

## INFORMATICS AND LAW REFORM

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*The Chairman of the Australian Law Reform Commission identifies science and technology as one of the main factors necessitating reform of the law in Australia. The way in which informatics, one of the most dynamic technologies of today, has penetrated Australian society is described. The implications of this technology for two major projects before the Australian Law Reform Commission are then outlined. The first is the design of new laws to protect privacy of the individual in the growing computerisation of personal data. The second is the adaptation of the law of evidence, from a system highly dependent on oral testimony to one responsive to computer and computer generated testimony. The author then outlines a number of future issues concerning the interface between informatics and the law. He proposes the establishment of permanent machinery to examine the mosaic of computer law topics. Finally, he examines impediments to the computerisation of land information systems — as a species of the way in which the growth of informatics will present challenges to lawmakers, administrators and law reformers in Australia.*

### LAW REFORM IN AUSTRALIA

Science and technology provide one of the most dynamic stimulants to law reform in Australia. Unlike changes in social attitudes and moral perceptions, scientific advances tend not to come by gradual, almost imperceptible moves. Suddenly, new technology is with us. It can be adapted to assist in the administration of justice — as the breathalysers have reduced disputes about intoxicated driving, and sound and video recording will reduce disputes about confessions and admissions to police.<sup>1</sup> But science and technology also present problems for the legal system. Laws drawn in earlier times do not quite fit the new technological circumstances. Laws do not exist to unravel the ethical and social consequences of a scientific advance. Old laws positively obstruct the beneficial use of new technological equipment. Unhappily for the law reformer and law maker, the advances of the scientist and technologist tend to crowd the decision-maker and force minds,

most of them trained in other disciplines, to focus upon the uncomfortable and unfamiliar world of the scientist.

Whether it is in the field of bioethics, the energy sciences or the new information technology, the advances of recent decades have presented the law and its officers with many novel challenges. In part to respond to these challenges, throughout the English speaking world, law reforming agencies have been established. They exist to help their respective governments and parliaments to address the problems of social change, including scientific and technological change. In Australia, because lawmaking is divided between various levels of government, there are no fewer than 10 permanent law reforming bodies. The largest of these, the Australian Law Reform Commission, is the national agency. It works on projects assigned to it by the Federal Attorney-General. Many of its reports have been followed by legislation at both a State and Federal level. It has, for example, examined one aspect of the law and bioethics, namely the law concerning human tissue transplantation.<sup>2</sup> Legislation based on that report has been introduced in five of the eight jurisdictions of Australia and action in the remaining jurisdictions is promised.

The purpose of this paper is to illustrate the ways in which the other most dramatic technology of our time, informatics, has become the concern of Australian law reformers. By reference to two of the current projects of the Australian Law Reform Commission (the law of privacy and evidence law), the interface between the law and informatics will be illustrated. By reference to work that is proceeding in the Organisation for Economic Cooperation and Development (OECD), mention will be made of other fields of informatics law that will require reform attention. The need for a permanent and institutional approach to the interaction of law and informatics will be referred to. Finally, it is proposed to examine a special case, namely the computerisation of land title and land use data. As will be shown, this is a subject close to the heart of Australian lawyers, for half of their aggregate income is derived from the often mechanical tasks of land title transfers. The need for lawmakers and administrators to move fast, as informatics penetrates Australian society, can be well illustrated by reference to the need for urgent attention to the possible establishment of a national land use data bank. It is hoped that thoughtful readers who scan these pages may be left with the lingering question: whether our lawmaking and law reforming machinery can cope with the necessities of legal change that accompany the rapid advance of informatics.

## INFORMATICS IN AUSTRALIA

First, it is necessary to grasp at least a general idea of the nature, size and urgency of the new technology in Australia. Clearly it is one of the most dynamic developments occurring in both the public and private sector. The Myers Report suggested, in 1980, that computers in Australia were already part of an industry with an annual turnover of \$1,500 million a year. This sum comprised an estimated \$400 million a year in imports and the salaries of some 77,000 employees estimated as working in the computer and associated industries of Australia. More than 11,000 computers were then in use in Australia, most of them small and medium scale systems installed since 1970.<sup>3</sup> The advent since 1980 of micro-processors promises the rapid proliferation of 'home computers', which has already begun. Everywhere in Australia and beyond one can see the rapid advance of computerisation: processing reservations at the airline terminal, offering kerbside banking transactions with an 'automatic teller', taking care of records in hospitals and courts, offering printouts of statutes and case law, processing correspondence and documents in offices, and handling the cashflow and credit information of retail stores, to name but a few.<sup>4</sup> These developments are international in character. The speed of their penetration of the Western community was stimulated by two major technological advances of the 1970s:

- the rapid expansion of microelectronics technology, with the development of integrated circuits containing thousands of components within a tiny wafer of crystal silicon (the so-called 'micro chip'); and
- the extensive linkage of computers by telecommunications, permitting vastly increased storage of information and encouraging the exponential growth of transmission of data over local and national boundaries (informatics or so-called 'communications').<sup>5</sup>

As has been stated, two of the projects before the Australian Law Reform Commission are specially relevant to the informatics revolution. They are the inquiry into privacy and the study of the rules of evidence in Federal and Territory courts. Each will be dealt with in turn.

## INFORMATICS AND PRIVACY

The report on privacy law will be published in mid-1983. It will bring to completion a major inquiry which has included the impact

of computers on personal information systems and thereby on one aspect of our freedoms. It has long since been recognised that certain aspects of computerisation of personal data present dangers to personal privacy. The capacity to store ever-increasing quantities of personal data, the growing speed at which such data can be retrieved, the diminishing cost of retrieval, the capacity of the computer to mix and match information given from many sources to provide 'data profiles', the tendency towards centralisation of control of such data, the new language spoken by a new professional group, not subject to the disciplines of the old professions: all pose dangers that are now well documented and generally recognised.

In many of the countries of the Western community, legal steps have already been taken to provide protections for the individual against the dangers of computerised personal data. The report of the Australian Law Reform Commission on this subject will simply propose that Australian laws should reflect similar initiatives that have been taken in other countries that value individual privacy. Overseas, the efforts to provide protection have included legal requirements governing:

- the amount and kind of personal information that can be collected and stored;
- access to personal information by third parties;
- the destruction or otherwise removing from current use of personal data which may become misleading because they are out of date;
- the right of access by the data subject to information about himself.

This last mentioned provision, the right of access, is at the heart of the privacy legislation of countries with such different legal traditions as France, Sweden, the United States, Luxembourg, Germany and Canada. It is a right that is always hedged by certain exceptions, as for example, in respect of national security data or police intelligence. But it is a remarkably consistent stream of privacy (or 'data protection' and 'data security') legislation. Furthermore, it is a provision at the heart of various international statements about privacy protection in the computer age. In days gone by, our concerns about privacy related to people invading our privacy realm through the keyhole or peeping through a window. The windows and keyholes of the future will be video display units. People will invade our private realm by summoning up exponential quantities of personal computerised data. Just as in the past, individuals could control their private zone by drawing the blind, blocking the keyhole or turning off the lights, so in the future, the

individual must have reinforced legal rights to control at least many aspects of the extension of his personality discoverable through information technology. This much is not really a matter of great debate. It is now generally recognised, at least in the majority of free societies. The debates revolve around definitions, machinery, exclusions, costs and so on.

In Australia, we lag behind other countries in providing legally enforceable protections for privacy. True it is, some protections have been enacted. In special spheres, such as credit reference files, qualified rights of access have been provided by legislation.<sup>6</sup> In the Federal public sector, the Freedom of Information Act 1982 provides the legally enforceable right of the individual to have access to much of his personal data in the possession of the Federal Public Service. There is also provision for correction, updating and annotation of the information.<sup>7</sup> Though the legislation had many critics and a stormy passage and though further amendment has been promised, its embrace of the principle of individual access to one's own data is an important symbolic breakthrough for the individual as against authority. It has been said that there is insufficient concern in Australia about the dangers of computerisation for personal privacy.<sup>8</sup> Perhaps this is because there is an insufficient realisation of just what can be done with the new technology. The Australian Law Reform Commission's report on privacy will deal with matters other than the risks to privacy from computerised personal records. It will deal with the dangers to privacy arising from surveillance devices, from the capacity of telecommunications interception and from the growing powers of intrusion afforded to officials by numerous Acts of Parliament. But the most important modern threat to individual privacy today comes from the capacity of linked computers to manipulate information and to supply those in possession with unprecedented quantities of personal data about us all. Some say: what does it matter? Some say: if you have nothing to hide, you have nothing to worry about? These are shockingly ignorant responses which completely miss the point about the relationship between the individual and authority in a country such as Australia. Until now, it has basically been for the individual to decide how much information he would give about himself to others. The sheer inefficiency of manual files provided protections for personal privacy. School-day errors or early mistakes would soon become lost under the dust of government stores. Not so with the computer, which can retrieve limitless quantities of information and provide a catalogue of woe about all of us — for there are few whose lives have been totally blameless, free of error, mistake or default.

