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### Some current issues in Legal Information Retrieval.

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- 1. INTRODUCTION
  - 2. ACCESSIBILITY
    - 2.2. Cost
    - 2.3. Availability
  - 3. COVERAGE
    - 3.1. Breadth of Coverage
    - 3.2. Depth of Coverage
    - 3.3. Selectivity
  - 4. RELIABILITY
    - 4.1. Stability
    - 4.2. Accuracy
    - 4.3. Authenticity
  - 5. SEARCHABILITY
    - 5.1. Finding Sites
    - 5.2. Searching Sites
    - 5.3. Neutral Citations
  - 6. USEABILITY
    - 6.1. Ease of Use
    - 6.2. Enhancing Functionality
    - 6.3. Customisation
- 7. CONCLUSION

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#### ABSTRACT

In this paper, several key issues of current relevance to legal information systems will be examined. First, the issue of *accessibility* of legal information and in particular questions of promulgation, cost, and availability will be explored. Next, *coverage* of legal sources including not only breadth and depth of coverage, but also the question of selectivity will be considered. The discussion then turns to the importance of *reliability* of systems looking, in particular, at stability, accuracy, and authenticity. Next, the paper examines the *searchability* of sources from the point of view of finding sites on the Internet, searching those sites, and the recent move to a neutral citation system. Finally, the issue of *useability* is explored, especially ease of use, functionality, and customisation.

# 1. INTRODUCTION

In its recent strategy paper *civil.justice.2000 A Vision of the Civil Justice System in the Information Age*, the Lord Chancellor's Department identifies four key programmes for immediate implementation.[1] The third of these programmes is stated to be 'The provision of primary legal source materials online'. [2] This paper focuses on this programme and, in particular, the legal information systems that are the vehicles for achieving the goal in question. Legal information systems are online collections of legal information in full text form. Such systems may also contain significant quantities of secondary sources i.e. description, analysis, and evaluation of the law. However, this paper will focus on collections of primary legal sources i.e. legal information emanating from law making bodies themselves such as statutes, regulations and case law. The perspective that will be adopted here is that of the user rather than the service provider.

Law is an unusually information-rich discipline. Not only is there an enormous text-based literature about the law, but even the raw materials of law are textual in nature. Lawyers - both practitioners and academics - can all be thought of as wordsmiths, or rather less kindly as wordmongers. It is not surprising that such an information-orientated discipline as law should have embraced information technology from an early stage. One of the first applications of that technology to law was the legal information system.[3] Indeed, the earliest viable system was produced in back in 1960.[4] From such primitive origins developed the first wave of legal information systems, private sector systems such as *Lexis* and *Westlaw*.

The coming of the Internet - and, in particular, its publishing arm the World Wide Web (the Web) - triggered a new era of development. Interestingly, lawyers were involved in producing one of the earliest successful Web browsers - *Cello*. [5] Based on this involvement, we can now find impressive examples of the second wave of legal information systems - Web-based, public sector systems starting with the prototype *Cornell Legal Information Institute (Cornell LII)*, [6] including the hugely successful *Australasian Legal Information Institute (AUSTLII)*, [7] and now adding the *British and Irish Legal Information Institute (BAILII)*. [8] At present, first wave private sector systems such as *Lexis* and *Westlaw* are migrating their collections onto the Web.

The following discussion explores some of the key current issues arising out of placing primary legal sources on the Web.

## 2. ACCESSIBILITY

### 2.1. Promulgation

The first issue of accessibility to be addressed is that of promulgation. It has been forcefully argued that, for a long time, there has been a 'Catch 22' within our legal system. While on the one hand everybody is presumed to know the law, on the other hand totally inadequate promulgation of that law has meant that virtually no one other than lawyers actually does know it! [9] The issue here has come to be seen as a conflict between the constitutional right of the population in a democratic state to access and know the law versus the role of governments to act as good stewards of public property. In the United Kingdom, the problem finally came down to one of copyright. [10] For a time, the UK Government was markedly reluctant to give access to primary legal sources other than for a fee. Pressure on the Government from various sources, though, finally persuaded it that the constitutional right was a higher-order obligation than its stewardship of the public's intellectual property and that the latter should be sacrificed for the former. [11] This change of position has now resulted in a substantial relaxation of restrictions on access to primary sources, opening the door to wholesale promulgation of law online.

### 2.2. Cost

While the constitutional argument relating to promulgation appears now to have been resolved, what is actually made available to the public free is often limited in practical value. Raw cases, lacking editorial input in the form of e.g. catchwords, headnotes (abstracts), lists of cases cited etc. are indigestible for lawyers and non-lawyers alike. Statutes and regulations in their earliest form, without either incorporation of subsequent amendments and repeals, or at least appropriate annotation, can be positively misleading. Modern legal information systems are expected to add types of value that make collections of primary sources not only safer to consult but also relatively easy to find and use.

Because private sector services such as *Lexis* and *Westlaw* have traditionally been far better endowed financially, private sector service providers have been very willing to invest money in both human and machine generated types of editorial added value. However, private sector service providers want their investment back with profit. In the UK, at least, this has resulted in comparatively heavy charges, restricting the professional market to a few wealthy City of London law firms. The thought of paying heavy charges, typically based on duration of access, may have the advantage of concentrating the minds of some researchers. For the majority, though, the effect proves to be extremely off-putting, inevitably discouraging them from conducting full and thorough searches of online sources. For a time, it seemed as though collections of primary sources on CDROMs or even DVDs might be the answer. Here, for a single annual fee, one acquired a licence to possess a collection of sources and thereafter use it as often and for as long as one wanted without further charge. These 'on-board' storage devices have proved to be a short-term solution, though. Their capacity is so limited, and updating so infrequent, that they could never truly substitute for a full-scale, online service.<sup>[12]</sup>

As we have seen, there is now a public as well as a private sector in the legal information systems industry. Public sector services such as *AustLII* have developed a laudable tradition of providing added value for free. Since none of these public services is self-financing or, as it happens, well funded by the State, human editing is necessarily rather limited. Making a virtue out of necessity, though, this has led to some early but promising developments in machine based editing tools and techniques. However, as public-sector services are now a crucial part of the legal information industry, they should be much better funded. Perhaps the newly rediscovered constitutional conscience of the UK Government can be tweaked once more to provide the wherewithal without strings attached. If funds are not forthcoming from this source, perhaps something can be made of the 'stake-holder' funding adopted so successfully by *AustLII*.<sup>[13]</sup> This would involve persuading relevant institutions such as e.g. The Court Service, The Law Society, and The Bar Council to contribute significant sums towards the running costs for the good both of their own members and users in general. If all else fails, it may be that public sector services will be forced to consider charging users albeit on an 'at cost' basis.

