to their own (storage) devices (pun intended).

Another juncture at which search technology may be explored is when the parties are to embark on general discovery. Instead of each party going away to identify discoverable documents on their own, the e-discovery PD provides a framework within which the parties can work collaboratively to draw up an e-discovery plan that includes an agreed set of search terms that each party will run on its repositories. The e-discovery PD encourages parties to collaborate in good faith in order to agree on how general discovery is to be carried out. In order to do so, it provides a checklist that each party is to go through and subsequently exchange. Going through the checklist will ensure that each party addresses its mind to pertinent issues that impinge on the number of custodians and repositories that should be included within the scope of general discovery, whether search technology ought to be used, how electronic documents should be

exchanged, and such like. Once the checklist is completed, the parties are to exchange them. This exchange of information is designed to promote discussion and collaboration.

The e-discovery PD also provides a template e-discovery plan that the parties can use as a basis for their discussion, amending it in accordance to the requirements of each case. The provision of a neutral document is intended to have the effect of promoting collaboration and assisting the parties in their search of a middle ground when deciding how general discovery is to be carried out. The e-discovery plan provides a means for both parties to come to an agreement as to the search terms that each party will use on the repositories that each has identified. So instead of each party undertaking its own search, the e-discovery plan reinforces the cards-on-the-table approach in civil litigation by allowing the parties to agree on what and how much to disclose.

A third juncture where search technology may be used is during what is referred to as the specific discovery stage. This is the stage following general discovery when, having reviewed the documents disclosed, each party is able to make requests either for the furnishing of a further and better list for the reason that certain classes of documents which ought to have been disclosed had been omitted, or to make requests for disclosure of specific documents or classes of documents that will enable the requesting party to pursue a line of inquiry leading to other relevant documents. In either scenario, the e-discovery PD provides the framework for using search terms as a new way of describing a class of documents. It sets out the minimum set of limits that each request must include: limits as to the custodians and/or repositories, and limits as to time periods. This comports with the trite principle that one is not permitted to embark on a fishing expedition during discovery in an attempt to empty out your adversary's filing cabinets, literal or virtual.

The use of search technology

It should be noted that the e-discovery PD does not mandate the use of search technology in every case that it is invoked. It is open to the parties to come to an agreement on how to identify discoverable electronic documents and to adopt an e-discovery PD for disclosure, inspection and supply of copies. Each party is left to determine the most efficient and effective method of identifying discoverable

electronic documents in their possession: it may involve the use of search technology or it may rely on its employees to identify them. Indeed, the e-discovery PD provides for a standard set of orders to facilitate this: paragraph 53. When these set of template orders are prayed for, 'nothing in this paragraph requires parties to agree to adopt an electronic discovery plan or conduct reasonable searches for electronically stored documents under this Part.'⁴³ The giving of discovery by the supply of soft copies with inspection deferred – frequently referred to as 'discovery by soft-copy exchange' as a shorthand – has been adopted in an increasing number of cases, particularly those where the lawyers who are running discovery are more technology knowledgeable (and frequently, though not exclusively, from the younger set).

Perhaps the only instance where the use of search technology is mandated is when compound documents are the subject matter of discovery: *Surface Stone v Tay Seng Leon*.⁴⁴ Compound documents are documents that contain other documents, for example, a hard disk contains within it innumerable discrete electronic documents; similarly, a database will contain a plethora of records. The interest to be protected and the danger to be held at bay is the unfettered trawling of what is essentially a virtual filing cabinet. The compound document will in many cases certainly contain both relevant and irrelevant documents. The e-discovery PD picks up where *Alliance Management SA v Pendleton Lane P*⁴⁵ left off by providing for a template inspection protocol that is designed to ensure that trawling is prevented and the confidential and privileged documents are safeguarded from disclosure. *Surface Stone* made it a clear requirement that search terms will have to be used to ensure that the party seeking discovery is focused in its request.

Post-search review for relevance

One of the earlier judicial pronouncement in this area may be found in the case of *Sanae Achar v Sci-Gen Ltd*,⁴⁶ where it was held that – in the context where search terms had been used, either by agreement or ordered by the court, to describe the classes of

discoverable documents – the party giving discovery would have fulfilled its obligations by carrying out the search as agreed or ordered and turning over all documents in the search result. The party entitled to discovery will have to accept the set of search result as fulfilment of its request. The court went on further to state that the party giving discovery shall not be required to review the search result of relevance, at [23]:

Having explained the basis for ordering discovery of the Category 1, 2, and 3 Documents, I briefly turn to the extent of Achar's and Sci-Gen's obligations. Pursuant to my discovery order, Achar must, inter alia, disclose the documents specified in the order, carry out a search to the extent stated in the order, and disclose any documents located as a result of that search. So long as Achar has complied with the terms of that order, as well as all the necessary requirements stated in the Rules of Court, Sci-Gen would have to accept that Achar had fulfilled her discovery obligations, notwithstanding the fact that there could well be emails not caught by the search engine employed.

