

Online Dispute Resolution-The Emperor's New Clothes? Benefits and Pitfalls of Online Dispute Resolution and its Application to Commercial Arbitration

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The question this paper addresses is how can IT support the resolution of disputes through arbitration and mediation. The first and second parts will examine the benefits of Online Dispute Resolution, some of the pitfalls it may present and how these can be avoided. The third part will then look at one of the more formidable obstacles- the issue of security of communications. The fourth part will examine the use of Online Dispute Resolution in one particular sector, its use by the traditional arbitral institutions. Much has been written about the application of Online Dispute Resolution in other areas than commercial arbitration, such as consumer e-commerce and domain name disputes, where its use has been on the whole successful. Arbitration being a fact-finding and decision making process seems ideally suited to IT. It is therefore interesting to see to what extent Online Dispute Resolution is used in practice. The conclusion from this examination is that, although some IT is being used and increasingly so, this is still a developing field. This paper will conclude by discussing the reasons for this relatively slow take-up of Online Dispute Resolution in the field of commercial arbitration and by speculating about future developments in this area.

1. What is Online Dispute Resolution?

"Online dispute resolution" (ODR) means different things to different people. Collating the different uses of the term, one could say that ODR is information technology and telecommunication via the Internet - (together referred to as "online technology") applied to alternative dispute resolution. The term alternative dispute resolution (ADR) in this context refers to dispute resolution other than litigation in the courts, including other adjudicative techniques such as arbitration. Or in other words, ODR applies information technology and distance communication to the traditional ADR processes such as conciliation, mediation and arbitration (including the various mutants thereof). Thus ODR is essentially an offspring of ADR. Like ADR, it generally has the same advantages over litigation of greater efficiency, greater party control and lower costs- in fact, the introduction of high technology increases these advantages of ADR over litigation.[1]

In one sense, ODR is simply about the use of new tools- information management tools and communication tools- for dispute resolution. But it is equally true that these tools change

the methods by which disputes are being solved. ODR introduces a new paradigm of dispute resolution.

ODR is particularly convenient and efficient where the parties are located at a distance, as distance communication obviates the need for travelling. In principle, ODR can be used for both disputes arising from online interactions and transactions and for disputes arising offline. However it is particularly apt for e-commerce disputes, where it is logical to use the same medium (the Internet) for the resolution of disputes and where the parties are frequently located far from each other.

A distinction is sometimes made between proceedings exclusively conducted online and proceedings "only" supported by different elements of ODR. In fact, there is no such clear-cut distinction. Nowadays, all dispute resolution falls in the latter category to some extent, in the sense that online technology plays some role or other in most modern dispute resolution. On the other hand very few proceedings, as will be seen in this paper, falls squarely into the former category. Thus ODR is a matter of degree- there is a broad spectrum of ODR, with at the one end proceedings using hardly any online technology and at the other end proceedings using a high degree of online technology. ODR is not a monolithic concept- for this reason it is more accurate not to speak of ODR but in the plural of ODR techniques. The task for dispute resolution professionals is to choose the right mix of ODR techniques and traditional offline dispute resolution techniques, appropriate to the dispute in question.

Also, it is sensible to distinguish between consumer and commercial ODR, since the requirements and underlying interests of the parties are quite distinct.

Dispute resolution is essentially a complex process of information management, information processing and communication. Therefore, online technology lends itself for this task. The range of ODR techniques enhancing dispute resolution processes is broad[2]. The following shall provide a concise overview over such techniques and how they can support mediation and arbitration.

2. ODR Techniques

Some online technology is already widely used in different legal fields. Websites providing legal information[3] and legal information databases searchable via the Internet[4] make legal research much faster and easier. Such tools also make the law accessible to the non-lawyer. Document management has been greatly enhanced by word-processing software and associated tools. Such tools allow, e.g. for word searches within a text or the tracking of changes. The tracking of changes facility highlights in colour any changes made to a text, when drafting a document. This can be useful where a settlement agreement is negotiated or an award is deliberated between the arbitrators by exchanging a "travelling draft". IT has improved legal drafting aids and computerised precedent databases now belong to the standard tools of lawyers. Finally, translation software[5] supports the translation of documents, an important factor in international, multilingual disputes.