The evolution of public sector legal information systems has created a mixed economy.<sup>[14]</sup> This new climate, coupled with the fact that private sector service providers are migrating their systems onto the Web, could ultimately be beneficial to users. Private sector providers in the UK may soon be willing and able to target not just a niche market comprising a small number of wealthy users such as City law firms, but also a wider market comprising far more users, each paying a smaller sum. In the near future, the key difference may no longer simply be access versus non-access. Rather, it may be take the form of a spectrum of access types based on different means of charging. Users may for example be offered a choice between:

- \* A subscription service - 'all you can eat' for one substantial annual payment;
- \* An account-based service - as with fuel bills, a smaller fixed charge coupled with metered access;  
or
- \* A 'pay as you go' service - open access allowing anyone to use the system at any time by e.g.

logging his/her credit card details and having a suitable charge made based solely on the duration of that access.

No doubt, different charge schemes will appeal to different classes of user for different reasons. However, the overall effect will be much greater use of such services - and greater profits for the private sector service providers.

### **2.3. Availability**

The third aspect of accessibility to be considered is that of availability.<sup>[15]</sup> Clearly, the advent of legal information systems has greatly increased ease of access to primary sources. Online access via the Web means that sources are available very fast, at any time, and from anywhere. Even more strikingly, many users can access a single document simultaneously. On the Web, there are never empty spaces on the library shelves! This all holds true where the access point is a fixed and permanent location such as a desktop computer in the office and/or at home. What of portability, though? How accessible are legal information systems from temporary locations such as client's offices, courtrooms, and lecture theatres, or while on the move in aircraft cabins, train compartments, and taxis? Although battery-powered laptop and handheld computers are themselves increasingly moveable devices, how can they provide anything like the same portability as traditional books?

In fact, books are considerably less transportable than we might suppose. Certainly, a single book - ideally paperback - is light, compact and requires neither power source nor link to the Internet. By modern standards, though, the capacity of a single book is microscopic. Standing in the foyer of e.g. the Royal Courts of Justice, what one actually sees is lawyers or their clerks staggering under the weight of piles of books, or wheeling half a shelf of works around on trolleys. With this image in mind, the alternative of carrying a laptop or handheld computer may seem like an attractive alternative. It may be argued that photocopying relevant extracts is an obvious alternative to lugging large numbers of traditional books around. However, one can just as easily print out sources from a legal information system and thereby achieve the same result.

It has also often been claimed that reading documents from the printed page is much easier and pleasanter than reading the same documents from screen. Once this certainly was a major drawback. Each year that passes, however, the quality of screen displays improves. Soon, preferences for using paper or screen will no longer be based on facility and comfort but simply on habit and culture. The problem of needing to plug into the Internet in order to access legal information systems can be mitigated either by downloading appropriate statutes, regulations and case law onto the capacious hard disk of one's computer beforehand, or by investing in wireless linking devices. Such wireless technology - offspring of the convergence of computers and mobile phones - seems certain to become increasingly available and affordable in the near future.

## **3. COVERAGE**

### **3.1. Breadth of Coverage**

Let us turn now to the coverage of primary sources in legal information systems. We might suppose, very simply, that the more comprehensive the coverage of sources, the better. In theory, this is probably correct. However, rather like the Tower of Babel, there are major linguistic, cultural and practical difficulties in the way of achieving the fullest possible coverage. So, what is achievable? Here, we will say something about both the breadth and depth of coverage of sources and the key issue of selectivity i.e. adopting an appropriate policy on which sources to include and which to exclude from our systems.

In an era of rapid globalisation, a worldwide legal information system must surely be highly desirable. One day it may become a reality. No such system exists at present, although there have

been some preliminary efforts in that direction. In the private sector, systems have gradually broadened their coverage. *Lexis*, for example, has steadily extended its coverage beyond US and major Commonwealth law jurisdictions to include a significant number of civil law jurisdictions, as well as some European Union and International sources. What has been occurring in the public sector? One interesting development is the *Global Legal Information Network* established by the Law Library of Congress and based in the USA.[16] The *Network* is a centralised system, which, it is planned, will one day hold all the world's primary legal sources together with selected secondary sources.[17] Linguistic and cultural difficulties are simply finessed by the decision both that the system will use English as the *lingua franca*, and the imposition of a range of standards relating both to the content and to the main search tool built around a giant legal thesaurus. Political and practical difficulties are to be reduced, it is hoped, by operating the system on a cooperative basis. All nations are invited to join the project. The 'fee' for joining is simply providing authentic versions of their own laws and being responsible for maintaining and updating those versions. In return for such a contribution, each participating nation obtains access via the *Network* to the laws of all other participating nations.

The *Global Legal Information Network* is an ambitious and potentially very useful project. However, like the Tower of Babel, it perhaps places too great a premium on the willingness of nations to accept a single working language and legal culture. Whether this proves to be a fatal weakness or not, only time will tell. An alternative perspective on worldwide legal information to such a centralised system is the idea of developing a distributed system.[18] Over time, increasing numbers of local Web sites containing collections of primary sources are springing up. These local sites - often provided by, or in collaboration with, law-making bodies themselves - specialise in the law generated by a particular legislature or court.[19] To create a distributed information system, it is necessary to develop centralised search facilities that treat the local sites as subsystems and iron out problems caused by the lack of standardisation among these sites. Users can then use the centralised facilities to search many local sites as if they all formed one, centralised system. Eventually, such distributed systems might grow until they achieved global coverage. One prototype distributed information system of this sort is *World Law*, a project undertaken by *AustLII*.

According to the *World Law* project team,[20] the weakness of existing general search facilities is that they cannot find *all but only*[21] the legal sites on the Web that users are looking for. The solution, the team claim, is to develop hybrid search facilities that are part human-made directory and part machine-made index generated by a search engine. Furthermore, their search tool has been designed to be law-specific - i.e. to focus on that limited area of the Web. How does *World Law* get around linguistic, cultural and practical problems? As to language, the team observe that while many local sites on the Web use English, there is an increasingly large number of non-English sites now available. The problem that this engenders cannot be removed overnight. However, use of language translation technology - still at a somewhat primitive stage - together with the development of pre-formulated searches that are sensitive to the language problem - can go some way to mitigating the problem. As for cultural and practical difficulties, these are lessened in the distributed model by relying on the fact that information systems at local sites will naturally reflect the legal culture of the appropriate local jurisdiction. Furthermore, it seems reasonable to expect that most local sites will be maintained and kept up-to-date by their local developers.

### 3.2. Depth of Coverage

The successful application of information technology to the storage and retrieval of legal information has brought with it some major disadvantages. Perhaps the most widely accepted disadvantage is that of information overload. In common law jurisdictions, a striking manifestation of this problem is the steadily increasing amount of new case law of which practitioners and academics need to be aware. Before online information systems, the limited capacity of paper law reports dictated that firm policy decisions had to be made about which cases to publish and which not. Once those decisions had been made, however, unreported cases became difficult to track down and so where, in effect, forgotten.