It should be noted from the outset that there is a distinction to be drawn between a post-search review for documents that are privileged from disclosure and a post-search review for ensuring that all documents in the search results are relevant. The e-discovery PD had from its first version provided for a stage in the disclosure process where the party giving discovery would be permitted to review the search result for the purpose of identifying documents that it asserts to be privileged from disclosure. Paragraph 47(6) of the e-discovery PD provides that:

Nothing in this paragraph shall prevent the party giving discovery from reviewing the discoverable electronically stored documents or the results of any reasonable search for the purpose of identifying privileged documents.

There has also been judicial observation that this privilege review can also be carried out using suitable search terms. In *Breezeway Overseas Ltd v UBS AG*,⁴⁷ I had observed, at [37], that:

Although the search results are deemed to be relevant and no further review for relevance

⁴³ Para 53(3), e-discovery PD.

⁴⁴ [2011] SGHC 223.

⁴⁵ [2007] 4 SLR(R) 343; [2007] SGHC 133.

⁴⁶ [2011] 3 SLR 967; [2011] SGHC 87.

⁴⁷ [2012] SGHC 41.

is necessary, time was allocated for UBS to conduct a review for documents and emails in the search results which may potentially be privileged ... In this privilege review process, search terms can also be used effectively in order to identify privileged or confidential information. For example, using the email address of external counsel to identify privileged documents ...

What was ground breaking in the decision in *Sanae Achar* is that fact that the party giving discovery need not review the search results for relevance. It is therefore not be surprising that the judicial pronouncement in this case was received with some degree of reservation.

The significance of *Sanae Achar* is that it provided litigants with an additional option of using search technology as a means to control discovery costs. Lawyers are by nature and training cautious and prefer not to disclose a document that they have not had an opportunity to consider. The traditional mode of reviewing each discoverable document provides some level of comfort that, notwithstanding that a team of lawyers of varying degree of experience had been deployed in the process, a legal eye had traversed the document and a legal mind had been applied to the question of its disclosure. But this is an expensive process, in both time as well as costs. With the burgeoning volumes of potentially discoverable documents and the costs involved, this is not an option that ought to be adopted as a mechanistic routine in every case. *Sanae Achar* made available the option of wholly relying on the search technology and search terms as a proxy for relevance.

The court had a subsequent occasion to explain that the fact that one's obligation has been discharged after carrying out the search as agreed or ordered does not mean that every document in the search result is deemed to be relevant. In the appellate decision of *Breezeway Overseas Ltd v UBS AG*,⁴⁸ the court observed at [30] – [33] that:

30. The upshot of the above observations is that the concept of “*prima facie* relevance” refers to the notion that the party giving discovery is not required to review the search results of the court-sanctioned search for relevance. The search results of the court-sanctioned search are ‘*prima facie* relevant’ in

the sense that the party giving discovery will be deemed to have complied with his obligation to provide all relevant documents under the general discovery process (see O 24 r 1 of the Rules of Court).

31. In this regard, one should be keenly aware of the conceptual distinction between the *obligation to give discovery* and the concept of *relevance* in the context of discovery. Although both concepts are related because the party giving discovery has the *obligation to give discovery* of all *relevant* material, the e-discovery PD makes it possible for that party to fulfil his discovery obligations by giving discovery of the results of a court[-]sanctioned search, *regardless* of whether such search results are over or under-inclusive vis-à-vis the identification of relevant material.

32. With regard to the *obligation to give discovery*, as long as the party giving discovery complies with the terms of the court-sanctioned search, as well as with all the necessary requirements as stated in the Rules of Court, the party entitled to discovery ‘would have to accept that [the party giving discovery] had fulfilled [his or] her discovery obligations, notwithstanding the fact that there could well be [documents] not caught by the search engine employed’ (*Sanae Achar* ([19] *supra*) at [23]; and see [30] above). This is because the discovery rules do not require that no stone should be left unturned – an attitude “justified by considerations of proportionality” (*Sanae Achar* at [23], citing *Digicel (St Lucia) Ltd v Cable & Wireless Plc* [2008] EWHC 2522 (Ch) at [46]).

