

National Alternative Dispute Resolution Advisory Council

Dispute Resolution and Information Technology

Principles for Good Practice (Draft)

(March 2002)

This paper suggests principles for good practice in relation to dispute resolution and information technology. The paper is to be further developed in the light of further information and comments received from the public and from interested parties. Comments may be:

- e-mailed to: nadrac@ag.gov.au
- posted to Director, NADRAC secretariat, Robert Garran Offices, BARTON ACT 2600
- faxed to NADRAC Secretariat (02 6250 5911)
- discussed by telephone (02 6250 6997).

Information about the National Alternative Dispute Resolution Advisory Council (NADRAC) may be obtained from [NADRAC homepage](#), or through the contacts listed above.

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Introduction

This paper provides guidance to those developing policy or delivering ADR services in the context of new forms of information technology. It identifies the impact of information technology on disputes and suggests means by which information technology can be harnessed to promote the effective prevention and resolution of disputes.

Information technology provides opportunities to facilitate communication and so assist in prevention and management of disputes. Where disputes arise, ADR services can use information technology to provide information to parties and to complement, or substitute for, traditional face to face interventions. Information technology can also play a valuable role in supporting the quality of ADR practice through more effective supervision, assessment, training, information management, research and evaluation.

Such opportunities are not however, without risks. As people struggle to adapt to changing technological environments, there is potential for more and different types of disputes to arise. People's capacity to resolve matters informally may be reduced. Inappropriate use of information technology by service providers may decrease the effectiveness of dispute resolution processes and create new challenges in maintaining the quality of ADR practices.

Forms of information technology

Information technology is of particular significance to dispute resolution since disputes and ADR processes involve processes of information exchange, or communication. Such 'information' can be the written word, the spoken word, numerical data (eg money, latitude, longitude, time), kinetics, static visual images, moving visual images, sound or other sensory data.

Information technology can take many forms. While this paper focuses on 'new' information technology, it is important to note that many everyday forms of information technology, such as pen and paper, were once new and unfamiliar. In this paper three forms of information technology relevant to dispute resolution are considered:

Telecommunications

There are many forms of telecommunications, including telephone landlines, wireless networks (satellites, mobile phones, television, radio), the Internet, Intranets and local area networks (LANs). Data may be transmitted in analogue or in digital form.

Communication through such forms of telecommunications may be:

- Interactive, or non-interactive. Interactive communications enable the user to interact with and through the telecommunication medium. In non-interactive communication, the user is passive.
- One-way or two way. In one-way communication, messages are sequential and communication takes the form of a 'string' of messages sent and received. In two-way communications messages can go both ways simultaneously.
- Synchronous or asynchronous. Synchronous communication is (virtually) immediate: the receiver gets the message as soon as the sender transmits it. Asynchronous messages are stored or processed, and so delayed.

Examples of telecommunications are radiotelephone (interactive, one way, and synchronous), telephone (interactive, two-way, and synchronous), analogue radio or television (non-interactive, one-way, and synchronous) and e-mail (interactive, one-way, and asynchronous).

The telecommunications forms commonly used in dispute resolution are the provision of information over the Internet and Intranets, e-mail and data exchanges, teleconferencing and video conferencing.

Computer technology

Computer technology includes hardware and software associated with, for example, data processing, artificial intelligence and robotics.

Applications of particular interest in dispute resolution processes are:

- data and word processing
- voice recognition and translation tools
- conferencing and group decision making tools
- software to prepare for and facilitate negotiation, including automated blind bidding programs.

Audiovisual technology

Audiovisual technology creates and reproduces visual and auditory information. Whiteboards, audio/video tape, data projection, closed circuit TV and one-way screens may be used both in the delivery of dispute resolution services, as well as for auxiliary purposes such as training, supervision and security. Three-dimensional images (holograms) are also possible, but not readily available. Audiovisual technology may be analogue (sound waves), or, as is increasingly the case, digital. Some audiovisual devices that may be particularly useful in ADR include:

- electronic whiteboards (enabling agenda and agreements to be written up and copied)
- data projection (enabling issues and agreements to be drafted and amended by parties during a session)
- video facilities.

Audiovisual tools are not necessarily electronic. Many non-electronic devices, for example, one-way screens, pin boards and semi adhesive surfaces can also be used effectively.

Convergence

Technological convergence integrates separate technologies to maximise their usefulness and effectiveness. The digitalisation of information enables telecommunications, computer technology and audiovisual devices to be combined. Digital data may be exchanged through various telecommunications forms, in conjunction with software such as voice recognition or artificial intelligence and represented effectively through audiovisual devices. Interaction over the Internet or over mobile phone networks could combine visual, text and audio communications. Virtual reality could provide three-dimensional interactivity. Even senses such as smell, taste and touch can be converted to electronic form, sent via telecommunications forms and reproduced through appropriate senses at the receiving end.

Convergence in technology gives rise to various labels such as the 'information' or 'digital age', the 'new economy' or 'information economy', the 'information super highway', 'multi media communication', 'on-line communication', 'connectivity', the 'virtual world' or 'cyberspace'. Such labels are an attempt to describe complex clusters of separate technologies.

Disputes and technology

Technological change is not a smooth and continuous process. Predictions often under- or over-state the uptake and impact of new technologies. Some inventions, such as videophones died an early death, but are later re-born. Some take many years after their invention to become accepted commercially and socially. Other inventions, such as mobile telephones, are rapidly embraced, well beyond initial expectations. Technically 'backward' regions, corporation or countries can 'leapfrog' their more advanced rivals by moving straight to a new form of information technology and skipping unproductive intermediate stages.

Technological change represents a complex interplay of:

- technical feasibility
- infrastructure
- commercial viability
- political, social, cultural and psychological adaptation.

Each new technology creates new types of disputes, as well as opportunities for new forms of dispute resolution. Technologies may transform the ways in which people communicate and relate to each other. The advent of the motor car or the telephone created particular types of disputes, for example, vehicle insurance and telephone harassment. They also changed many aspects of social interaction, which in turn

affected the way in which disputes were handled. New technology has also provided previously unavailable solutions to problems.