Furthermore, the computer can follow us around. By linking credit card transactions in the cashless society of the future, it can trace our every step, our purchases, our preferences in literature, our daily movements. Tasks that would have been baffling even to the secret police apparatus of the Gestapo, would be simple for the storage and analytical capacity of today's computers. This is not a horror story told to frighten the wide-eyed reader. It is simply calling to attention the features of the new technology that are being increasingly recognised as requiring a legal response. Nor is this a local obsession. It is a worldwide concern. It is not a Luddite opposition to computerisation — for we all know the enormous benefits that the new technology brings. It is simply an assertion that mankind should stay in control of the world. Some elements of the control will probably be lost with the new technology. It seems inevitable that more and more decisions will be made, affecting human destiny, on the basis of computer profiles. But we can make sure that means are available to check the accuracy, completeness, up-to-dateness and fairness of the personal profiles. The law can do this. Police and other agencies will seek access to the 'credit trail' left by numerous credit card and like transactions. But we can limit such access to cases where it may be appropriate. We can prevent its becoming an instrument of oppression to pursue jay walkers or people guilty of trivial offences. The law can also do this.

There is a need for an appreciation of the nature and world wide magnitude of the privacy issue. The Law Reform Commission's report, when it is published, will contribute in Australia to this realisation and to the solutions that are needed if the law is to continue to hold a proper balance between the individual and those who hold information about him.

## **INFORMATICS AND EVIDENCE**

A second enquiry upon which the Australian Law Reform Commission has embarked is considering the impact of the new information technology on the law of evidence in Federal and Territory courts in Australia. Computer and computer-generated material represents only the most obvious and well recognised aspects of the new technology which clamour for admission in our courts. Other relevant developments include:

- the rapid expansion and perfection of photocopiers;
- the development of microform procedures;
- the rapid expansion in the use of sound and video recorders;
- the invention and widespread use of breathalyser and like equipment to test intoxicated drivers;

- the development of devices for measuring the speed of vehicles (e.g. radar); and
- the significant advances in surveillance equipment, optical and audio devices.

The tradition of the English common law trial system has been adopted in Australia. It is a tradition of the continuous oral trial by which relevant evidence is offered by witnesses who come before a court or tribunal and whose testimony may be challenged by testing cross-examination and answered by conflicting evidence. It is a trial system with many merits including the openness of the resolution of disputes, the opportunity of opposing parties to confront or challenge evidence, the opportunity to the general community to see justice being done, and the adversary procedures which leave a great deal of control to the parties in the case.

The advent of the new information technology presents a number of problems to the common law rules of evidence. Amongst the rules of evidence which are most likely to stand in the way of evidence being admitted where modern technology has been adopted are:

*The hearsay rule*, which prevents evidence being given by a witness of the out of court statements of another person, even when apparently reliable business records have been rendered inadmissible because of this rule.<sup>9</sup>

*The best evidence rule*, which prevents the tendering of a copy document unless the original has been destroyed, lost or unless its absence can be accounted for; and

*Rules on evidence produced by machines*. Before evidence can be received it must be established that the equipment was reliable and accurate at the time the evidence was produced. Proof of these preconditions in the case of computers would be an unduly burdensome, costly and inconvenient obligation, and one beyond the resources of many who have computers and not the slightest idea how they actually operate.<sup>10</sup>

The advent of the new information technology renders the continuance of some of these rules, developed in earlier times, unreasonable and indeed impossible. Clearly it would be intolerable, as our society rapidly adopts computers, photocopiers, word processors and other technologies, to require, in all cases, that every person who contributed to a much used and thoroughly relied upon computer record or other device, should be available to provide orally his individual contribution. Equally clearly, it would be unacceptable to require proof in every case of the operation of the equipment. Particularly would this be unreasonable in the event of computer material originating or generated in a foreign

jurisdiction, transmitted, possibly across the world, by communications. The common law rules were often unreasonable in the case of reliable business and government records before computerisation. They become even more unreasonable when computerisation is employed.