Online information systems have changed the landscape dramatically. Now, there is no necessity to filter out less valuable sources because of limited space. Capacity is potentially infinite. The response so far has been the evolution of a magpie mentality, which dictates that virtually everything should be stored without regard to its value just in case it might prove useful one day. After all, it is argued, problems that are created by information technology can always be solved by technology. Increasingly sophisticated search and retrieval facilities that are associated with legal information systems guarantee that anything put into a system can be found again.

However, at a personal level, there is evidence that too much information may prove to be just as disabling as too little information. Forgetfulness seems to play a crucial role in maintaining our ability to function at an intellectual level. In one famous case study remarkably, the subject lacked the ability to forget.[22] Rather than being an unqualified advantage, though, he suffered a number of major problems as a result. Most notably, his mind became so overloaded with facts that he was unable to manage sustained abstract thinking i.e. 'to see the wood for the trees'. What occurs at a personal level may well hold true at an institutional level too. Just because our technology enables us to store huge amounts of information in our systems, it does not follow that that is what we should actually do. It can be argued that, to combat information overload, we ought to adopt a policy of cutting down the amount of information that we store. Deliberate, institutional forgetfulness - a process of separating out the useful from the useless and then either deleting or devaluing the latter - may be vital for long-term viability of our legal system. By happy coincidence, before the coming of computers, that which we were capable of storing happened to correspond approximately with what we could manage to assimilate and use. Our aim should surely be to restore this healthy balance in the age of the Internet.

### 3.3. Selectivity

When the Incorporated Council of Law Reporting was set up, the selection and reporting of cases was put onto a rational footing.[23] There was only a limited capacity within the new semi-official series of law reports so many cases had to go unreported. Such a necessity was, however, seen as a virtue. The fewer the number of cases reported, the less cluttered and the more workable a precedent-based jurisdiction such as the common law system would be. So, which cases were included and which excluded? Four criteria were adopted for selecting which cases to report. According to Lord Lindley, the criteria were:

'(A)ll cases which introduce, or appear to introduce, a new principle or a new rule; or which materially modify an existing principle or rule; or which settle or tend to settle a question on which the law is doubtful; or which for any other reason are peculiarly instructive.' [24]

A case that was selected for inclusion in the law reports was a useful case. Cases that were not useful were not reported and so were, in effect, forgotten.

Since the advent of legal information systems, we have moved a long way from this sensible position. Now, there is no physical necessity to restrict the number of cases included in such a system. As we have seen, capacity is effectively infinite. With the loss of the old necessity, we have lost sight of the old virtue. Today, the tendency is increasingly to ignore the traditional filters and adopt a blanket policy of storing all the cases heard in the High Court and above. Despite the best efforts of the courts to discourage this development,[25] the distinction between reported and unreported cases is being eroded to the point where it may soon cease to be meaningful. This inevitable over-reporting creates such a strain on our precedent based jurisdiction that surely it cannot be in the public interest.

In an era of limitless storage capacity for cases, is it now time to take a fresh look at the question of selectivity? One possible approach would be to encourage private and public sector service providers to adopt tighter criteria for deciding which cases to include in their systems and which to exclude.

For the public sector, this should be easy. Since their *raison d'etre* is to operate in the public interest, the desirability of adopting a rational selection policy should be self-evident. Difficulties arise with the private sector, however. Up until now, one of the ways in which service providers have sought to gain a commercial edge over competitors has been to offer a wider coverage of sources. Perhaps this trend should be actively discouraged. Private sector providers might be persuaded to see quality of added value rather than quantity of case law as the key selling point.

How else might over-reporting be tackled? One way could be to adopt an approach that is commonly used in the United States. This involves putting the question of selectivity into the hands of the judges rather than the service providers.<sup>[26]</sup> Judges hearing any case in the High Court or above would be invited to certify whether the judgment in that case ought to have the status of a precedent or not. Perhaps, certification could even take into account the nature and/or level of the precedent value of each case. Assuming for the sake of argument that Lord Lindley's taxonomy were to be accepted as still valid today, judgments might be graded into the following categories:

Category A: a case that introduces a new principle or a new rule,

Category B: a case that materially modifies an existing principle or rule,

Category C: a case that settles a question on which the law is doubtful,

Category D: a case that for some other reason is peculiarly instructive.

A case lacking significant precedent value could then either be left out of legal information systems completely, or included but given a notional category e.g. Category U for unclassified. Users of information systems would then have an option to extend their searches to cover unclassified cases, if they wished.

It might be objected that it is not always clear at the time of the original hearing what precedent value, if any, a particular judgment will eventually have. After all, that is often a matter to be determined by future courts. For this reason, it should be possible for a higher-ranking future court to classify an unclassified case, vary the original classification, or declassify a classified case. Mirroring the doctrine of precedent, no court of the same level as the original decision-making court would be allowed to alter the certificate in an earlier case unless the court in question was the House of Lords which alone has the power to depart from its earlier decisions.<sup>[27]</sup> By this means, cases that were originally thought to be of high precedent value but were later found not to be so useful could be downgraded and vice versa.

A new enthusiasm for selectivity is not just a luxury. If the common law approach to law making is to survive in the age of the Internet, it is a necessity. Unless the problem of over-reporting is tackled either by the means suggested above, or by another effective approach, the only longer-term solution may be to diminish the role of precedents by wholesale codification of the common law.

## 4. RELIABILITY

### 4.1. Stability

How reliable are the primary sources held in legal information systems? How reliable should they be? Three facets of reliability to be explored here are stability, accuracy, and authenticity. Turning to the first issue, for some years, the Web tended to be a highly unstable place. It was all too common to find that sites containing significant information had changed their URLs<sup>[28]</sup>, sometimes leaving a forwarding address and sometimes not. Furthermore, it was almost as common for sites to disappear completely and without warning. When original information was held on paper or in non-Web information systems and the versions available on the Web were simply an extra resource, the

movement or disappearance of that resource was merely inconvenient. Increasingly, these days, sites on the Web are the main, or only, repository of the information in question. If these sites move or disappear, it can be disastrous. In the circumstances, it is either a fortunate coincidence, or the result of an increased sense of responsibility, that the Web is becoming a much more stable place.[29] Users have cause to feel more confident about the longevity of online information. Having said that, there is still scope for improvement. In future, those who place information on the Web knowing that others will rely on that information should only do so when there is very good chance that the existence and location of that information can be sustained.