33. However, the fact that the obligation to give discovery is fulfilled by the party giving discovery of the results of a court-sanctioned search does not mean that the results of the search are deemed relevant in the sense that the party giving discovery is not entitled to conduct post court-sanctioned search reviews. At bottom, the e-discovery PD is designed to keep costs proportionate, relieving the party giving discovery of the need to conduct costly and time-consuming ocular review of all the documents in his possession, custody or power (see [22])

⁴⁸ [2012] 4 SLR 1035; [2012] SGHC 170

above). The e-discovery PD was not intended to prevent the party giving discovery from undertaking a post court-sanctioned search review to remove documents that are irrelevant to the issues in dispute. But any such further review would be outside the ambit of the e-discovery PD and the decision to remove any document on the ground of irrelevance must be done by way of ocular review. This means that every document a party removes in a post court-sanctioned search review on the basis that it is irrelevant must be processed in the traditional manner, *ie*, manually examined and subsequently considered irrelevant by a solicitor familiar with the issues in dispute (or the party, in the case of a litigant in person). ...

Drawing this distinction between obligation and relevance means that the court will accommodate a certain degree of latitude and forbearance when search technology is used. No issue arises if some documents are responsive to the search terms but are factually irrelevant. The obligation to disclose is discharged and the false positive in the search result can be easily ignored subsequently. This approach is consonant with the courts' policy of endorsing the use of search technology as a means of striking a balance between the volume of documents that have to be disclosed and in ensuring that the legal costs incurred during discovery is proportionate. Henceforth, parties have the option of relying wholly on search technology as a proxy for relevance and thus will not have to incur the additional costs of reviewing the search results for relevance before disclosure, or they may choose to do so. Which path one takes will depend very much on what is the proportionate measure for the case.

The next matter is to determine when it is appropriate to review search results for relevance. In *Robin Duane Littau v Astrata (Asia Pacific) Pte Ltd*,⁴⁹ the court had set the tone that a further post-search review for relevance will usually be unnecessary, having in mind the costs that are likely to be incurred. The courts had laid down a clear marker by reference to whether the costs incurred in such a review has been reasonably incurred in *Breezeway Overseas Ltd v UBS AG*,⁵⁰ at [30]:

⁴⁹ [2011] SGHC 61.

⁵⁰ [2012] 4 SLR 1035; [2012] SGHC 170.

... As this process is usually an expense unreasonably incurred the party electing to do this will not generally be entitled to recover the costs of the post court-sanctioned search review in the event that costs are eventually awarded in his favour.

It can thus be surmised that the additional cost of the post-search review for relevance will be an important consideration. One should say that the determination of whether the costs of a post-search review ought to be incurred should take into consideration issues like the volume of documents that will have to be reviewed within the overall context of what is proportionate for the case, having in mind the value of the claim and the issues involved.

While the court in *Sanae Achar* made it clear that the party that had made the request for discovery using search terms is obliged to take the search result *in toto*, without requiring a further review for relevance, the court in *Breezeway* made it clear that it is the party disclosing the document that has the choice whether to conduct a post-search review for relevance. It can disclose the search results without a further review for relevance, but if it chooses to conduct a post-search relevance review, then the onus fell on it to demonstrate that documents that have been removed are indeed irrelevant. Further, the court opined that the costs incurred during the post-search review will generally be considered to have been unreasonably incurred and are likely not to be allowed. This effectively shifts the burden onto the party giving discovery to demonstrate that the costs of the post-search review were reasonably incurred, possibly by reference to the issues at stake. This shifting of burden accords with the overall tone that the courts have consistently set, that the focus should be on crafting more accurate search terms before the search is conducted, and for a high degree of tolerance of false positives in the search results. Hence, the party that had requested the documents ought to take the search results *in toto*; and the party giving discovery carries the burden of justifying its actions and runs the risk that it cannot recover its costs if it chooses to conduct a post-search review for relevance.

Crafting search terms

The crafting of search terms is the other topic around which case law are clustered in these early days of e-discovery procedural developments. One ought to

commence a discussion on this topic with a consideration of the distinction between search terms and keywords. While they may often be used interchangeably to refer to the words that is used by the search engine in order to perform the search, that is probably more accurately the function of keywords. A search term combines keywords with search operators, for example confining search results to documents where two keywords appear within a close proximity with each other, or requiring that search results to include only cases where two or more keywords appear in the precise sequence.

There are a number of earlier decisions that dealt with the mechanics and details of crafting search terms. However, it was in the more recent case of *Global Yellow Pages Ltd v Promedia Directories Pte Ltd and another suit*,⁵¹ at [53], that the court articulated the guiding principle in the crafting of search terms:

Where the keywords in issue are those which are proposed by the party seeking discovery, it will generally be unnecessary to be concerned about false negatives ... in general the only concerns will be in relation to the probability of false positives and the likely number of false positives.

Put in this way, the role of the court is to assist parties in crafting search terms that will reduce false negatives (that is, relevant documents that do not show up in the search results) and false positives (where irrelevant documents that turn up in the search results). The court introduced the concept of accuracy to describe this objective, and eschewed any assumption that the search results are relevant, whether as a matter of fact or presumption.