Other techniques specifically benefit mediation or arbitration.

2.1 Support of Mediation

Most providers of mediation services give details of the procedure and information about the neutrals on the web in an easily accessible and transparent manner. E-mail can provide a fast, easy-to-use, readily available and convenient method of communication and negotiation. E-mail can be supplemented by other means of communication such as the telephone and face-to-face meetings.[6]

Alternatively or additionally, the parties and the mediator may use an online platform.[7] This is a computer linked to the Internet hosting a set of linked pages containing instructions and information. Such an online platform is interactive, it allows the parties to post material, to view postings and to respond to postings. The online platform may contain various tools allowing for written communication and discussions. One such tool is online chat, consisting of users exchanging written text messages, all in the same space of time, i.e. the parties immediately respond to each other's messages (synchronous discussion). By contrast threaded discussion boards are asynchronous- or in other words there is a time lapse between the posting and reply. Thus for threaded discussion boards there is no requirement that the users are online at the same time. Furthermore it is possible to segment the online platform into spaces, such that Space A is only accessible to one party and the mediator, Space B is only accessible to the other party and the mediator and Space C is accessible to both parties and the mediator. Space A and B could be used for virtual private caucuses and Space C for public discussions. In this way the platform can be used to replicate the three-room procedure by virtual meetings on an online platform. The obvious advantage of such virtual meetings is that they can be held at a distance, obviating the need to travel and if the meetings are "held" asynchronously, whenever the participant in the mediation has a convenient moment. The disadvantage of a virtual meeting is that the meeting is deprived of non-verbal communication such as postures, gestures, facial expressions and tonality of voice. It is often said that the lack of non-verbal communication makes it harder for the mediator to establish the parties' trust and confidence in the procedure. However, this disadvantage must be balanced with the opportunities computer communication entails. Computer aided communication is not limited to text and words but can be enhanced by other forms of visual expression such as the imaginative use of images, graphics, shapes and symbols. For example as a means of encouragement colourful graphics could illustrate to the parties the progress they have made in their rapprochement. Symbols and colours could be used to represent emotions. Thus, "face-to-face" communication is replaced by powerful "screen-to-screen" communication. This however requires mediators to adapt their communication skills from face-to-face interaction to screen-to-screen interaction.[8] Another tool useful for mediation is negotiation software assisting the parties in refining the issues. One example for negotiation software is automated blind bidding. This software allows the parties to make several monetary offers and demands respectively and if the offer and demand are within a certain reach of each other, settlement is reached at a median amount. Such software can assist in avoiding posturing and conflicts "over the last few pennies". Finally, if the mediation is conducted entirely online, it will be important but also convenient to draw up the settlement online,

too, maintaining the momentum of successful negotiations- for this the settlement agreement could be drawn up as an electronic document and digitally signed.

2.2 Support of Arbitration

Most providers of arbitration services (offline or online) make their procedural rules available on the web so that the users of arbitration can easily find them and print them out. Perhaps the most obvious online technique for arbitration is the use of e-mail for communication and exchange of documents between the parties, the arbitrators and the administrator. Obviously e-mail is more convenient and quicker than traditional letters or faxes. For documentation purposes, the e-mail may subsequently be followed by a paper hardcopy. On the other hand e-mails sent over the Internet are inherently insecure and for that reason special precautions should be taken[9] One extremely useful online technique for arbitration is electronic file management, especially for complex, large-scale arbitration. Electronic file management means that all documents pertaining to the case in question are stored electronically in a systematic order. Electronic file management software permits individual documents or passages to be easily retrieved, displayed or printed, cross-referenced, compared, annotated and searched for keywords. Electronic file management reduces the time wasted searching for documents and it avoids the carrying of large amounts of paper. Cross-referencing allows the linking of text, e.g. in the pleadings, to evidence or law. Electronic file management is already widely used in practice. Commonly the parties exchange the electronic documents on a CD-Rom, allowing for an (almost) paperless hearing. It should be noted that there are some limitations to this technique. Some manuscript documents cannot be transformed into electronic format (scanned-in). Furthermore the technology of scanning-in or Optical Character Recognition (OCR) is 99.3% accurate and therefore not perfect. Also it has to be borne in mind that while there are some safeguards to ensure the integrity of scanned versions of documents, there is no guarantee (against accidental or deliberate) alterations. Finally, participants generally find documents easier to read on paper than on screen.