The late 20th century saw the advent and increasing acceptance of on-line communication, and through it, the creation of a 'virtual' environment in which people and entities relate, make transactions and have disputes. The virtual environment transforms our thinking about the nature of human interaction and relationships (Boulle 1999, Tidwell 1996). People create virtual identities, virtual locations (URLs) and virtual meeting places, for example, chat sites and cyber-cafes. On-line relationships include learning relationships between educators and students; virtual affairs, marriages, separations and divorces; offenders and victims; and a range of commercial arrangements. On-line cultures develop through protocols, norms and language. Emotions may be represented symbolically. 'Tribal' style loyalties and sub cultures may develop. A particular style of communication may arise which is abbreviated and polemic. Age, gender and cultural differences that are apparent in face to face communication may disappear, while other differences may emerge. A virtual community can also have its own unique 'legal regime' through rules for authentication, recognition, entry and exclusion (Katsh, Rifkin and Gaitenby 2000). New technologies create dynamic new industries and new economies, with businesses and coalitions forming and collapsing.

As well as conflicts within the virtual environment, issues arise between the physical and virtual environments. Moving between virtual and physical communities may create a kind of culture shock (Hardy 1998). Some people may better express themselves emotionally in on line than in face to face interaction. Those who struggle in the face to face environment may blossom in the virtual environment. Many people spend a large proportion of their lives communicating on-line. For them, the virtual environment may be as, or more, real than the physical one.

As the virtual environment is global, it transforms our sense of geography and sovereignty. The Internet is largely unconstrained by national boundaries or laws. Various attempts have been made to improve global governance of the Internet, but such attempts are often caught up in national and regional rivalries.

Any number of interpersonal, family, community or business disputes could arise in 'cyberspace' in much the same way as they do in physical space. New types of disputes that arise specifically from new technologies include:

- domain names (there are dispute resolution processes established through the Internet Corporation for Assigned Names and Numbers (ICANN) see - <http://www.icann.org/>)
- complaints in relation to privacy and security of on-line communications (see for example papers from a conference at <http://www.ag.gov.au/privacyconference/welcome.html>, or the web site of the Federal Privacy Commissioner <http://www.privacy.gov.au/internet/index.html>)
- infrastructure complaints and disputes, especially in relation to telecommunications carriers
- IT performance and project disputes (Packbier and Pratt 2001)
- disputes over trademarks and copyright

- dispute arising over the circulation of information, or illegal or inappropriate content, over the Internet
- e-commerce including those between businesses (B2B), and businesses and consumers (B2C) and between consumers (C2C). (see <http://www.selfregulation.gov.au/>)
- workplace conflicts arising out of changes to employment, personnel and work practices, generated by new technology.

While the virtual environment creates the conditions for new disputes, it also can create the conditions that prevent differences from reaching a dispute stage. Universal coverage, access to information, and automated problem identification can be 'built into' new forms of information technology. Virtual communication can also enhance the accessibility, flexibility and quality of ADR services.

In introducing and adapting to new technologies, the following questions need to be asked:

- How will the technology impact on people and on their interactions?
- What disputes and conflicts are likely to arise?
- How will the technology impact on people's capacity to manage conflicts or resolve disputes effectively?
- In light of the opportunities and risks created by technological change, what systems can be put into place to:
 - structure interaction effectively
 - increase access to useful information
 - maximise opportunities for parties to communicate in constructive ways
 - provide timely links to appropriate dispute resolution services?
- How will dispute resolution services adjust to new technology? Will information technology affect the process of negotiation, mediation and other dispute resolution processes? Will they change? Will ADR practitioners need special training in on-line dispute resolution?

Using information technology in ADR

Information technology is part and parcel of almost all ADR service delivery (<http://www.nadrac.gov.au/aghome/advisory/nadrac/ADR.html>). Dispute resolution services may use whiteboards, telephones, fax machines or word processors. Parties and providers communicate via telephone networks, information and agreements are entered onto computers, information may be accessed and down-loaded from the Web, parties and providers may communicate via e-mail, forms may be lodged electronically, fees may be paid by the Internet. Many dispute resolution services use tele- or video-conferencing facilities. Some provide their services predominantly or entirely on-line. Some may integrate multiple telecommunication forms with 'intelligent' software. In the future, nano-technology, virtual reality, holography and robotics may be taken for granted like telephones are today.

The availability and use of any information technology in ADR processes raise the following issues:

- How does technology affect the
 - accessibility and acceptability
 - fairness
 - effectiveness, and
 - cost of the ADR process?
- What is the legal context of ADR service delivery?
- What are the risks, and how can they best be managed?
- What standards should apply?

Accessibility and acceptability

Information technology has the potential to enhance access to some otherwise disadvantaged groups. Barriers that can be removed or reduced through technology include: geographical isolation; mobility impairment; confinement or imprisonment; sight or hearing impairment (eg through voice recognition software); language difficulties (through translating software); lack of confidence or competence in face to face communication; and physical violence or intimidation. On-line communication operates globally and is not constrained by physical distance and geography (but is confined by the availability of carriers and media). Practitioners and parties can be from anywhere in the world. As increased accessibility may lead new client groups to make use of existing ADR services, there are new risks as well as new opportunities. For example, the increased power and spread of communications may improve access to information, while also raising concerns about confidentiality ([see risk management section](#)).

While information technology theoretically promotes access, the ‘digital divide’ may prevent this potential from being realised in practice. Lack of computer literacy, and lack of access to appropriate hardware, software and telecommunication infrastructure, are key barriers. Those on low incomes, those with low literacy and older people may find it harder to access on-line services. Those in rural and remote areas frequently do not have the reliable high bandwidth telecommunications forms required for effective on-line use of services, and may also be more likely than their urban counterparts to experience the social barriers mentioned above.