What is clear from the cases that will be examined in this section is that the courts do not endorse the adoption of search terms that will trawl through parties' repositories in order to bring up a large number of documents and to thereafter rely on a post-search ocular review in order to discard the irrelevant. This is not how the courts expect parties to use search technology. The rationale is immediately obvious: the costs of conducting the search is added to the costs of a full review of the search results and will probably increase costs; see also Jacob LJ's admonition in *Nichia Corporation v Argos Ltd* cited above. This is concordant with judicial sentiments

expressed in *Global Yellow Pages*⁵² and *Breezeway*⁵³ that the courts' view is that technology ought to be used to manage the volume – and hence the costs – of discovery and that the leave-no-stone-unturned approach ought not to be adopted mechanistically in every case.

The courts envisage a more strategic and considered approach in the use of technology to assist with discovery. That a case requires the use of search technology to assist with discovery usually means that the volume of electronic documents is significant. Search terms ought to be crafted in a manner that produces a set of search results that minimises false positives. The risk of false negatives is more theoretical than real: the experience of the past quinquennium has been that more than half of the search terms initially proposed are likely to yield no results during the preliminary search. This fortifies the court's observation of human tendencies when it noted in *Global Yellow Pages* that false negatives will generally not be an issue that will be of concern in contested applications.

There is some guidance in the fashioning of search terms in order to achieve a high degree of accuracy in the search results. I had observed in *Breezeway Overseas Ltd v UBS AG*,⁵⁴ at [25], that:

In selecting keywords and formulating search terms, we ought to guard against the tendency to cast as wide a net as we can in

⁵² *Global Yellow Pages Ltd v Promedia Directories Pte Ltd and another suit* [2013] 3 SLR 758; [2013] SGHC 111, at [34]: 'Efficiency seeks to cull the volume of documents to be disclosed and it employs the scythe of proportionality and economy. The ultimate goal is to ensure that burgeoning volumes of discoverable documents do not translate into burgeoning legal costs that may prevent all but those litigants with the deepest pockets from seeing their cases tried on the merits. The Holy Grail is to arrive at a set of documents of the right size containing all relevant documents without expenditure of disproportionate costs.'

⁵³ *Breezeway Overseas Ltd v UBS AG* [2012] 4 SLR 1035; [2012] SGHC 170, at [20]: 'The perennial tension in the law of civil procedure, viz, the attempt to achieve both justice and efficiency, comes to the forefront in the discovery process. On the one hand, it is *ex hypothesi* in the interest of justice that all relevant material is discovered, while on the other, there is a pressing need to ensure efficiency lest injustice be occasioned through the well-meaning but disproportionate attempt to ensure that all relevant material is disclosed'; and at [21]: 'The proliferation of information technology has resulted in a burgeoning volume of discoverable electronic documents, causing a plethora of problems for the traditional discovery framework ... The traditional discovery method of manually reviewing every document ('ocular review') pits the ability of humans to review documents against the ability of machines to produce them. It is a war lost unless we can harness the ability of the same machines to review them.'

⁵⁴ [2012] SGHC 41.

⁵¹ [2013] 3 SLR 758.

order to obtain the highest number of documents in the search results. This has emerged as a pattern of behaviour in certain types of cases, where the party seeking discovery tries to use searches to draw out as many documents as possible from his adversary, with the hope that he may find the proverbial smoking gun. That would, to my mind, be tantamount to trawling or the emptying out of the adversary's filing cabinets while hiding behind the mask of search terms.

The collected experience extracted from case law that have espoused on the intricacies and considerations in the shaping of search terms may be summarised thus. First, and perhaps most obviously, search terms have to be formulated with reference to the pleadings which demarcate the issues that are in the arena of dispute.⁵⁵ This is an intensely tedious and fact-based exercise requiring an appreciation of the facts and not merely the legal issues. For in the selection of keywords, the courts in Singapore have espoused a preference for keywords that are of a more specific nature. These are preferred over those that are broader, as the approach that the courts have adopted is to make use of search technology to identify as accurate, and hence as pithy and compact, a set of documents as possible before these are turned over for ocular review. As noted above, it is not the intention for search terms to be used to obtain a surfeit of over-inclusive documents and thereafter rely on costly legal review to filter the relevant documents. Examples of keywords that have been considered to be sufficiently specific that they fall within this category are bank account and file reference numbers, project names, e-mail addresses, telephone numbers, and names and initials of persons.⁵⁶ As can be surmised, this requires that the interlocutors engage in their discussions with knowledge of the factual and legal issues of the case in sufficient depth. It is pointless to engage in discussions otherwise.