The next step forward in terms of online techniques, would be to file the documents on an online platform[10] electronically, via a secure connection. The advantage of this is that there is only one central, unified case database, which allows the parties, the arbitrators and the administrator to view, browse, search and retrieve documents. However online filing may entail security risks and precautions must be taken against unauthorised access.

Means of distance communication such as video-conferencing may be used to replace traditional face-to-face hearings for examining and cross-examining witnesses. The great advantage of video-conferencing is that neither witnesses, nor parties, nor arbitrators need to travel, reducing time wasted and cost. This allows the evidence to be given directly to the tribunal without the witness having to travel far. Also the rules of civil procedure, for example in England and Wales and the US, allow for this under certain circumstances.[11]One issue here is technology- it will be important that the link is of sufficient quality. This means in particular that the connection avoids delays and interruptions and that the witness can be clearly seen and heard. The physical demeanour and tone of voice should be easily detectable to assess the credibility of that witness. For example, it might not be apparent if a witness blushes because the colour resolution of the

monitor is not sufficient. Therefore, the hardware used should be suitable and the connection should be of sufficient capacity[12]. In order to avoid a coaching of the witness, the picture should cover the whole room at the witness end, which necessitates at least two cameras. Another issue to be considered is that, for evidence given on oath, the oath is only effective, if false testimony amounts to perjury at the place where the evidence is given. Finally, the most weight can be given to evidence per video-link if both parties are represented or if a member of the tribunal is present at either end of the link. However this might not always be possible. Alternatively a trusted third party such as a law firm, an arbitral institution, a notary or a court could be used. Another method to examine and cross-examine a witness would be using written synchronous online technology such as online chat. This allows parties to communicate in real time, writing and answering questions. Of course it is much more difficult to assess the credibility of a witness using online chat, which is not a real alternative to an oral (and visual) hearing.

Furthermore, an interesting online technique is the use of multi-media transcripts at face-to-face hearings, allowing the participants to simultaneously see and hear the evidence but also to see the written transcript and case file on the screen in front of them almost instantaneously. The idea is that this enhances presentation and makes the evidence more comprehensible. The transcript can be searched and annotated on screen. Furthermore it is possible to connect to the hearing by a remote link.[13]

On the other hand, participants in the hearing, used to taking their own hand-written notes, may find it hard to accustom themselves to this procedure. Another issues may be to what extent the use of multi-media presentation tools can amount to manipulation of the facts and undue influence. Thus in some cases there can be an admissibility issue here.

In conclusion it can be said that the most significant benefit of ODR is that it allows communication at a distance thus obviating the need for travelling and reducing cost. Furthermore, generally speaking ODR tends to make the procedure more efficient, again resulting in cost savings. Having already pointed out some of the pitfalls and how they can be avoided, the biggest "pit" is probably that of security issues.

3. Security issues in ODR

In most ODR proceedings the parties (or one of the parties) will wish to maintain all aspects of the proceedings private. The Internet being an open network, communications per e-mail or communications via a website platform may be inherently less secure than mail, fax or telephone. There is a risk that unauthorised persons intercept communications transmitted over the Internet and hackers may break into computers connected to the Internet. For example one such technique to gain unauthorised access is spoofing, the unauthorised person assuming the identity of an existing authorised user to access confidential information. Sniffer packages may be used to intercept and manipulate particular data. More secure are closed systems, which are screened from the Internet. Instead of using the Internet, i.e. public networks, closed systems use dedicated private lines to transmit communications. For this reason they are more secure.