While short term technical problems may limit the acceptance of technology, social, cultural and psychological barriers may be more important. Acceptance of the use of information technology in ADR processes may be constrained by lack of consumer awareness and acceptance of new technology combined with lack of awareness and acceptance of ADR. Parties and referrers (such as courts or lawyers) may prefer to use an unfamiliar process such as ADR, through familiar communication forms (such as telephone or face to face). ADR practitioners may be uncomfortable with information technology, which in turn may affect consumer confidence.

A number of strategies are suggested to address these issues.

- ADR service providers could collaborate with relevant agencies and groups, such as [NOIE](#), or the community networking movement, in order to build

consumer and practitioner competence and confidence in information technology. Collaboration with local community facilities that have effective infrastructure in place could also be considered.

- The environment in which consumers access technology may be made more amenable to particular users. For example, a keyboard and screen may be used by several people, creating a group environment for those who otherwise would find the on-line medium socially isolating.
- ADR service providers should use media with an appropriate and accessible bandwidth, with readily accessible software, and low requirements for computer capacity. Compliance with the guidelines for disability access may represent good practice generally ([see standards](#)).
- Quality accreditation processes could be developed for on-line service providers, so that parties and referrers can have confidence in the quality of service delivered ([see standards](#)).
- Effective change management strategies could be employed when introducing new technologies ([see change management](#)).

Fairness

Accessibility and acceptability will influence whether a new process, such as on-line ADR, is accepted in the first place. By contrast, fairness concerns the actual and perceived equity of outcomes for parties once they use the service.

Issues of justice and fairness apply across all ADR processes ([see NADRAC diversity paper](#)). Additional practice issues emerge, however, when new technologies are introduced.

Information technology may neutralise some sources of power through removing some of the dynamic associated with face to face communication. Moreover, it may empower certain disputants through enhancing their communication. Other forms of power imbalance may emerge, however. The style of on-line communication may be more suited to some groups. Men and women may use forms of communication differently, men for factual exchange, women for relationship maintenance and social communication. Text-based forms of ADR, may be more suited to short, factually based communications, and so suit men more than women (Katsh et al 2000, King 2000). The cost of on-line communication may lead to time pressures that work against some groups. Those with greater computer literacy and keyboard skills are clearly better able to use the medium to their advantage. Those relatively unfamiliar with the technology may be more easily manipulated into agreement by the other party or by the ADR practitioner.

As parties may access an on-line ADR service anywhere in the world, the neutrality of the forum may be an issue. The choice of forum may lead to advantages for a party and/or a national interest. In the global environment national courts may not be considered wholly independent. ADR bodies from a particular country similarly may be 'tainted'. Within national borders, geographical issues may also impact on neutrality, for example bush vs city, north vs south. In a face to face meeting, an ADR practitioner may be able to build trust to overcome this perception. In on-line communication, this may be more difficult, especially if the practitioner is seen as having possible alignment with the local party. Perceptions of neutrality may also

arise in relation to the use of corporate infrastructure, software or hardware in the ADR process, especially when a dispute concerns information technology or telecommunications.

Impacts are uneven where one party is available for a face to face meeting with the ADR practitioner (the local party), and the other is available via e-mail, telephone or video hook up (the remote party). While the face to face party may be in a better position than the remote party to communicate with the practitioner, the remote party can more effectively mask their feelings, delay responses or manipulate the environment. There is also a risk that the practitioner may overcompensate for the apparently disadvantaged party.

Strategies for managing technological imbalance include:

- Deliver on-line services in conjunction with existing 'face to face' services, by, for example using local services to provide interpersonal support and technical assistance.
- Agree on technical ground rules at the outset on, for example, the bandwidth and software to be used, and the nature of data to be transmitted.
- Where one party is face to face and the other remote, introducing procedures that build and maintain trust, and that minimise the risks of disadvantage or bias. Also consider the feasibility of creating 'virtual equidistance', by, for example:
 - placing the local party in a separate office, with a separate line, and engaged in the same way as the distant party.
 - engaging a 'neutrally located' practitioner, who is equidistant or suitably removed from both parties.
 - engaging ADR practitioners at both ends of the exchange, using a form of virtual co-mediation. This would rely on a large network of skilled practitioners, with common training and protocols. (There is also the risk that each practitioner may be seen as, or even become, more of an advocate for 'their' party.)

Effectiveness

Each mode of communication has advantages and disadvantages. For example:

- Face to face communication provides the fullest degree of interpersonal communication. It is not always feasible, however, and some interpersonal dynamics (eg physical intimidation) may also work against effective resolution (King 2000).
- On-line text communication is quick, accessible, and cheap. It allows for large amounts of text based information to be transmitted, searched and modified. It enables the exchange of large volumes of written information. While e-mail requires typing skills, the act of writing may assist parties to reflect on their positions. However, like other forms of written communication, e-mail may have limited capacity to communicate complex emotions.
- E-mail is far quicker and more convenient than conventional forms of written communication. The speed of exchange can be determined largely by the parties, and multiple exchanges, which would take months through an

exchange of letters, can be compressed in time. For some people, however, e-mail may lack a sense of formality and finality.

- Telephone communication is almost ubiquitous, is relatively cheap and enables greater human interaction than text. However, it excludes body language.
- Video conferencing provides an approximation to face to face interaction. However, images are two-dimensional, and, as eye contact is via a fixed camera, some information gained from eye contact is lost. Lagging can create delays in responses and lead to a perception of hesitancy. Physical movement may be constrained by camera angles and bandwidth constraints. Video conferencing also fails to convey other sensory data such as touch and smell.
- One-way communication may be a stilted and constrained but prevents interruption. Two-way communication is more natural and provides immediate feedback. It allows interruptions, which may have negative or positive impacts.
- Asynchronous communication, such as e-mail, voice mail and video streaming, is not dependent on parties being available at the same time (a major advantage where parties are in different international time zones). It demands a reflective response, which could lead parties to alter or adjust what they would communicate in a face to face situation. Asynchronous communication also allows parties the 'space' to consider proposals and offers without the pressure of immediate acceptance. By contrast, the immediacy of synchronous communication may lead to greater spontaneity, more pressure and greater risk of words and actions that are later regretted.