Often, a consideration of the pleadings will yield other keywords that are unique or peculiar to the case. Examples of such keywords are product names and terms, abbreviations or phrases unique to the industry or the parties.⁵⁷ What ought to be avoided as far as

possible are common words that occur in daily use, whether generally, within the industry or between the parties. This is advisedly so as the objectives of achieving a greater degree of accuracy and cost efficiency in legal review are not achieved when a surfeit of false positives appear in the search results.⁵⁸ It is in this context that one appreciates that legal terms are usually quite ineffective as keywords, because factual witnesses almost never use legal terms in their correspondence.⁵⁹ Finally, keywords which can occur as a component of common words should similarly be avoided unless the search engine is capable of identifying their occurrence as a discrete word and not as part of the word.⁶⁰

Preliminary searches

If, after adhering to these admonitions, the adversaries are yet unable to agree on the selection of keywords and the composition of search terms, there is now the entrenched practice that a preliminary search is conducted using all the disputed search terms before parties make their submissions. This practice was set out early on in my decision in *Robin Duane Littau v Astrata (Asia Pacific) Pte Ltd*,⁶¹ at [19] – [21], and its rationale is simply stated:

Preliminary keyword search to aid in determining relevance of disputed keywords

19. ... To facilitate parties' submissions and assist the court in determining whether any particular keyword was relevant, the defendant was permitted to run a preliminary search against the forensic images of the seized items using the list of keywords that it had proposed. However, this preliminary search was intended solely for the purpose of identifying the number of hits – ie instances of documents which corresponded to the keyword – and the defendant was not permitted to view any of the documents forming the search results.

20. As it turned out, after performing this preliminary search using the defendant's proposed list of 251 keywords, parties were

⁵⁵ *Breezeway Overseas Ltd v UBS AG* [2012] SGHC 41, at [31].

⁵⁶ *Breezeway Overseas Ltd v UBS AG* [2012] SGHC 41, at [28].

⁵⁷ *Breezeway Overseas Ltd v UBS AG* [2012] SGHC 41, at [29].

⁵⁸ *Robin Duane Littau v Astrata (Asia Pacific) Pte Ltd* [2011] SGHC 61, at [21].

⁵⁹ *Breezeway Overseas Ltd v UBS AG* [2012] SGHC 41, at [30].

⁶⁰ *Robin Duane Littau v Astrata (Asia Pacific) Pte Ltd* [2011] SGHC 61, at [25] & [26].

⁶¹ [2011] SGHC 61

able to agree to abandon keywords which returned no hits — and the defendant also withdrew two additional keywords — leaving only 92 disputed keywords on which a ruling was required. During submissions on 12 January 2011, the preliminary [sic] also provided much assistance, particularly when refining the disputed keywords and determining the search conditions which ought to be attached to the keywords when the search is eventually performed. In the present case, the preliminary search was conducted at a cost of only \$500 to the defendant, who had volunteered to bear this cost. Given its relatively low cost and usefulness during arguments before me, I think that this practice of performing a preliminary search using disputed keywords in order to identify the number of hits should, so far as practicable, be adopted in all cases where keywords are disputed. This will help to identify red herrings (ie keywords which yield no hits) and assist parties to refine search conditions or the keywords proper, whether as part of negotiations or during arguments before the court.

21. ... the availability of the preliminary search (see above, paragraph 19) proved to be very helpful in determining whether a particular keyword should be permitted or how it should be modified or constrained. I must emphasise that the number of hits returned in the preliminary search results does not have any bearing on relevance. However, they were helpful in determining whether a particular keyword was unsuitable as too many hits had been returned thereby highlighting those keywords which needed to be refined or restricted, after relevance had been determined.

Experience has shown that the earlier this preliminary search is run using the disputed search terms, the sooner the over- or under-inclusive search terms are eliminated or refined. Without looking at the contents of the search results, a consideration of the number of hits returned by each search term will quickly eliminate those with no results and those with a surfeit of results. For the latter category, the focus can then be quickly trained on how to refine the search term. As for the search terms that throw up a reasonably manageable set of results, parties have

usually been able to adopt a sensible approach, without the need for overly prolix or contentious submissions. This practice is now *de rigueur* and the parties will be in possession of the results of preliminary searches as they enter into the registrar's chambers to commence their submissions on an application over disputed search terms.