#### 4.2. Accuracy

Users need to feel confident that the contents of information systems can be relied upon. The most obvious problem is that crucial words or phrases may be missing. Needless to say, omission of a word like 'not' from a body of text can have potentially catastrophic results. So too, missing noughts from large numbers can utterly change meaning. More insidious, is the mistyped word that produces another word which is passed by superficial spell checking e.g. 'to' instead of 'too' or 'two'. Such mistyping can be surprisingly common particularly where data capture - the digitisation of paper information - is undertaken by personnel who are not used to legal terminology, or are not very familiar with the English language. The occasional mistake in paper documents will be no more than a minor annoyance. With digital documents, though, there is a serious additional problem. Automated searching of a collection of documents depends on cataloguing and retrieving all but the most common words in those stored documents. A document in which a key word is mistyped could potentially be lost forever within a large information system unless there are rigorous controls over the accuracy of input. Controls in the form of e.g. crosschecking can even now be automated up to a point. Sophisticated grammar checkers can identify a high proportion of inaccurate words that, even if spelt correctly, are syntactically wrong. As an increasing proportion of original documents are created in digital form, the problems associated with converting paper documents into digital information will dwindle.

Content is not the only difficulty, however. Inaccurate layout can have dire consequences too. Unfortunately, the problem here can commonly arise in relation to the most crucial types of document - statutes and regulations. Deep within complicated sections or regulations are paragraphs whose meaning is not dictated by numbers and letters but simply by their position on the page or screen i.e. whether they are indented from the left-hand margin and, if so, by how much. Not only during conversion from paper to digital information, but even during conversion from one digital format to another, these indentions can so easily be lost. Such a loss can disrupt or even destroy the meaning of the section or regulation.[30] As with content, so with layout, user confidence has to be ensured by applying rigorous quality control. Perhaps, the only way to do this is to crosscheck the layout of such legal documents by comparing them with 'gold standard' originals held in some secure registry maintained by a trustworthy agency. Comparing one digital document with another is quick and easy. Automated data capture from a paper source, by contrast, has to be checked by human eye.

In principle, we might expect a local Web site constituting a subsystem within a distributed legal information system to contain more accurate versions of documents than a centralised information system. This is likely to be especially so where the site in question has been set up by or in close collaboration with the appropriate law-making body. As a self-publisher, that body will be in the best position to judge what is accurate and will probably take great pride in ensuring the highest standards of accuracy. Furthermore, sources mounted on a local site will usually have undergone less processing than those sources that have been mounted on a centralised information system. It will be closer to its natural state.[31]

#### 4.3. Authenticity

Trust that the contents of legal information systems have not been deliberately sabotaged is just as important as confidence that no inaccuracies have accidentally crept in. Despite criminalisation - perhaps because of it - both computer hacking and the launch of viruses onto the Web are becoming a global mass participation activity. While some hackers operate from the developed world, others are based in the developing world where there may be less rigorous policing of their activities.[32] Furthermore, hackers are just as likely to be electronic saboteurs or spies as adventurers or fraudsters. Stories of hackers breaking into networks containing highly secret and sensitive information are by no means apocryphal.[33] There is strong evidence that some such hacks have occurred, resulting in embarrassment at best, and massive losses of income and user confidence at worst.[34] As we have seen, gold standard original legal documents are increasingly likely to be created and stored in digital rather than paper form. So, it may occur to some hackers that accessing a secure database and making subtle changes to these gold standard originals could be just as challenging for them and disastrous to their targets as a successful attack on a military, industrial or commercial target.

Legal information systems are as vulnerable to attack as other online systems. Although we may hope that considerable thought and investment will go into ensuring the authenticity of the contents of such systems, there needs to be a way of validating legal sources where there is any risk or suspicion of tampering. The ability to crosscheck information with registries of original documents would be a useful means of validation. These registries might well be the local Web sites provided by, or in collaboration with law-making bodies themselves that we have discussed above. If it is known that local sites are regarded as the repositories of gold standard original documents, however, they are more likely to be targeted by electronic saboteurs. In the face of this risk, individual law-making bodies and their collaborators will probably not have sufficient technical, financial or staffing resources to ensure maximum security from online sabotage. For this reason, local sites are probably more vulnerable to attack than centralised sites.

Service providers of centralised systems are likely to be in a better position to invest in security in order to ensure user trust and confidence in the service that they provide. However, for private sector centralised systems there is inevitably a limit on the amount that can be invested in security. The bottom line is that such systems must make a profit. As for public sector centralised systems, they are likely to suffer the same problem as local Web sites i.e. lack of available resources to ensure maximum security. How then can we ensure that a collection of gold standard original documents is available for validation purposes? Perhaps either the Government or an independent agency might build a digital 'Fort Knox' - a repository that is as secure from sabotage as is possible. Possibly the information within this repository will be held 'off line' so that hackers cannot reach it. If so, it will also be difficult for users to get at the information for legitimate purposes too. Alternatively, the information may be online but so heavily encrypted that hackers will be unable to get at the source text itself. Encryption will not protect the contents of the repository from being damaged or destroyed by computer viruses, though. There are clearly major problems that need to be addressed if a digital Fort Knox is to be considered.

Are there any alternatives to a digital Fort Knox? One possibility is reverse validation. In nature, creatures often combine in herds, flocks and shoals for protection. There is safety in numbers. In a crowd any one individual is much less likely to be targeted by a predator than if that individual is alone. Where there are many copies of a key legal document such as a statute, a set of regulations or a case report in circulation, electronic saboteurs are unlikely to be able to target all, or even a high proportion of those copies. Perhaps periodic reverse validation could then take place. In this process, gold standard originals might from time to time be crosschecked with a large number of derivative copies on the Web, to ensure that the originals themselves have not secretly been altered by hackers. Equally, if gold standard originals are damaged or destroyed by a computer virus, then there could be a procedure whereby new originals are created based on a survey of the contents of a large number of derivative copies.

## 5. SEARCHABILITY

### 5.1. Finding Sites

When primary legal sources were to be found in well-known libraries and printed on paper in a manageable number of volumes, the task of finding relevant volumes and tracking down the information required was comparatively straightforward. In the digital era, all this has completely changed. Centralised legal information systems like *Lexis* or *AustLII* are still easy to locate. However, relevant information within them is not so easy to find. Increased difficulty is the result both of greatly increased quantities of information, an unfamiliar environment, and very different methods of searching for information. Where an information system is distributed, comprising no more than a collection of links to local sites, users are faced with two tasks instead of one. Before searching for the information desired, they must first find one or more relevant local sites.