Some information is lost in all forms of current telecommunications technologies, and this loss may have an impact on some of the intangible aspects of human relationships. For example, it may be difficult to create trust (Katch et al 2000). Conversely, the loss of such information may be useful where interpersonal dynamics are destructive, for example, a history of physical intimidation or enmeshed conflict (King 2000).

Suggested strategies for making telecommunications most effective in ADR processes include:

- If conducting an on-line process, create opportunities to develop trust, for example, by making direct contact by telephone beforehand.
- With written (e-mail) messages, keep messages clear and concise. Avoid ambiguities or messages that may be misinterpreted or require further clarification. If using codes, ensure that all parties understand what they mean.
- With automated processes, balance the human with the automated dimensions of the process. Ensure that parties have access to 'real' people if required.
- With audio communication (such as tele-conferencing) keep messages clear. Describe your surroundings and the process you envisage. Introduce yourself when you cut in.
- With video-conferencing, take into account and explain, limitations of the medium such as time lags, 'flat image', etc. Avoid too much physical movement. Allow parties and practitioners an 'easing in' period.
- Consider [hybrid processes](#).

Cost

Rapidly decreasing costs, increasing competition and increased capacity in many relevant technologies prevent firm cost comparisons. ADR service providers may need to shop around for the best deal and regularly revisit their estimates. Information technology may also require new models for charging fees and/or funding ADR services.

The costs of a face to face meeting include the cost of a physical venue, travel costs and time lost in travel. Costs to consider in on-line communication include line rental, software and equipment costs (whether capital, leased or borrowed). With on-line communication, costs depend largely on the bandwidth required. E-mail and telephone communication are relatively cheap and accessible, do not require extensive physical facilities, but limit interaction. Low bandwidth videoconferencing (up to 128 kps) is reasonably affordable and accessible, but may suffer from poor picture quality. High bandwidth videoconferencing (384 + kps) can be expensive but costs are declining.

	Text/e-mail	Graphics/ audio or video streaming	Usual video-conferencing	Broadcast quality videoconferencing
Bandwidth requirements	<1kps	1-10kps	128kps	384kps
Capital costs				
Approximate hourly cost per line				
Number of lines (= number of parties)				
Estimated costs – lines X hours X cost ph				

Other issues to consider in estimating costs are:

- Information technology may create new markets and new demands, rather than replace existing services.
- Technology may lead to a doubling up of resources, such as where information and records need to be provided in both electronic form and hard copy.
- New methods require a period of adjustment and initial increased inefficiency may be expected while people adjust to change (the so-called J-curve). Rapid change in technology allows little time for adjustment, and parties and practitioners may be in a constant state of learning.
- Considerable training, marketing, consumer education and capacity building may be required for on-line ADR to be accepted.
- The low uptake of ADR generally, and of on-line ADR in particular, may prevent sufficient economies of scale.
- The use of technology may shift costs. For example, a technologically supported ADR session, such as a videoconference, may reduce travel costs for the parties, but increase overheads for the ADR service provider. Different

funding and fee for service arrangements may need to be developed which take account of the availability of new technology.

- Many ADR service providers have extremely limited resources and short term funding. Their current equipment may be extremely basic. They may be unable to 'invest' in new technology, even if long term gains outweighed short term costs.

Selecting the form of communication

Uses of information technology are not all or nothing decisions, but a continuum of choices, ranging from methods conducted traditionally (most common) through to those conducted entirely using information technology. 'Hybrid' approaches, which combine traditional processes with new forms of information technology, may have the most applicability and potential for ADR service provision.

Traditional	Hybrid			New
No or marginal use of new forms of information technology	New forms of information technology to supplement traditional methods	Equally combining new and traditional methods	New methods supplemented by face to face approaches	Process conducted entirely using new forms of information technology (eg on-line)

Hybrids

The hybrid approach to the use of information technology in ADR requires breaking the ADR process into separate tasks so that the appropriateness of different forms of communication for each task can be determined. An ADR process may involve preliminary contact by phone, data exchange and opening statement by e-mail, discussion by videoconference (or face to face if practical), negotiation by teleconference, and agreement by e-mail. A range of technologies may be used at different stages of service delivery. Some options are outlined below.

- **Initial contact**
Many service providers advertise their services on the Internet, and parties may access information, or request more information via e-mail. Information may also be provided through Video or CD-ROM, possibly with interactive features.
- **Initiation**
Initiation of the ADR process may also be undertaken by e-mail, with contact made with the other party(ies) also made by e-mail where available. Fees can also be paid over Internet. Follow up communications (eg satisfaction questionnaires) may also be provided electronically.
- **Assessment**
Where written questionnaires or checklists are used for the purposes of assessing a matter for suitability, these could be provide on the web-site, downloaded, filled in and e-mailed. Interactive forms may also be used.
- **Information exchange**
E-mail provides a quick and convenient means for parties and ADR

practitioners to exchange large amounts of data that may be required to prepare for the ADR process (ie electronic data interchange or EDI).

- **Lodgement**

Formal legal documentation can also be lodged electronically. 'Virtual deal rooms' can be used to authenticate and record formal contracts or agreements.

Information technology can also be used within an ADR session. Videoconferencing enables the ADR process to be conducted in a similar way to a face to face conference, depending on the cost and availability of appropriate facilities. The use of asynchronous on-line communications, such as e-mail, seems most applicable to determinative processes and to shuttle mediation, where 'strings' of communication are undertaken, but may also have application to other facilitative processes, depending on procedure and the stage of the ADR process.