Solicitors' obligations in performing searches

Lest the reader departs thinking that the shaping of search terms is all there is to using search technology, that is unfortunately not the case. Solicitors owe a duty to their clients and to the court to ensure that discovery is properly conducted. The extent of this duty was considered by the Court of Appeal in *Teo Wai Cheong v Crédit Industriel et Commercial and another appeal*.⁶² 'The responsibility for ensuring proper discovery falls not only on the litigant but on his lawyers as well.'⁶³ Solicitors not only had to ensure that clients understand the full extent of their obligations to disclose relevant documents, '[t]hey also owe a duty of involvement in and supervision of the disclosure process.'⁶⁴ This is a duty that solicitors owed to the court and 'it remains incumbent on solicitors, in good conscience, to act in diligent compliance with it ... Should the solicitor find that he is unable to obtain his client's co-operation in this respect, he must cease to act for that client'.⁶⁵ The practical effect of this is explained in the passages below:

45. What then are the practical applications of this duty of the solicitor? Lord Atkin explained it thus in *Myers v Elman* [at 304]:

He is at an early stage of the proceedings engaged in putting before the Court on the oath of his client information which may afford evidence at the trial. Obviously *he must explain to his client what is the meaning of relevance*: and equally obviously *he must not necessarily be satisfied by the statement of his client*

⁶² [2013] 3 SLR 573; [2013] SGCA 33.

⁶³ *Teo Wai Cheong v Crédit Industriel et Commercial and another appeal* [2013] 3 SLR 573; [2013] SGCA 33, at [43].

⁶⁴ *Teo Wai Cheong v Crédit Industriel et Commercial and another appeal* [2013] 3 SLR 573; [2013] SGCA 33, at [43].

⁶⁵ *Teo Wai Cheong v Crédit Industriel et Commercial and another appeal* [2013] 3 SLR 573; [2013] SGCA 33, at [44].

that he has no documents or no more than he chooses to disclose. If he has reasonable ground for supposing that there are others, he must investigate the matter; but he need not go beyond taking reasonable steps to ascertain the truth. He is not the ultimate judge, and if he reasonably decides to believe his client, criticism cannot be directed to him. [Emphasis added]

47. ... In *Woods v Martins Bank Ltd* [1959] 1 QB 55 at 60, Salmon J held that a solicitor is duty bound, as an officer of the court, to carefully go through the documents disclosed by the client in order to ensure that, as far as possible, no relevant documents have been omitted. *We accept that this may have to be tempered in appropriate cases, particularly where the volume of electronic or other documents might necessitate some degree of considered, informed and adequately supervised delegation.* ... Moreover, we would have expected that in advising the Bank, its solicitors, as professional advisors having expert knowledge of the relevant legal and factual issues likely to arise in such litigation, would *at the very least have identified classes or types of documents that the Bank should search for and produce.* Further, the solicitors would also have been expected to examine what the Bank in fact produced and consider, in this light, what classes of documents seemed to be missing.

[Emphasis added.]

The import of these passages is twofold. First, the Court of Appeal recognises that a strict compliance with judicial opinion charting the depths to which solicitors are expected to descend with their clients in the search for and review of discoverable documents needs to be moderated in light of the volumes of electronic documents that are accessible in this modern age. Delegation is possible but in order to do so, such delegation has to be 'considered, informed and adequately supervised'. This author ventures to comment that delegation need not be confined to delegation to junior associates. Using search technology is a form of delegation and studies have shown that this is no less effective than traditional

manual review.⁶⁶ What then behoves the solicitor is to ensure that she advises her client on the options of relying on ocular review alone or to also make use of keyword searches or other technology assisted review. Should a client decide to make use of keyword searches or other technology assisted review, her duty extends beyond crafting search terms to supervision of the entire process of search, review and production. It goes without saying that the crafting of search terms is an exercise that needs to take into consideration and be informed by the factual and legal issues in the case at hand.

Second, the solicitor has an obligation to consider whether certain classes or types of documents have been omitted by her client. Traditionally, the conscientious solicitor would review all documents identified by her client for disclosure during general discovery, identify any classes of documents that have been omitted for rectification before the list of documents is exchanged. This iterative process can be time consuming and an iterative cycle can be wasted should the client misunderstand the class of documents that he was required to locate. The use of search or other technology assisted review necessarily requires that the discussion of discoverable classes of documents take place during the time when search terms are fashioned. An exhaustive discussion of the classes of documents that are discoverable when crafting search terms can be an effective way to reduce the risk of missing out certain classes of discoverable documents. There is also the added benefit that when an e-discovery plan is agreed and adopted by parties, it may have the legal effect of avoiding any allegation of deficient discovery since parties have agreed on the list of search terms that is to be used.

The obligations of solicitors in e-discovery extends to supervising the performance of the search. In *Sanae*

⁶⁶ See Andrew Peck, 'Search, Forward', *Law Technology News* (October 2011), at pp 25 – 26, at https://law.duke.edu/sites/default/files/centers/judicialstudies/TAR_conference/Panel_1-Background_Paper.pdf, citing Grossman & Cormack, 'Technology-Assisted Review in E-Discovery can be more effective and more efficient than exhaustive manual review' in *Richmond Journal of Law and Technology* (Vol XVII, Issue 3) at p 1, at <http://jolt.richmond.edu/v17i3/article11.pdf> and Roitblat, Kershaw & Oot, 'Document Categorization in Legal Electronic Discovery: Computer Classification vs. Manual Review' in *Journal of the American Society for Information Science and Technology*, Vol 61, Issue 1, January 2010 at pp 70 – 80, at <http://www.clearwellsystems.com/e-discovery-blog/wp-content/uploads/2010/12/man-v-comp-doc-review.pdf>.