In this paper, we shall begin by discussing the task of finding sites within a distributed legal information system. Then, we shall move on to consider the problem of searching for relevant information within both centralised and distributed information systems. There are two families of tools for finding sites on the Web, human-made directories and indexes generated by search engines. Directories rely heavily on catalogues devised by human editors. Users can browse such catalogues of sites and select appropriate items. Catalogues themselves can be flat, non-hierarchical lists where the number of sites is small, or hierarchical lists where the number is large. Items in these catalogues are typically in the form of hypertext links. When users click on such links, they are taken directly to the specified information, whether it is located elsewhere within the same document, in another document at the same site, or at a completely different site somewhere else on the Web.

In addition to directories assembled by human editors, users can search for useful Web sites by using indexes generated by search engines. Search engines dispatch 'spiders' or 'crawlers' i.e. software robots which roam the Web looking for new and altered sites. Such information is transmitted back across the Web to the search engine itself where it is then automatically compiled into an enormous index. These machine-made indexes rely heavily on keyword searching technology. When users look for information using a search engine index, they specify one or more relevant words or phrases linked by e.g. Boolean connectors such as 'and', 'or', and 'not', or by proximity connectors such as 'near', 'within same sentence' and 'within same paragraph'. The search engine consults its index and then gives users a list of remote sites where that information can be found. For ease of access, each site on the list may be presented in the form of a hypertext link, enabling users to jump directly to that site.

How do human-made directories and machine-made search engine indexes compare as search tools? [35] Here are some of the key strengths of directories:

- \* They are highly selective in what information they hold, focusing on quality rather than quantity;
- \* In particular, they can be targeted at sites that are known to hold particularly valuable, reliable and up-to-date information.
- \* Their organisation and use tends to be instantly familiar in that the main search technology that they use - i.e. flat or hierarchical lists - is also the traditional means of searching paper libraries;
- \* They are especially useful for concept searching as the human editors can make intelligent and consistent decisions about the classification of the documents that directories contain.

However, directories have the following weaknesses:

- \* They are expensive to update and maintain because each change involves human editors searching

for new information, classifying it and revising the directory in question;

- \* Using categories that are non-standard, or misclassifying documents can make directories difficult to use;
- \* Over time, the categories used to sort information become obsolete and updating a directory using sets of new categories is a huge task;
- \* They are never comprehensive because the cost of using human labour to achieve this goal is prohibitive

By contrast, search engine indexes tend to have the following strengths:

- \* They are capable of tracking down and indexing massively more information than directories;
- \* They are cheap to update and maintain because the software robots can easily be multiplied in number and each one will roam the Web twenty-four hours a day, seven days a week without pay, rest breaks or holidays;
- \* Users do not need to know in advance whether a site or document exists, and into which category it has been placed. Searching of the engine's index is a completely open and unrestricted activity;
- \* The information indexed and searchable for each Web site can be very full. Some of the best general search engines index a surprisingly high proportion of the contents of sites.

Such search engines have the following weaknesses, though:

- \* For generations of users brought up using traditional paper libraries and search techniques, keyword searching can be an unfamiliar approach. Presumably, though, future generations of users will be as comfortable with keyword searching as with other forms of searching;[\[36\]](#)
- \* Because search engines can index huge amounts of information, they often have a poor 'signal to noise ratio'. Searches can produce vast numbers of sites - many from content-rich countries like the USA - most of which are of no relevance. This problem can be mitigated, however, by automated ranking of information according to e.g. relevance, date, or popularity;
- \* Lacking prior classification of sites, search engines are not very good tools for concept searching;
- \* Although they are widely thought to be comprehensive catalogues of the Web, factors such as inability to search the 'Invisible Web', e.g. restricted access sites, and the contents of databases linked to Web pages means that much of the Web is not indexed by search engines.[\[37\]](#) As a result, even the biggest engine actually indexes no more than 16% of the Web.[\[38\]](#)

While good general directories such as *Yahoo!*[\[39\]](#) can hold details of a surprisingly large number of law sites, law-specific directories such as the University of Kent's *Lawlinks*[\[40\]](#) site are likely to give qualitatively much better returns. Much the same can be said of search engine indexes. A general engine such as *Alta Vista*[\[41\]](#) is an awesome facility. However, a limited area engine that is law-specific such as *Lawcrawler*[\[42\]](#) will typically produce more useful results. Quite apart from the obvious benefit of focusing on law sites, providers of law-specific directories and search engines can adopt a policy of trying to ensure that their service accesses as much of the relevant Invisible Web as possible.

Furthermore, if directories and search engines have obvious weaknesses as well as strengths, as suggested above, is it possible to build a hybrid tool that has the strengths of both families of search

tools without the weaknesses exhibited by them? In the context of law, the *AustLII* team has, as we have already seen, embarked on a project to develop a prototype search facility called *World Law*. [43] Like other law-specific search engines such as *LawCrawler*, this tool sends out software robots to roam the Web in search of new and altered law sites. This information is then sent back to the engine where it is automatically indexed. The key difference, though, is that these robots are not free to roam the whole Web. They are targeted at previously selected sites by means of a human-made catalogue. Another interesting feature of the *World Law* project is that pre-formulated searches can be put together and then embedded in the search tool. Some of the advantages of these pre-formulated searches are that they can be put together by experts in the use of the search technology, they can be used to improve the regular updating of the search tools, and they can be made available to novice users who have difficulty formulating their own searches.

What is particularly exciting about hybrid research tools such as *World Law* is that they may prove to be ideal 'hubs' around which distributed legal information systems can be assembled. Existing law-specific directories and search engines are reasonably good at finding sites but are not necessarily geared to find particular documents within sites. Typically, users have to adopt a two-stage process - using one tool to track down sites that are likely to hold relevant documents and then using another tool - probably located at the site in question - to search the whole contents of that site thoroughly for all the relevant documents themselves. A law-specific hybrid facility combining the advantages of directories and search engines and with both the power and permission to penetrate the Invisible Web may well be able to telescope the search process into a single stage. By this means, users could conduct single-stage searches, tracking down relevant documents without any regard for the identity of the sites at which they are located - the sort of seamless searching that is normally only possible with centralised information systems at present.

## 5.2. Searching Sites

Whether a user has accessed a centralised legal information system, or using a distributed information system, has tracked down a promising local site, the next step is to use locally based facilities to search the system for relevant documents. What types of search tools are available to the user? Two of the tools commonly available are scaled-down versions of the directories and search engines that are used for finding sites on the Web. [44] Human-made directories allow users to search for sources using catalogues of statutes, regulations and case law sorted by e.g. topic-based catchwords, type of source, name, citation, date, decision etc. As with site-finding tools, items in such catalogues may now be in the form of hypertext links, allowing users to move directly from the list to the document in question. Site-specific search engines have no need to dispatch software robots to roam the Web. They generate their indexes by periodically surveying the contents of their limited world - the contents of the information system within which they operate. Again, the user will be able to search either the whole contents of the documents at the site, or specific fields within those documents such as type of source, title, date or decision using keyword searching. Again, items on the lists produced by such a search are increasingly in hypertext form, allowing direct access to the items in question.