However, it is not only necessary to ensure that messages are protected while being transmitted over the Internet, it is equally important to ensure that they are sent to and from a trusted computer base.

Essentially it is for the parties and the neutral to determine the suitability of the mode of communication used and to take the appropriate preventative steps.[14] Thus the parties and the neutral should consider the security aspects of using online technology and obtain suitable professional advice. Technology such as encryption, digital signatures and the use of secure, passphrase-protected services and other technologies may solve this problem.

Maybe it should also briefly be recalled that in addition to technology, the civil and the criminal law protect the secrecy of communications against unauthorised access by third parties. The Computer Misuse Act 1990 makes hacking a criminal offence.[15] The Regulation of Investigatory Powers Act 2000 makes it a criminal offence to intercept a communication[16]. The Data Protection Act 1998 imposes an obligation on the controller of data to keep personal data secure- thus the operator of an online platform is under an obligation under data protection legislation to protect the data from unauthorised access.[17] Furthermore the common law of confidentiality may apply in appropriate circumstances.

At this place, although probably self-evident, it should be pointed out that no communication method used can provide for absolute security. This statement holds equally true for online as for offline communication in the sense that physical mail can be intercepted, offices can be broken into or bugged with listening devices, papers lying around in an office can pose a security risk etc. Thus security is always a question of risk management, requiring a careful assessment of risks and balancing of risk with costs of implementing security. However, because of the fast developments in security technology and concomitant fast developments in hacking technology, it is difficult to assess this risk for online technology.

In conclusion, therefore there are three aspects to security, first the use of securities technologies for communications over the Internet and secondly, the use of closed systems. Finally, thirdly for arbitration- pleadings, briefs and other lengthy documents may be exchanged on a medium sent by traditional physical delivery, such as a CD-Rom sent by registered post or courier. This avoids the insecure environment of the Internet- but still preserving the convenience of having electronic documents.

Considering the huge benefits of ODR and considering that securities technologies are being developed, it might be interesting to see whether and how these ODR techniques are being applied in practice. In the following, by way of example, illustrating the practical application of ODR, online arbitration by the institutional providers shall be examined.

4. Casestudy- Online Arbitration by the Institutional Arbitration Providers

This part describes how the arbitral institutions provide for and use online technology and examines to what extent the parties can integrate ODR into their proceedings under existing institutional rules. Because of the lack of space, only common trends will be outlined. The

institutions examined are the American Arbitration Association, the ICC International Court of Arbitration, the London Court of International Arbitration, the Hong Kong International Arbitration Centre and the WIPO Arbitration and Mediation Center.

Generally speaking, a pragmatic (as opposed to a formalistic) approach characterises the use of ODR by the institutions. In fact, some uses of ODR raise neither procedural nor legal issues- so that a brief mentioning of these is all that is required. All major institutional providers have websites on the Internet on which their users can access rules, guides to the procedures, contact details and a host of other useful information. Equally non-controversial and widely used is the use of electronic file management and the exchange of documents on CD-Rom. Instead of sending paper documents as part of the case file, the parties send a CD-Rom containing documents by registered post or courier. In this way, each party and each arbitrator has their own electronic version of each document and can use electronic file management software to file, retrieve, view and search the documents. This use of technology allows large arbitrations with copious amounts of documents to become almost paperless. Also, transcription technology at arbitration hearings allows the participants to follow the proceedings on screen.