Achar v Sci-Gen Ltd,⁶⁷ the following observation was made at [23]:

... In this regard, it would be best if the parties can, prior to any search, agree on which search engine or software is to be used, the preparation of the search engine prior to conducting the searches (eg, updating the search index or causing a fresh search index to be made) and how searches are to be conducted. This would minimise potential disputes as to whether the parties have discharged their discovery obligations.

The template electronic discovery plan in the e-discovery PD does not prescribe the details of how the search is to be prepared and performed. The solicitor will have to advise his client on various decisions, enlisting the expertise of e-discovery service providers as necessary but never delegating his primary duty to them. These decisions include the choice of software that is to be used to make a forensically sound copy of the storage medium or device. Sometimes, the parties can make use of the same software to perform the search. This is particularly the case where the search is conducted on the unallocated or slack space. Often, the image is loaded onto a separate document review system. That is the second choice that has to be made. The capability of the search engine in the document review system of choice will often be relevant during good faith discussions and any contested application over the search terms to be used. After this choice has been settled, the service provider will then load the files or forensic images and the search engine will have to be given sufficient time to compose the search index before searches can be performed. Finally, the search results – referred to as the production set – will be produced as an output from the document review system. These can either be loaded onto optical discs or other electronic storage devices to be handed over to the party entitled to discovery, or online access may be provided to them. The latter practice is common when parties agree to use the same document review system. The main reason that determines which approach is to be taken is the cost of engaging the service provider and the document review systems that it has to offer.

Digital originals

One of the areas that the courts had to deal with is the question of what is an original electronic document and what are copies for the purpose of giving discovery. For a long time, the practice was to treat printed copies of electronic documents as the only copy for discovery and use at trial, without quite addressing the question of whether these are the original or copies. And since the practice of inspection is to provide photocopies of discoverable documents, with ocular inspection usually deferred and sometimes indefinitely, many trials had been run on copies of electronic documents without ever having to address this question. In those early days, the question of production and inspection of original electronic documents had often only cropped up in the context of a forensic inspection of an electronic storage device such as a hard disk.⁶⁸

This area was brought into focus in the case of *Fermin Aldabe v Standard Chartered Bank*,⁶⁹ which involved the inspection of e-mails. The plaintiff had been provided with printed copies of the defendant's e-mails and had requested for access to metadata which were not present in the printed copies but which could be displayed from the digital data (header information) of the e-mails. The case established that the original of an electronic document is the copy that is stored electronically in the repositories of the party giving discovery. It follows that the native format of that electronic document will be the format in which this original is stored. Hence, printing the e-mail produced a copy of the e-mail. It also follows that if a PDF or TIFF version of an electronic document is produced during discovery, these are also copies and not the originals.

When it comes to the question of inspection, that must be given of the electronic document in its native format as it exists within the possession, custody or power of the party giving discovery. When dealing with electronic documents, the provision of a forensically sound copy – that is to say, a digital facsimile that duplicates internally stored system metadata as well – has the same practical effect as giving inspection since it is a perfect reproduction of the original, without loss of any information. Inspection is thus a procedure rendered otiose and

⁶⁷ [2011] 3 SLR 967; [2011] SGHC 87.

⁶⁸ *Alliance Management SA v Pendleton Lane P* [2007] 4 SLR(R) 343; [2007] SGHC 133.

⁶⁹ [2009] SGHC 194.

outmoded by the provision of forensically sound copies. Section 10 of the Electronic Transactions Act (Cap 88) refers to the qualities of a forensically sound copy as its 'integrity', which in turn is defined with reference to 'whether the information has remained complete and unaltered'.⁷⁰ Hence,

... it might be convenient to change the conceptual framework concerning digital data. Rather than question whether a document in digital format is an original or a copy, it might be more useful and relevant to refer to the proof of authenticity, or provenance, or reliability of a digital file.⁷¹

In its purest sense, the inspection of an electronic document involves identifying where in the repositories of the disclosing party it exists and making arrangements for that softcopy to be produced. As explained in *Fermin Aldabe*, the e-discovery PD requires that the party giving discovery provides 'reasonable means and assistance ... to inspect the electronically stored documents in their native format'.⁷² With printed documents, all that was required was a room with a light source in order to give effect to the right of inspection. For electronic documents, this principle required that the party giving discovery provide access to a computer with the right software installed and with access to the electronic document that is to be inspected.⁷³ *This is the provision of reasonable means*. Nothing more is required if the party giving discovery is content to allow the party entitled to discovery free access to this computer. However, where the software is not one that the party entitled to discovery is familiar with or where the party giving discovery does not wish to provide unfettered access to the computer, then an operator should be assigned by the party giving discovery to operate the software, calling up the electronic document to be inspected and operating the software to display the metadata when necessary. *This is the provision of reasonable assistance*.