At site level, users will often find a third type of search facility - the hypertext reference. As we have seen, items on lists produced by directories and search engines may be presented as hypertext links. In addition, though, users may find hypertext references embedded in the text of specific documents that they are reading. These hypertext links operate rather like traditional cross-references and footnotes. They indicate the existence a source such as an authority, commentary, or aside that is relevant to the passage in a document that is being consulted. The magic of having the reference in hypertext form, however, is that users can utilize the link not only to see the name and bibliographic details of a source, but also to jump to a full-text version of the source itself. The jump may be to another place within the document that is being consulted, or to another document at the same site, or even to another document elsewhere on the Web. Hypertext references may sometimes be human-made. However, where the contents of a system are large, it is increasingly common for the

references to be generated by machine.[45]

Which of these three search facilities, i.e. directories, search engines and hypertext references, is used in modern legal information systems? Private sector systems such as *Lexis* and *Westlaw* have from the start relied almost exclusively on keyword searching of machine-generated indexes. However, as these systems migrate onto the Web, there is evidence that they are making increasing use of e.g. machine-made hypertext references too. Indeed, the Web version of the *Westlaw* service has already begun to do this. Public sector systems such as *Cornell LII*, *AustLII*, and *BAILII* have only ever existed on the Web. From the outset, they have made full use of all three types of search facilities. As we have seen, the *AustLII* team have even gone one step further by developing their prototype *World Law* system - a hybrid directory and search engine.

### 5.3. Neutral Citations

One of the reasons for the founding of *The Incorporated Council of Law Reporting* was to reduce the problems associated with having different series of law reports all competing with each other. Lord Lindley wrote of this situation:

“(T)he waste of labour, time and money was prodigious; and instead of having one good set of reports to which all could appeal, professional men were compelled to take in several sets of reports in order to keep themselves fairly *au courant* with what was being decided in the various courts.’[46]

Over time, we have seen a drift back to the situation that existed before the *Council* was set up. Cases of importance are now often reported in several different series - both paper and electronic - so that there are several different versions, each with a different citation. To help combat this problem, there is growing interest in the idea that the most authentic version of the text of a judgment - that emanating from the deciding court itself - should be given a citation by that court which will be *vendor* neutral. Such a citation would not only be unique to that particular case, but ideally in a uniform format as well. The move towards vendor neutral citation is also thought to be a good opportunity to make citations *medium* neutral too. While page numbers are an excellent method of specifying relevant parts of paper cases, what of cases in digital form? True, it is possible to make text on screen look identical to its paper equivalent using software such as *Adobe Acrobat*. However, such ‘copycat’ electronic presentation involves extra storage capacity, increased cost, and a complex additional layer of technology that can easily go wrong. Another solution is simply to number the paragraphs of decisions instead of the pages thus making citations medium neutral at a stroke.

Following the lead already taken in Australia[47] and growing pressure closer to home,[48] the first step towards adopting vendor and medium neutral citations has now been taken in England and Wales. The Lord Chief Justice has issued a practice direction requiring the use of vendor neutral citations in relation to the judgments of certain courts with effect from 11 January 2001.[49] The courts in question are the Court of Appeal (Civil Division), the Court of Appeal (Criminal Division) and the High Court (Administrative Court). In future, approved versions of judgments issued by these courts will be given a standard citation comprising:

- \* The names of the parties;
- \* The year of publication of the judgment;
- \* An abbreviation of the court's name;
- \* A sequential judgment number.

Furthermore, the Lord Chief Justice's practice direction directs that medium neutral paragraph numbering is to replace page numbering in the judgments of all divisions of the High Court and

Court of Appeal with effect from the same date. Where a court decision comprises several judgments, rather than starting again at the beginning of each new judgment, the paragraph numbering is simply to carry on through each judgment.

In his concluding comments, the Lord Chief Justice states:

‘The changes described in this Practice Direction follow what is becoming accepted international practice.’[\[50\]](#)

While this is true, in the context of rapid globalisation is it desirable these changes should occur on a piecemeal, country-by-country basis? Now that law reports are not just made available on the Web as an after-thought, but are increasingly published first on the Web in authoritative form, perhaps it is time to set up an international coordinating body - a legal version of the *World Wide Web Consortium (W3 Consortium)*. Such a body could then play a crucial role in developing and agreeing global standards for citations that are not only vendor and medium neutral, but also country and language neutral. The goal of such an institution would be to come up with a citation system that was unique, uniform...and universal!

## 6. USEABILITY

### 6.1. Ease of Use

Albert Einstein is quoted saying said that everything should be made as simple as possible, but not simpler. In the case of legal information systems, it is important to ensure that they are designed to be as easy to use as possible. Allowance has to be made, though, for the fact that some degree of complexity is probably unavoidable due to the nature of the subject matter and the tasks involved. Modern computer systems that are noted for their ease of use are sometimes described as ‘intuitive’. What does this expression mean? It is suggested here that it describes systems that possess most or all of the following qualities:

- \* Consistency;
- \* Transparency;
- \* Familiarity;
- \* Efficiency
- \* Helpfulness.[\[51\]](#)

As to consistency, system providers ought to ensure a high degree of internal uniformity in the organisation and operation of their information systems. In relation to each system, screen layout should be standardised so that features such as buttons, menus and text boxes are always positioned in the same places on screen throughout the system, Tasks of a conceptually similar type should all be undertaken in a similar way throughout the system. Conversely, tasks of a conceptually dissimilar type should be undertaken in a dissimilar way. By this means, most users will find it relatively easy to grasp the logic that underlies the operation of a particular information system. Turning to transparency, the organisation and operation of each system should be made highly visible to users so that, by applying nothing more than common sense, they can quickly and clearly discern what the system contains, where they are within the system, and how to navigate around that system. Ideally, the typical user should at no time feel lost. If all else fails, users ought always to have an escape route through which that they can instantly step back to a known point such as either to the last ‘crossroads’ that they passed through, or the home page of the system.

On familiarity, if users have already learned how to use one legal information system, they should find that there is such a degree of standardisation among systems generally that their existing know how can be applied when making use of another system which they have not consulted before. There is no justification e.g. for the fact that different search engines tend to use rather different search languages thus making searches of several engines simultaneously or carrying a search from one engine to another problematic. While standardisation is generally desirable, it does not follow that all information systems should have an identical look and feel. Some systems will have special features that are not available in other systems. Equally, some system providers will have come up with a superior way of performing a task. These providers should not be forced to 'dumb down' their systems just for the sake of standardisation. The point is that a high degree of standardisation of look and feel amongst legal information systems should be maintained as a default unless there is a good reason for introducing non-standard function or methods of operation.