Other ODR technologies raise procedural and security issues, which shall be examined in more detail below. The first of these is the use of e-mail to exchange messages and attached documents between the parties, the tribunal and the case administrator. As mentioned above, e-mail communications are inherently insecure. In particular there is the question as to how the sender authenticates his identity and how to prove that the e-mail was sent and at what time and date. Additionally, the question arises how to secure e-mail messages against interception and hacking by unauthorised persons. Although, to an extent, these issues can be solved by digital signature technology, the use of agreed procedures such as acknowledging the receipt of e-mail and by encryption, the security issues regarding e-mail have not been completely solved. In general the rules are wide enough to encompass electronic communications, if proper recording procedures are used.[18] However, this does not always cover all documents to be exchanged. For example, some institutions are reluctant to accept the initial procedural documents, i.e. the Notification/Request and the Response per e-mail. Furthermore, to the extent that some national arbitration laws/international treaties or the rules impose formal requirements, e-mail may not be a suitable form of communication. An example for the former (national arbitration laws) would be that the arbitrators must sign the award and an example for the latter (institutional rules) would be that the parties and the arbitrators must sign the Terms of Reference.[19] Until all jurisdictions accept digital signatures as a valid form of signature, a hand-written signature must be used. An exception can only be made, if of course both the applicable law and the law of the place where the award is to be enforced recognise digital signatures. However other submissions by the parties to the tribunal or to the administrator (where communications is effected through an administrator) can be made per e-mail and e-mail is in fact widely used for this purpose. Nevertheless, where documents are sent by e-mail, the sender frequently also sends a hardcopy with registered post or courier for documentation purposes. Simple and informal questions and messages are routinely submitted by e-mail. Subject to the provisions of the applicable law the parties and the tribunal can of course agree what forms of communication to use, if necessary overriding the rules. This can be done in the terms of reference, in a procedural timetable, by adopting a special protocol on

communications, or on an informal basis. However, a clear protocol setting out how to effect communications is advisable.

Another very recent and novel development is the use of central, online filing platforms exclusively accessible to the parties, the arbitrators and the administrator. Such an online filing platform allows all documents of the case file being stored in one place but being accessible from anywhere. It allows the parties to communicate via a central platform. Through document management software, the participants can view, browse and search documents, but are prevented from amending them. This centralised document management is clearly more efficient and avoids duplication. It avoids the need to carry documents and should be enormously beneficial. Only few providers at present offer such a centralised platform[20], although some institutions are developing their own platform[21] At the time of writing in early 2002, the security issues (authentication and privacy) were in the process of being solved- in fact it must be stated that this is a sector of ODR which is developing very rapidly. Security issues are partly responsible for the slow uptake of online filing platforms. Another reason for this slow uptake is the users' (lawyers') slow acceptance of novel and unfamiliar technology. This can obviously be overcome by adequate training.

However, it should be pointed out that online filing should not be equated with ODR, like all technologies mentioned, it is only a tool, which depending on the nature of the dispute and the preferences of the participants may or may not be suitable. Online platforms may be used in fully and partly online procedures. Or in other words, even where they are used, some elements of the procedure may still take place offline, be it that not all documents can be scanned into an electronic format, be it that hearings are conducted in person. The acceptance of online platforms will also depend on how user-friendly they are and to what extent the users' needs are taken into account. Some institutions have developed a special protocol for ODR using the online platform[22], thereby specifying the technological requirements, providing for security and stipulating expedited deadlines. Others intend to design the platform for use under the existing rules.[23] Finally the question arises whether the parties could agree to use an online platform provided by a third party independent provider for use under institutional rules. The answer to this depends on whether the administrator agrees to the use of such a platform, at least to the extent that communications are effected through the institution. The answer also depends on the tribunal's discretion as to procedural matters.

The final ODR tools to be discussed here are those allowing for distance hearings without the physical presence of the parties. Such hearings can be conducted orally (video-conferencing or telephone conferencing) or in writing (Chatrooms). The use of such technology can be agreed in the terms of reference, at a procedural hearing or informally in writing. This is usually handled in a pragmatic way, any technology allowing questions to be put to a witness, cross- examination of witnesses and allowing an assessment of the witness' credibility can be used. In some instances very low technology methods are used, such as producing a videotape of an examination and cross-examination of a witness and sending it through registered post. Thus, the type of hearing used is usually not covered in the rules, but left to the agreement of the parties and the discretion of the tribunal. It is sometimes discussed to what extent a witness giving oral, filmed testimony can be manipulated- for example it could be imagined that there is someone prompting or