- **'Opening statements'** or opening 'bids' may be provided by e-mail, or may be streamed as video images.
- **Issue identification** or agenda setting may take place with the ADR practitioner formulating a list of issues on-line.
- Limited **exploration** or discussion may be conducted by e-mail. Conferencing software combined with data projection can be very effective for group decision making.
- **Options** can be generated on-line. Access to a computer program to organise and facilitate complex financial information may also be useful.
- **Private sessions** or caucusing can take place by the practitioner simply altering the address box of the e-mail
- **Negotiation** may also take place on-line, although this may take the form of traditional bargaining comprising demands, offers, counter offers (or blind bidding, mentioned above). Automated negotiation can be used where parties physically attend a site.
- **Agreements** may be drafted on-line. Indeed, e-mail provides a quick and convenient way of progressively refining 'draft agreement' to produce a single text document. The normal word-processing tools (for example, track changes, annotations, comments) are all available on the electronic agreement. A data projector can be used in a similar way for face to face meetings.

Processes conducted entirely on-line (ODR)

While ADR services may use on-line communication to complement face to face services, some processes are conducted entirely on-line. The acronym 'ODR' (on-line dispute resolution) is often used to describe these processes. ODR processes include:

- Automated negotiation, such as blind bidding
- Mock juries
- On-line arbitration
- On-line mediation
- Credit card charge back and escrow arrangements.

Some ODR processes, such as on-line mediation and arbitration, attempt to reproduce traditional face to face processes. However, unique forms of ADR, such as automated blind-bidding and mock juries, have also developed out of the virtual environment.

These new forms challenge the definitions and standards developed for traditional ADR processes.

At present, ODR is most commonly used to resolve disputes concerning on-line transactions such as e-commerce (Lawson 2000, Katsch et al 2000) or domain names (<http://www.icann.org/>). Processes may also be conducted entirely on-line where geography or disability or other factors prevent other forms of communication.

Parties who are very comfortable and confident in the virtual environment may have no difficulty using an on-line process conducted entirely on-line. Many, however, may be newcomers to the Internet and may well be discouraged and disadvantaged if ADR were only available on-line. Thought, therefore, needs to be given to the provision of back up systems in the event that the on-line communication process breaks down.

Matching the form of communication to the task

Form of communication	Requirements	Benefits	Limitations and risks	Current and potential applications
Face to face meeting	Physical meeting venue and waiting room facilities Parties need to be able to travel to the venue, and be capable of face to face communication	Allows for full 'real time' communication, verbal, non-verbal and body languages, exchange of written information, clear authentication, signing off. Creates a sense of occasion and ritual	Negative personal dynamics, intimidation, physical violence	The most favoured and common form for interaction
Face to face meeting complemented by IT or AV	Software and hardware	May overcome some problems associated with face to face meeting, and give additional tools to the ADR process.	The benefits may not be worth the expense and effort of setting such systems up	May need to match needs of parties with specific needs and problems
Letters	Stationary and postage facilities	Formal, authentic (signed).	Slow. Eliminates non-verbal factors	Formal letters of introduction, final agreements, etc
e-mail	Access to computer, Internet and ISP by parties and ADR service.	Enables exchange of complex written information Neutralises	Conveys limited interpersonal information.	Not commonly used to conduct entire ADR process, but often used as an adjunct to face to face and telephone

	(Low bandwidth) Keyboards skills and computer literacy Appropriately secure access and authentication protocols	negative interpersonal dynamics Give people time and space to consider responses	Too slow to type Difficult to develop trust Asynchronous communication	communication, especially for information and document exchange
Automated processes	As above, but keyboard skills less important	Privacy, quick and accessible Face saving Neutralises personal dynamics. Parties' offers and demands can be totally protected and eventually deleted	Impersonal Lacks personal engagement of an ADR practitioner Current programs may be rigid, lacking intuition	At this stage, programs are unsophisticated and limited to simple quantitative (eg monetary) matters, that are amenable to a compromise solution. Artificial Intelligence may become more 'intuitive' over time
Video or audio-streaming	As above, although bandwidth and computing capacity requirements may be higher	May be more effective than text in conveying messages, especially emotions	Asynchronous communication	Not used extensively in ADR process itself.
Telephone and tele-conference	Access to telephone lines, preferably with conference call capacity	Availability Ease of use Immediacy of communication May reduce some negative aspects of face to face communication such as violence and intimidation	Reliant on oral communication only; unable to exchange written information or authenticate material.	Very commonly used, especially for information, intake and follow up. Also used to overcome geographical distance
Video conference	Availability of compatible equipment (cameras, microphones, etc.) software and high bandwidth – dependent on quality of signal	Approximates face to face interaction, by providing for oral and visual communication. May reduce some negative aspects of face to face	Aspects of communication lost or distorted through time lag, eye contact, 2-dimensional image Loss of other sensory data (smell,	Used successfully by some ADR service providers, especially to overcome geographical distance

	required. Parties usually need to travel to appropriate video conference venue (but in longer term may be able to readily access such facilities in ordinary home or office environments)	communication such as physical violence and intimidation (although visual and verbal intimidation is still possible)	taste) Some technical and cost barriers (but these are declining in significance)	
Integrated technologies video, audio, text, voice recognition.	Appropriate bandwidth, software and equipment	Combines benefits of each of video, telephone and text.	As for videoconferencing, some aspects of communication are lost	Emergent technology; likely to be commonplace in the next few years. Has the potential to create a 'critical mass', increasing the acceptance and uptake of on-line communication
Virtual reality	Currently fairly stylised. Requires specialised equipment and large bandwidth	Three-dimensional interactivity.	For most applications The benefits not yet worth the cost and inconvenience for what is predominantly a verbal process.	Rarely used in ADR if at all May have specialised uses, eg training, therapy, sensory-motor, non-verbal interaction, overcoming specific disabilities
Holography	Huge bandwidth Not currently feasible	May be visually indistinguishable from face to face interaction	Lacks physical touch	Still in the realm of science fiction

Legal issues

Specific legal issues arise out of the nature of digital data, and the global nature of telecommunications. However, divergent legislation across national and international boundaries, combined with a lack of case law, means that many of the legal issues associated with the use of technology in ADR are uncertain.