As to efficiency, legal information systems need to be designed primarily with user productivity in mind. System providers should either make a special effort to see their systems from a user perspective, or at least consult users extensively to develop a clear picture of the most common tasks for which their systems will be used.[52] The organisation and operation of the system will then be optimised to ensure that users can perform these typical tasks with the minimum number of keystrokes, mouse clicks or verbal commands. On helpfulness, if an error occurs while a system is in use, users should be told *in plain language* what the problem is and how it can be corrected. It is sometimes jokingly said 'When all else fails, read the manual!' There is, though, considerable wisdom in this remark. While many users do not need to consult help facilities such as online tuition, context-sensitive help, and other documentation before starting to use an information system, some do. Even those that do not need such facilities at the outset will certainly wish to dip into them from time to time. Modern systems have been made far more useable than earlier systems. However, the availability of online help and tuition facilities, together with traditional documentation such as user manuals, remains just as important now as it was in the past.

## 6.2. Enhancing Functionality

As suggested above, standardisation of information systems is a virtue. However, it is not an overwhelming virtue. System providers ought to be constantly alive to the need to devise, incorporate and improve new features and facilities. Seismic shifts in the world of information technology dramatically change the landscape. So, the move from command line interfaces such as that used by the *MSDOS* operating system to graphical user interfaces like *Microsoft Windows* operating system resulted in a huge improvement in the functionality of information systems. More recently, the advent of the World Wide Web resulted in e.g. hypertext linking, multimedia document formats, search engine technology, and bookmarking of favourite sites becoming the norm.

Between seismic shifts, however, the world of information technology does not stand still. It constantly gradually evolves by the accretion of new and improved features and facilities. In the context of legal information systems, we have already considered some of the enhancements that are here now, or coming soon e.g. more and better law-specific search facilities, search engines combined with directories, and pre-formulated searches. System providers, like hardware manufacturers and software houses, should accept that they live in a world where change is the norm. Private sector providers will instinctively know that constant development is the key to maintaining competitiveness. Public sector providers, although immune to the profit-motive, must not lag behind either.

## 6.3. Customisation

Another dimension of useability to mention briefly is that of customisation. Legal information systems should be sufficiently flexible to allow users to control the appearance and layout of legal information systems in order to enhance effectiveness, efficiency, and comfort of use.[53] As for

appearance, users can already adjust e.g. background colour, font size, and font type by changing the settings in their Web browsers. However, perhaps it would be better if these preferences could be set vis-à-vis a particular information system and then stored for future use. That way, users who have e.g. difficulty reading text on a screen, or who suffer from some degree of disability such as visual impairment or colour blindness, can still use a system without undue difficulty. Turning to layout, a variety of preferences can already be set and stored on good general search engines. Users ought to be able to customise good legal information systems too. In particular, a user of an information system should be able to set and store default preferences for:

- \* Whether the first search offered is for statutes, regulations, cases, or a combination of these sources;
- \* How a list of search results is to appear on screen;
- \* Whether or not items in a list of results are accompanied by catchwords, abstracts or relevant extracts from the text of the item itself;
- \* How a list of items is ranked e.g. by relevance, date, or popularity;
- \* In a list of case reports, whether unreported or unclassified items are included or not;
- \* With distributed legal information system, whether local site that is the source for an item is identified or not.

## 7. CONCLUSION

Finally, Let us briefly turn from current issues to future possibilities. Over the last forty years, the development of online legal information systems has been seen primarily as a process of automation. The technology has been viewed as enabling legislatures, courts, the professions and law schools to continue to function as they did in the world before computers existed, albeit with greater speed, increased efficiency, and reduced cost. However, the paradigm is shifting from that of automation towards innovation. Massive accessibility of information online coupled with the early fruits of research into artificial intelligence and the law, are combining to create not only hugely impressive new informational services, but also the possibility of an entirely new wave of legal *knowledge* systems.

The difference between such knowledge systems and legal information systems is the difference between knowledge and information. Jonscher distinguishes these two key concepts by stating that, while information comprises the facts that are distilled from raw data, knowledge is a further distillation of ideas, thought and beliefs from that information.<sup>[54]</sup> An information system is simply an enormous collection of facts. By contrast, a knowledge system comprises a subset of those facts structured, processed, and presented in such a way that it can provide advice and assistance to users. We are now moving beyond the information age into an era where machines will play a key role in helping us extract, understand and apply knowledge. In this coming era, the manner in which we learn, work and do business will be changed in ways that are unimaginable to us today.<sup>[55]</sup>

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[1] Lord Chancellor's Department, *civil.justice.2000 A Vision of the Civil Justice System in the Information Age* (Lord Chancellor's Department, June 2000).

[2] Lord Chancellor's Department, *civil.justice.2000 A Vision of the Civil Justice System in the Information Age* (Lord Chancellor's Department, June 2000) paras 4.28-4.36.

- [3] On the history of electronic law reporting, see Paliwala A *et al*, 'User Needs in Electronic Law Reporting' (1997) *Journal of Information, Law and Technology* at [http://elj.warwick.ac.uk/jilt/leginfo/97\\_2pal/paliwal.htm](http://elj.warwick.ac.uk/jilt/leginfo/97_2pal/paliwal.htm)
- [4] Tapper C, 'The Use of Computers for Lawyers' (1965) 8 *Journal of the Society of Public Teachers in Law* 261.
- [5] Berners-Lee T, *Weaving the Web* (London: Orion Business, 1999) 75-6.
- [6]<http://www.law.cornell.edu/>
- [7]<http://www.austlii.edu.au/>
- [8]<http://www.bailii.org/>
- [9] Susskind R, *The Future of Law* (Oxford: Clarendon Press, 1996) 18.
- [10] Saxby S, 'Information Access Policy and Crown Copyright in the Electronic Age - Which Way Forward?', (1998) 6 *International Journal of Law and Information Technology* 1.
- [11] For an example of such pressure, see the transcript of the 'Free the Law' campaign meeting held at the Institute of Advanced Legal Studies, London on 8 November 1999 at <http://elj.warwick.ac.uk/jilt/00-1/transcript.html>
- [12] Paliwala A *et al*, 'User Needs in Electronic Law Reporting' (1997) *Journal of Information, Law and Technology* at [http://elj.warwick.ac.uk/jilt/leginfo/97\\_2pal/paliwal.htm](http://elj.warwick.ac.uk/jilt/leginfo/97_2pal/paliwal.htm)
- [13] Greenleaf G *et al*, 'The AustLII Papers - New Direction in Law via the Internet', (1997) *Journal of Information, Law and Technology* at [http://elj.warwick.ac.uk/jilt/leginfo/97\\_2gree/](http://elj.warwick.ac.uk/jilt/leginfo/97_2gree/) para 4.5.
- [14] Bruce T, 'Public Legal Information: Focus and Future' (2000) *Journal of Information, Law and Technology* at <http://www.law.warwick.ac.uk/jilt/00-1/bruce.html>
- [15] On this, see Chung P *et al*, 'A Defence of Plain HTML for Law: AustLII's Approach to Standards', (2000) *Journal of Information, Law and Technology* at <http://elj.warwick.ac.uk/jilt/00-1/chung.html>
- [16]<http://lcweb2.loc.gov/law/GLINv1/GLIN.html>
- [17] Medina R, 'Technology and Law: The Opportunity for A Global Cooperative Effort', *Proceedings of the First Kuwait Conference on Legal and Judicial Informatics*
- [18] Bruce T, 'Public Legal Information: Focus and Future' (2000) *Journal of Information, Law and Technology* at <http://www.law.warwick.ac.uk/jilt/00-1/bruce.html>
- [19] A good early example of such a local site in the United Kingdom is the searchable collection of House of Lords judgments at <http://www.parliament.the-stationery-office.co.uk/pa/ld/ldjudinf.htm> which was first made available on the Web in November 1996.
- [20] Greenleaf G *et al*, 'Solving the Problems of Finding Law on the Web: World Law and DIAL', (2000) *Journal of Information, Law and Technology* at <http://www.law.warwick.ac.uk/jilt/00-1/greenleaf.html>