coaching the witness what to say. This person would stand in front of the witness not being captured by the camera directed at the witness. And again, there is the issue of identification of the witness. Thus, in some cases it may be appropriate that either a representative of each party or a member of the tribunal is physically present at the examination. Alternatively an "official" facility of a trusted third party, such as a notary, a law firm, an arbitration institution or a court may be used. However in most instances this will not be an issue. As a matter of practice and personal preference, many arbitrators find the interaction at a distance impersonal and less effective than in person hearings.[24] Another issue may be that of cost. If high technology such as video-conferencing must be installed, then the hearing may be expensive. On the other hand many major law firms or arbitration institutions usually have the technology required. Because of the disadvantages of distance hearings, for the time being at least, it can be assumed that for large arbitrations, in person hearings will remain the rule (although in some instances video-conferencing is in fact used).[25] It can be concluded that some online techniques are already being used in arbitration, while others are still in their development phase.

5. Conclusion: The Emperor's New Clothes?

This brief paper has illustrated how beneficial ODR has become for dispute resolution. ODR techniques offer strong support for dispute resolution through mediation and arbitration. It is therefore all the more surprising that ODR has not revolutionised the conduct of commercial arbitration. As we have seen, one reason for this is that there is a clash between the impersonal, faceless world of the Internet and the extremely personal world of arbitration.[26] To this one could add that, since the main benefit of ODR is cost-savings, this benefit may not have a decisive impact on large-scale, high value commercial arbitration.[27] Finally, as far as e-commerce is concerned, at the beginning of 2002, the failure of many .com companies does not encourage trust in the future of e-commerce. Thus one may feel inclined to ask the question whether ODR is merely a fad with no real impact on the world of arbitration (and mediation). As this paper has demonstrated, the answer to this question is certainly negative.

The main justification for this answer is that ODR techniques offer too many benefits for dispute resolution to be ignored. On the whole, ODR is still a rapidly developing and constantly changing aspect of dispute resolution, including arbitration. The uptake is the lowest for commercial, large-scale arbitration. Nevertheless, as has been outlined, the use of ODR, even in large-scale arbitration, enhances efficiency and convenience and in fact some ODR techniques are already commonly used. As the dispute resolution market becomes more and more competitive, cost savings are an important factor, even in large-scale arbitration. The slower uptake of ODR in the higher value dispute resolution sector can be explained by two factors. The first factor relates to trust and security or, in other words, security technology must be sufficiently developed to create trust in online systems and this is an area still developing. Furthermore, trust can only be established if IT specialists are sufficiently integrated into the legal teams involved in dispute resolution. Many of the security questions involved are too complex for lawyers to solve- the creation of trust in the system therefore depends on building communication between IT experts and lawyers. Or in other words, lawyers must be able to explain and IT experts must be able to understand the security requirements of the procedure.

The second reason for the slow uptake is the human factor. Some participants find the use of certain technology impersonal and state that such technology is inhibiting the art of a skilled arbitrator. On the other hand it could be argued that the technology can be adapted and improved to better use the arbitrator's skill and art. Vice versa, new technologies will only be accepted once their users have become sufficiently comfortable and competent in exploiting the potential of technology. Appropriate training and assistance will achieve this goal. Maybe one solution to bridge the gap between law and technology would be to provide arbitrators with IT assistants, dealing with the technical aspects of the procedure and bringing together the most suitable technologies from different suppliers, thus allowing the arbitrator to focus on the job in hand.[28] These are issues, which can be easily addressed.

In conclusion, the reasons for the slow uptake of ODR can be overcome and it will simply be a matter of time before the use of ODR will become (even) more pervasive.