When it comes to the provision of copies of electronic documents, the more recent case of *Wartsila Ship Design Singapore Pte Ltd v Liu Jiachun*⁷⁴ affirmed the

e-discovery PD's preference that copies of discoverable documents should be provided in their native format unless parties have come to an agreement on an alternate format. Further, the court held that the list of reasonably usable formats that is included in the e-discovery PD did not provide a safe harbour to the party giving discovery. His obligation to provide copies could not be discharged by providing copies (not being in native format) in one of the formats found on the list without first securing the agreement of the party entitled to discovery. Hence, the party giving discovery was ordered to re-tender copies in this case.

Concluding observations

It should not be surprising that the number of cases that have been generated in a relatively short (by the common law measure of time) span of five years when one considers the pervasiveness of electronic documents in this modern age. The clear refrain from the courts have been that with the burgeoning volume of discoverable electronic documents, parties have to adopt efficient and cost-effective practices in order to manage litigation costs. In the area of discovery, this meant that an overly pedantic approach in finding every document and pursuing every lead cannot be adopted except in the most exceptional of cases. The rule of proportionality required that a more sensible and measured approach be taken, and the courts are prepared to give the parties a certain leeway in order to achieve this. The e-discovery PD puts in place a set of guidance to encourage good faith discussions at all stages in the discovery process, and provides lists, template plans and protocols to help parties along with the process. The courts have reinforced this message with repeated exhortation for the parties to engage in interlocutory discourse conducted in good faith and with a collaborative spirit in order to achieve middle ground, and will make give directions in order to facilitate this.

Another trend that can be seen is the adoption of technology as a tool that the courts and the parties can use in order to manage litigation costs and to encourage efficient practices. Clear statements have been made of the expectation that counsel can no longer hide behind the veneer of not having access to the proper software as a means of adhering to

⁷⁰ Section 10(2)(a) of the Electronic Transactions Act (Cap 88).

⁷¹ Stephen Mason, ed, *Electronic Evidence* (3rd edn, LexisNexis Butterworths, 2012), at [10.36].

⁷² Para 50, e-discovery PD.

⁷³ See also *Electronic Evidence*, at [2.04].

⁷⁴ [2014] SGHCR 13.

photocopier-and-paper discovery practices.⁷⁵ Hence, many of the cases have been focused on how search terms ought to be crafted and in reinforcing the message that discoverable documents ought to be supplied in softcopy. This will enable the adoption of technology in the subsequent stages of litigation where documents are reviewed, witness statements prepared and lead counsel gets up for cross-examination.

As much ground as has been covered, there are still new frontiers to be explored. We have probably only started probing the boundaries of the jurisdictional issues when it comes to discovery of online documents. The current trend is for software to be offered as an online service (instead of the previous shrink-wrap and click-wrap software) and online storage is extending beyond web mail and large file transfers. An increasing proportion of electronic documents will shift from local to online repositories. The appeal of cloud computing will likely mean that one day soon, the courts in Singapore will have to grapple with foreign blocking statutes.

Another area where case law can be expected to develop is the boundaries of proportionality and its interplay with the concept of documents not being reasonably accessible where electronic documents are stored or accessible online. Judicial pronouncement and the e-discovery PD has set the tone as to what electronic documents are considered not to be reasonably accessible insofar as these are stored locally or off-line – hard disk drives and back-up tapes – but the boundaries have yet to be drawn for online storage. One may have an idea of how the courts can be expected to rule by extrapolating the treatment of web mail to online storage repositories of other types of electronic documents. However, moving beyond online documents that are readily accessible to those that have been deleted and which may possibly be restored upon request, the issue will be where the boundary is drawn. Too ready an issuance of a preservation and disclosure order may be unduly burdensome on the providers of online storage services, who are usually innocent bystanders to the litigation. We can expect some interesting developments in this area as the courts balance ‘relevance and materiality’ against ‘proportionality

and economy’ in future cases. To conclude, one can only say that the next five years will probably be more exciting than the last five.

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⁷⁵ See *Deutsche Bank AG v Chang Tse Wen and others* [2010] SGHC 125 where the court opined at [36] that it was ‘unacceptable that Plaintiff’s solicitors should raise objections to electronic discovery that is essentially premised on their (and not the Plaintiff’s) lack of the requisite software programme’.