- [21] Susskind R, *The Future of Law* (Oxford: Clarendon Press, 1996) 109.
- [22] Luria A, *The Mind of a Mnemonist* (Cambridge, Mass.: Harvard University Press, 1987).
- [23] See Lord Lindley's account in Lindley N, 'The History of the Law Reports', (1885) 1 *Law Quarterly Review* 137.
- [24] Lindley N, 'The History of the Law Reports', (1885) 1 *Law Quarterly Review* 137 at 143.
- [25] See e.g. Practice Note [1996] 1 WLR 854.
- [26] Clinch P, 'The Establishment v. Butterworths: New Light on a Little Known Chapter in the History of English Law Reporting', (1990) 19(3) *Anglo-American Law Review* 209 at 231.
- [27] Practice Statement [1966] 3 All ER 77.
- [28] URL is an acronym standing for 'uniform resource locator' - a standard way of specifying the electronic address of e.g. a web page on the Internet.
- [29] Although the Web site containing current and back issues of *Masons Computer Law Reports* - a very valuable service for UK computer lawyers - recently seemed to vanish without trace.
- [30] Bruce T, 'Tears Shed Over Peer Gynt's Onion: Some Thoughts on the Constitution of Public Legal Information Providers', (2000) *Proceedings of the Fifteenth BILETA Conference*.
- [31] Bruce T, 'Tears Shed Over Peer Gynt's Onion: Some Thoughts on the Constitution of Public Legal Information Providers', (2000) *Proceedings of the Fifteenth BILETA Conference*.
- [32] The recent 'Love Bug' Internet virus, for example, was traced back to a computer science student in the Philippines.
- [33] See e.g. Stoll C, *The Cuckoo's Egg: Tracking A Spy Through The Maze Of Computer Espionage* (New York: Doubleday, 1989).
- [34] Witness recent 'denial of service' attacks on major Web companies such as *Amazon*, *eBay*, *Microsoft* and *Yahoo*. See Lloyd I, *Information Technology Law* (London: Butterworths, 2000) 252-3.
- [35] On this, see Greenleaf G *et al*, 'Solving the Problems of Finding Law on the Web: World Law and DIAL', (2000) *Journal of Information, Law and Technology* at <http://www.law.warwick.ac.uk/jilt/00-1/greenleaf.html>
- [36] See generally Tapscott D, *Growing Up Digital* (New York: McGraw-Hill, 1998).
- [37] See Sullivan D, 'The Invisible Web Revealed', *Search Engine Watch* at <http://searchenginewatch.com>
- [38] Lawrence S and Lee Giles C, 'Accessibility of Information on the Web' (1999) 400 *Nature* 107.
- [39] <http://www.yahoo.com/>
- [40] <http://library.ukc.ac.uk/library/lawlinks/>

[41] <http://www.altavista.com/>

[42] *Lawcrawler* is actually powered by the *Alta Vista* search engine. It can be found at <http://lawcrawler.lp.findlaw.com/>

[43] Greenleaf G *et al.*, 'Solving the Problems of Finding Law on the Web: World Law and DIAL', (2000) *Journal of Information, Law and Technology* at <http://www.law.warwick.ac.uk/jilt/00-1/greenleaf.html>

[44] Leith P and Hoey A, *The Computerised Lawyer: A Guide to the Use of Computers in the Legal Profession* (London: Springer, 2<sup>nd</sup> edition) 61-83.

[45] Austin D *et al.*, 'Scalability of Web Resources for Law: AustLII's Technical Roadmap - Past Present and Future' 2000 *Journal of Information, Law and Technology* at <http://elj.warwick.ac.uk/jilt/00-1/austin.html>

[46] Lindley N, 'The History of the Law Reports' (1885) 1 *Law Quarterly Review* 137 at 138.

[47] See the Australian guidelines produced by Justice Olsson - Olsson L, *Guide to Uniform Production of Judgments*, (Victoria: Australian Institute of Judicial Administration, 1999).

[48] For example, see the report of the BILETA Citations Workshop hosted by the University of Edinburgh on 11-12 March 2000 at <http://www.bileta.ac.uk/citations/citereport.html> and also the report of the conference on Law Reporting, Legal Information and Electronic Media in the New Millennium hosted by the University of Cambridge on 17 March 2000 at <http://www.lawreports.co.uk/transcript.htm>

[49] Practice Direction (Judgments: Form and Neutral Citation) [2001] 1 WLR 194.

[50] Practice Direction (Judgments: Form and Neutral Citation) [2001] 1 WLR 194 at 195.

[51] Compare this list with the relevant factors discussed in Chung P *et al.*, 'A Defence of Plain HTML for Law: AustLII's Approach to Standards', (2000) *Journal of Information, Law and Technology* at <http://elj.warwick.ac.uk/jilt/00-1/chung.html>

[52] Westlaw UK, for example, undertook such consultations before launching their Web-based service in 2000.

[53] Chung P *et al.*, 'A Defence of Plain HTML for Law: AustLII's Approach to Standards', (2000) *Journal of Information, Law and Technology* at <http://elj.warwick.ac.uk/jilt/00-1/chung.html> at para 3.1.3

[54] Jonscher C, *Wired Life: Who Are We in the Digital Age?* (London: Bantam Press, 1999) 61.

[55] Martin P, 'Impermanent Boundaries - Imminent Challenges to Professional Identities and Institutional Competence' (2000) *Proceedings of the Fifteenth BILETA Conference*.