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[1]Albeit that online technology is also changing court proceedings, albeit at a slower speed. The courts in most countries are introducing elements for ODR. In the UK see for example the online debt recovery system <http://www.courtservice.gov.uk/mcol/index.htm>, Singapore Subordinate Courts <http://www.subcourts.gov.sg/index1.html>, many US courts use online filing, for an example see <http://www.courts.state.co.us>, State of Michigan's proposed new cybercourt, <http://www.courts.net/mi>

[2] See further Richard Susskind, *Transforming the Law, Essays on Technology, Justice and the Legal Marketplace*, Oxford University Press, 2000

[3] One of many examples is www.howtocomplain.com

[4]such as Lexis or Westlaw

[5] An example for a free translation software can be found at <http://babelfish.altavista.com/tr> - however the translation must be checked for errors- the systems are not perfect.

[6] See for example <http://www.consensus.uk.com/e-mediator.html>

[7] See for example Online Resolution's Resolution Room at

[8] Ethan Katsh, Janet Rifkin; *Online Dispute Resolution*, Jossey-Bass, 2001 pp.132-134; see also the discussion threads from the Cyberweek, organised by the University of Massachusetts at www.disputes.net

[9]See the next section

[10] See for example Eversheds Extranet Eversheds.complete at www.eversheds.com and Allen & Overy's Newchange system at www.newchange.com or systems developed by dotcom companies, see www.eroom.com and www.virtualworkroom.com, or the online filing platform used by the American Arbitration Association, WebFile

[11] see CPR Part 32, rule 32.3 or PD 23 by leave of the Court, or the US Federal Rules of Civil Procedure: Fed.R.Civ.P. 43 (a), "The court may, for good cause shown in compelling circumstances and upon appropriate safeguards, permit presentation of testimony in open court by contemporaneous transmission from a different location."

[12] a dedicated link or broadband, this might not be available in all countries, often the last mile (or local loop) is not able to carry the capacity necessary

[13] See for example LiveNote SR at <http://www.livenote.com> see also Smith Bernal's website at <http://www.smithbernal.com>

[14] in the case of arbitration see section 34 of the Arbitration Act 1996; Article 19 of the Model Law on International Commercial Arbitration

[15]Section 1: Unauthorised access to computer material; Section 2: Unauthorised access with intent to commit or facilitate commission of further offences etc

[16] Section 1

[17] See Section 4 (4) and Schedule I, 7. Principle: "Appropriate technical and organisational measures shall be taken against unauthorised or unlawful processing of personal data and against accidental loss or destruction of or damage to personal data."

[18] Usually the rules refer to communication by any form of telecommunication providing a record, see Article 3 (2) of the ICC Rules, Article 4 (1) of the LCIA Rules, Article 18 (1) of the AAA Rules, Article 1.8 of the Electronic Transaction Arbitration Rules of the HKIAC, Article 4 a of the WIPO Arbitration Rules

[19] See for example the ICC Rules, Article 18 (2) Terms of Reference to be signed by the parties and the arbitral tribunal

[20] See for example Eversheds Extranet Eversheds.complete at [] and Allen & Overy's Newchange system at or systems developed by dotcom companies, see and

[21] See for example the AAA's WebFile (already in operation). Also the ICC is developing an online filing platform. WIPO is using an online platform for its domain name dispute resolution and internal case management, so is HKIAC.

[22]See for example the AAA Supplementary Procedures for Online Arbitration

[23] This is the approach taken by the ICC Court

[24] Roger Alford, The Virtual World and the Arbitration World, Journal of International Arbitration, Vol. 18, No.4, 2001 pp.449-461

[25] Roger Alford, The Virtual World and the Arbitration World, Journal of International Arbitration, Vol. 18, No.4, 2001 pp.449-461

[26] see also Roger P Alford, Journal of International Arbitration, Vol.18, No.4, p.449 (450) 2001

[27] Roger P Alford, Journal of International Arbitration, Vol.18, No.4, p.449 (450) 2001

[28] see also George Burn in High Tech- Threat or Opportunity in Arbitration, LCIA News, Volume 6, Issue 3, August 2001: "Tribunals might be assisted by the engagement of technology managers at the outset of a case who would ensure that the appropriate systems are used for a particular case." (p.8)

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