In the global communications associated with the Internet, there are multiple and overlapping sovereignties (Aoki 1998), comprising national and state statutes, international treaties and self-regulatory arrangements, contract law, and virtual law. It may be difficult to determine the site of the ADR process, the sovereignty therefore that applies, and, in turn, legal implications for the conduct of the process, the status

of communication and the enforceability of outcomes. In the case of arbitration, the question arises as to what is the ‘seat’ (or place) of the arbitration, or indeed whether such a place exists in any event (as the arbitrator is ‘nowhere’). As outlined earlier in this paper the virtual community to some extent has its own ‘quasi’ or ‘virtual sovereignty’.

There are potential legal risks for parties and for on-line ADR providers that action may be brought against them in a court anywhere in the world. While there is little case law directly relevant to on-line ADR, publication of material over the Internet has raised important jurisdictional issues (for example, *Macquarie v Berg* [1999] NSW SC 526, *Gutnick v Dow Jones* [2001] VSC 305).

The privacy and security of on-line communications create many new legal challenges. As digital data can be copied and manipulated infinitely, the authentication of data is a critical issue. Public key infrastructure (PKI) enables electronic signatures to be recognised and validated. Legal issues relating to contractual arrangements, the payment of fees or exchange of money as a result of an agreement or decision made in an ADR process, may need to take account of the *Electronic Transactions Act 1999* (Cth), similar statutes in the States and Territories and, possibly, legislation in other countries.

In the Australian context, it is noted that the *Telecommunications Interception Act* (s 6(1)) provides that where a communication is listened to or recorded over a telecommunications system, it must be with the knowledge of the person making the communication. An on-line ADR system in Australia would have to comply with this provision.

Risk management

Each form of communication, including face to face interaction, has its own risks. Information technology creates both new challenges and new solutions. Risks do not necessarily increase with the introduction of new technologies. Lack of experience with, and knowledge of, new methods, however, means that we may be less able to accurately identify and manage the risks.

The convenience and power of digital communication also means that it can be misused. Digital records can be manipulated and stored indefinitely, often automatically, without the knowledge of the user. The speed and the global nature of the Internet magnify any risks, and the consequences of those risks.

Service providers need to conduct an analysis of the risks associated with their own service. Some possible risks associated with new technologies are outlined in the table below.

Risk	Probability	Impact/Severity	Management strategies
Technical failure	High	Inconvenience, time loss, cost to parties	Test equipment beforehand Have contingency plans in place.

Breaches of confidentiality	Medium	In physical space, the loss of confidentiality and privacy is generally confined. A breached confidential communication over the Internet, however, may be provided to anyone in the world.	Encryption and firewalls Develop protocols for storing and deleting computer records, including histories.
Loss of data	High: Hardware or software problems or virus are quite common. Physical theft or damage also possible	Usually not as severe in ADR as in some other areas (eg banking) May create case management and administrative problems. May have a big impact on parties if they are reliant on service provider maintaining records (eg agreements)	Have back up systems in place.
Format obsolescence	High: The fading out of old software and hardware may it difficult or impossible to recover old records	May be a problem where long term storage is an issue, such as land use agreements, wills, trusts, etc.	Update formats regularly; use traditional paper based formats.
Falsification of data	Moderate	Could result in severe loss and injustice to a party, and loss of credibility in ADR process	Authentication protocols
Criminal acts, eg Fraud Sabotage/cyber vandalism	Like anyone else, parties and practitioners are also at risk of on-line sabotage (such as viruses), extortion and other computer crime. ADR, however, is unlikely to be a specific target.	Could result in minor inconvenience through to catastrophic losses, with global ramifications	Develop security management systems, authentication protocols, encryption and appropriately configured firewalls.

Standards

Service standards

Functional equivalence suggests that the same standards should apply regardless of the technical context of service delivery, for example, face to face, over the telephone or over the Internet. While existing standards could be contextualised to suit the on-line environment, some unique standards may also be needed especially for processes conducted entirely on-line (Wentworth 2001). Some specific standards issues that arise in relation to the use technology include:

- Technical capacities and compatibilities:
 - hardware and software compatibility
 - bandwidth requirements (for example, courts often demand 384 kps for videoconferencing, but community facilities are mainly 128 kps; should there be a recommended bandwidth for particular ADR processes?)
- <http://www.lawfoundation.net.au/olap/links/innovate.html#vid>

- good practice in on-line information eg
 - disability standards (www.w3.org/)
 - Commonwealth Government (NOIE) <http://www.govonline.gov.au/projects/standards/index.htm>
 - Legal Information Standards Council (<http://www.lawfoundation.net.au/lisc/recommend/bpguide.html>)
- [Legal, security and privacy issues](#).
- [Accessibility](#) and [fairness](#) considerations raised earlier
- Global considerations: The global nature of the Internet means that standards must be considered in an international, not national context. International standards therefore need to be taken into account. (see, for example, work by the American Bar Association <http://www.law.washington.edu/ABA-eADR/news/2001.01.17news.html>)
- Ambiguity of expectations. Parties' expectations, ADR service provider's standards and technical capabilities may be out of alignment.
 - For example, is e-mail to be handled like a telephone call, requiring an immediate response in colloquial language, or like a letter, carefully worded, formal and considered, and provided 'in due course'?
 - Some ADR rules require that certain material must be provided to parties in a particular form or at a particular time. There may be some doubt about compliance when material is provided on-line.

In its report [A Framework for ADR Standards](#) NADRAC recommended that ADR service providers adopt and copy with a code of practice which took account of some essential elements. The table below suggests some issues that may need to be considered when information technology is used in ADR.

The Code of practice should describe:	Possible adaptations to information technology
1. The ADR process or processes to be covered by the code, including the roles of all participants in the process	In automated processes, the role of the 'fourth party' (Rifkin 2001), that is the computer program, will also need to be described
• How and when the ADR process may or should be terminated	The manner of terminating an on-line ADR process needs to be considered, for example, under what circumstances will an on-line connection be severed
• The service provider's and practitioners' obligations after the process is concluded	Storage and retrieval of electronic data may be an issue. For example, should an ADR service provider be allowed to permanently block e-mail messages from a vexatious party?
• The service provider's and practitioners' obligations to enable parties to make informed choices about the extent and nature of their participation in the process	Service providers may need to ensure that those lacking computer literacy are supported and provided with information in different forms
• The service provider's and practitioners' obligations with respect to advertising and	Ensure that the benefits of the technology are not overstated

promotion of themselves, their service and the ADR process	
<ul style="list-style-type: none"> • How and when parties will be informed of the standards that apply to the service provider and to practitioners 	In the on-line environment, service providers could use a pop-up screen to verify that parties are aware of standards
<ul style="list-style-type: none"> • The service provider's and practitioners' obligations to determine the appropriateness of the process for the particular dispute and for the parties to the dispute 	The appropriateness of the form of communication also need to be considered (xf table)
<ul style="list-style-type: none"> • The service provider's and practitioners' obligations to ensure the accessibility of the service and the process to parties with diverse needs 	Accessibility issues relating to technology need examination (xf other section). There may be an obligation on service provider to USE available technology to overcome accessibility issues
<ul style="list-style-type: none"> • The service provider's and practitioners' obligations to achieve fairness in procedure, including neutrality and impartiality 	Power issues in the on-line environment need examination: See section on fairness
<ul style="list-style-type: none"> • The service provider's and practitioners' obligations to maintain confidentiality and to inform the parties of confidentiality requirements 	The security and privacy of computer records need consideration (xf risk management)
<ul style="list-style-type: none"> • The knowledge, skills and ethics that are required by practitioners 	See below
<ul style="list-style-type: none"> • The service provider's and practitioners' obligations to ensure the quality of the ADR processes 	Regular review and supervision may be required. On-line supervision and training may be useful (xf)
<ul style="list-style-type: none"> • The service provider's and practitioners' obligations to handle complaints appropriately 	A complaints facility may be provided on-line, but other forms should also be provided (eg if a party feels they have suffered badly through an on-line process, or has problems accessing the site, they need an alternative method of registering a complaint)
<ul style="list-style-type: none"> • The service provider's and practitioners' obligations to comply with the code. 	International obligations may also need consideration

Practitioner standards

As outlined above, ADR service providers need to ensure that the knowledge, skills and ethics of ADR practitioners are appropriate to the context of service delivery. The following table indicates how the practitioner standards identified in [NADRAC's](#)

[report](#) may need to be adapted to new technological environments. Specific elements already listed in the standards report are shown in italics.

Existing standard	Contextualised to information technology
Knowledge	
Conflict	Knowledge of the types and nature of conflict in the virtual environment
Culture	The 'virtual' culture, cultural change and technology, <i>cultural attitudes toward physical space, venue and time</i> Technological sub-cultures
Negotiation	Dynamics of on-line negotiations
Communication	Effects of communicating on-line or through audio visual device; communication styles in the virtual environment
Context	The technological context for dispute resolution; globalisation, legal environment
Procedure	Procedures for resolving disputes on-line, such as blind bidding
Self	One's own attitude to technology and change, and how one relate to the virtual world
Decision making	Role of information technology and artificial intelligence and the 'fourth party' in decision making
ADR	Knowledge of emerging forms of ODR, eg automated processes
Skills	
Assessing a dispute for ADR	Assessing suitability of different forms of technology for parties and disputes
Gathering and using information	Using the Internet, intranets and other sources of information to gather information. Using information technology to process information.
Defining the dispute	How information technology influence how disputes are defined, for example, extent to which automated processes ascribe numerical values to disputes
Communication	Communication skills on-line or through audiovisual devices (eg clarity, avoidance of ambiguity - <i>xf</i> earlier section) Literacy in on-line language <i>Keyboard and computer skills</i>
Managing the process	Organising the facilities (eg videoconferencing) <i>Effectively using technology and outside assistance</i>
Managing interaction between the parties	Using the technology to manage interaction (eg use of conference facility in tele-conferencing to have separate and joint discussions)

Negotiation	Using information technology to facilitate negotiations (xf above)
Being impartial	Ensuring that impartiality is maintained, eg when using tele or videoconferencing, or e-mail, especially if one party is local and the other remote (xf fairness)
Making a decision	Natural justice consideration may need to be considered.
Concluding the ADR process	Authentication of an on-line agreement Use virtual closing rituals
Ethics	
Promoting services accurately	See service standards above
Ensuring effective participation by parties	Use strategies to ensure fairness and accessibility in on-line environment and in tele- and video-conferencing (xf)
Eliciting information	Verification and authentication of information provided on line or through other telecommunications medium
Managing continuation or termination of the process	Managing parties 'hanging up'. Managing technical failure. Ensuring automated process do not prematurely end, or indefinitely continue negotiations
Exhibiting lack of bias	Consider how the use of facilities can lead to a perception of bias. Consider geographical location of practitioner and how this may affect parties' perception
Maintaining impartiality	Maximise transparency in on-line and audiovisual communication, eg explain physical settings. Take account of technical disadvantage but avoid overcompensating
Maintaining confidentiality	Ensure that automated process are secure, employ risk management strategies to secure information (xf)
Ensuring appropriate outcomes	International legal context (eg enforcement), and notions of fairness, may be relevant

Using information technology to develop ADR practice

The previous sections explored the use of on-line technology in relation to direct service delivery. The same technology can also be used to develop ADR practice through:

- Promotion of ADR
- Training and education and professional development
- Management of information

- Research and evaluation.

Promotion of ADR

Information technology has enormous potential to promote the use of ADR generally, or in marketing specific ADR services. Static information, such as web-sites, can be used to make general information available to a wide audience. Audio-visual information (for example, a video clip of an ADR venue or session) can be combined with text and links to other sites can also be included. The large volume and questionable quality of information over the Internet, however, may overwhelm new consumers. As with promotion of ADR generally, targeted information and promotion is more likely to be effective.

Interactive information, such as through e-mail, video interviews or call centres, are more resource intensive to the provider but ensure that the material provided is more relevant and more readily understood by prospective clients. Interactive software, such as artificial intelligence or computer simulation, can also be used to assist parties to consider options and explore scenarios.

There is potential for information technology to be used strategically to target groups who would be most in need of dispute resolution assistance, and to deliver information and promotion material at the most effective time. [Privacy issues](#), however, need to be considered if any unsolicited material is to be provided to parties on-line.

Unsupported information over the Internet may not be appropriate in complex cases, or for vulnerable groups (for example, victims of domestic violence), and it may be better to deliver information to such groups via existing support networks.

Training and professional development

On-line technology enables ADR students and practitioners to access resources worldwide. An ADR practitioner in regional Australia could engage a mentor from a major centre. An on-line ADR training course may be delivered to, or accessed from, anywhere in the world. Videos of simulated or real ADR sessions could be streamed to supervisors or assessors in other states or countries. Virtual reality could enable three-dimensional interaction. Multi-media approaches such as those delivered on-line also allow flexible self-paced learning, with continuous feedback and assessment tools 'built in'. Appropriate use of audiovisual aids can accelerate and enhance learning by providing multiple forms and catering to individual learning styles.

Good practice guidelines on the use of technology in learning are available from source such as <http://www.edna.edu.au/>

Some matters to be considered in providing training and education through information and telecommunications technology are:

- On-line learning may be particularly effective for the transmission of knowledge and information. On-line collaborative learning and facilitation may also be powerful in bringing about attitudinal change.

Some people learn best in face to face interaction, others in on-line interaction.

- Skills development requires repeated practice. Internet learning may be suitable for developing skills for interacting over the Internet, but such skills may not transfer to face to face communication. Conversely, skills developed in a face to face environment may not readily transfer to on-line communication.
- As with information technology in ADR, hybrid processes may be used. For example, self-paced on-line learning could be used for knowledge acquisition, coaching and structured practice for skills development, face to face and on-line facilitation for attitudinal change.
- Self-paced learning over the Internet may lead to a fundamental change in the relationship between the educator and the learner. Rather than a purveyor of knowledge, the on-line educator is more likely to be a resource, guide or mentor who supports self directed learning. As timing is also be learner-driven, traditional time based standards (such as a 'five day course', or 'three year degree') become meaningless.

Professional development can be enhanced through virtual conferences, virtual chat rooms and discussion groups, and through information exchange and networking. Sites of interest include

- <http://www.ausdispute.unisa.edu.au/> (the Australian Dispute Resolution Website at University of South Australia)
- <http://www.ombuds.org/center/default.htm> (Centre for Information Technology and Dispute Resolution, University of Massachusetts, which hosts an annual virtual conference on on-line dispute resolution - 'cyberweek')
- <http://www.lawfoundation.net.au/olap/> (Law and Justice Foundation's on-line legal access project with links to other resources, including videoconferencing).

A down side of on-line learning is information overload, and the uncertain quality and authenticity of resources accessed. It may also be difficult to sustain on-line resources commercially. While on-line information may be cheaper to produce, it is difficult to charge users for Internet resources, compared to printed documents.

Management of information

Much information technology aims to enhance our capacity to create, store, search for, retrieve, use, re-use and share information. Information technology therefore may be particularly useful in relation to:

- Case management
- Data collection
- Record keeping
- Data analysis.

The attraction caused by the potential power of new technology, however, may give rise to inappropriate practices. Agencies may be tempted to collect and store too much information, some of which may never be used. The time and effort in entering and maintaining data may be underestimated. Format obsolescence may make it impossible to retrieve records when the software used becomes dated. Automated systems, such as computer generated letters, may create problems where cases are 'out of the ordinary'. [Privacy and security](#) concerns also arise.

ADR service providers may need to develop an information management strategy, which identifies current and future information needs and uses technology in cost effective ways to support these needs.

Research and evaluation

There is little current information on the efficacy and effectiveness of information technology in ADR. Quality research and evaluation in this area is constrained by several factors:

- The lack of independent commentators. People tend to be resistant sceptics or passionate advocates of information technology. Commercial interests may also be involved.
- Rapid rate of change. The speed of technological change means that academic knowledge lags well behind practice. Traditional research designs may take years to complete, by which some of its findings may be redundant
- The lack of research on ADR generally. The relatively small number of people involved in ADR, the lack of industry structures in ADR and the lack of reported problems and complaints makes it hard to mount a case for expensive research into ADR, let alone the applications of information technology in ADR.

Effective data, research and evaluation are, however, essential to improve dispute resolution practices. Some suggested strategies are:

- Adopt a holistic and multi-disciplinary approach: gather information from other fields such as education, community development or commerce, and use global resources.
- Develop research partnerships between ADR organisations and independent research or academic bodies.
- Use action research and other applied research methods through which improved practices are developed in tandem with research.
- Use information technology to better record and analyse data, for example, through automated data collection and collation programs attached to case files.
- Develop systems for recording complaints and use such complaints as the basis for specific research.
- Encourage ADR service providers and practitioners to adopt a philosophy of evidence-based practice or continuous improvement.

Change management

The introduction of information technology into society generally, and into ADR processes specifically, is a change process affecting the human, social, political and technical environments. Below are suggestions for managing this change process.

- Communicate the change and the reasons for the change. It is usually easier for people to adapt to change if they are able to prepare for and make sense of it.
- Assess the impact of the change. Such impacts may be economic, structural, social or psychological. There may be winners and losers. There will be negative and positive impacts in both the long and short term. There may be a J -curve effect in which there are short term losses, but long term benefits.
- To the extent possible plan for, and allocate time and resources to, the change process.
- Assist people to adapt technically, psychologically, socially and emotionally. Information and training, combined with ongoing support and backup, will be required.
- Manage any resistance to change effectively. Identify the reasons for resistance and use conflict resolution principles to manage it.

Resource material on change management may be obtained from <http://www.change-management.org/>

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