On the other hand, mistakes, accidental or deliberate, do occur even in computerised data. It would not be appropriate to accept, without any precaution or reservation, the printout of every computer or product of every photocopier as if the technology itself were always an indispensable guarantee of accuracy. An American judge undoubtedly spoke for a large constituency when he complained in a judgement that 'as one of many who has received computerised bills and letters for accounts long since paid', he was not prepared to accept the product of a computer 'as the equivalent of Holy Writ'. In confronting this problem, the Law Reform Commission recognises that a compromise must be made between adherence to the common law rules of evidence, devised in the days of the quill pen, with their insistence upon procedural fairness and the production of the 'best evidence', on the one hand; and recognition of the rapid penetration of the new information technology in society, its enormous efficiencies, its transborder characteristics, its overwhelming reliability, its common use by mankind and the gross inefficiencies and costs that would be inflicted if, in every case, strict adherence to the traditional rules of proof were insisted upon in the courts.

Making this compromise between the traditional rules of evidence and the new technology is easy neither in concept nor in execution. The task is made no simpler by the urgency of providing solutions that will ensure that courts and tribunals can receive into evidence the rapidly expanding bulk of computerised data and other technologically produced evidence because such material is often, effectively, the only available information upon which the issues for trial can be accurately and justly determined. The law would be brought into greater disrespect in the community if, in the face of the rapid development of computers and other technologies, our courts continued to place unreasonable evidentiary obstacles in the way of the admission of such material for use by the legal decision-maker.

In the past in Australia, legislation has been enacted which has all too frequently lagged behind technological developments already in place at the time of the remedial legislation. For example, legislation enacted to permit the admission of microfilm into evidence in courts does not, typically, apply to laser technology which has been adopted since the laws were passed. Another case



arises from the use of on-line computers by bank customers as is now becoming common with the 'automatic tellers' in Australia. Even under the broadest of Australian evidence reform legislation, entries made by customers in effecting transactions at 'automatic tellers' may not qualify for admissibility under Federal or New South Wales legislation. Typically, this legislation requires that, to be subsequently admissible in a court of law, information must be recorded in computer records of a business by a 'qualified person'. It is doubtful whether a customer at an automatic teller could be described as a 'qualified person' — this phrase probably having been intended to be limited to trained and therefore reliable operators. Likewise, computer-generated evidence (which is produced without any imminent intervention) is not admissible under any of the technological evidence legislation in some Australian jurisdictions, though it may be admissible at common law provided the normal rules of evidence produced by a machine can be satisfied.<sup>11</sup>

These are just a few examples of the problems which law reform faces in seeking, by highly specific means, to confront a new technology. All too often, the technology outstrips the legislation. The technologists would laugh at the feeble efforts of lawyers and lawmakers to keep pace, if the consequences were not so serious. Where will we be in society if our courts cannot faithfully, accurately and efficiently resolve disputes between parties on the basis of material which would, of course, be used by the parties themselves, but which is kept out of the courtroom by rules designed for earlier times or by legislation inapt for this or that new technological advance?

Various solutions to the need to admit into evidence, reliable computer and like testimony are being considered by the Australian Law Reform Commission. One approach is to persist with the effort to state detailed rules which minimise judicial discretion. Another is to rely upon the judges to weigh the likely reliability of the technological evidence and the procedural fairness of admitting it. A third is to abolish entirely the hearsay rule and to substitute a broad power in the judiciary to exclude relevant evidence by reference to identified considerations such as procedural fairness, the opportunity to meet and challenge it, and so on. This may seem to be a somewhat technical subject, remote from the concerns of readers of this journal. It is not so. The courts should serve everyone in society. They should be able to adapt to rapid change. They should be in a position to determine disputes on the best available, reliable and relevant evidence. Even where hitherto fundamental rules must be modified, the courts and the law of

evidence must adapt and change. Otherwise, we run the risk that businessmen and other litigants will look elsewhere to settle disputes and the courts will be consigned, with their 800 year-old traditions, to increasingly limited or peripheral concerns of society. The business of the Law Reform Commission is to ensure that courts stay relevant and that the rules by which they operate adapt to the technological age we live in.

## OTHER INFORMATICS ISSUES AND THE OECD

Certain legal aspects of privacy protection are an international concern, for the simple reason that without international laws and principles, domestic rules on computerised personal data could be readily circumvented or frustrated by the expedient of keeping the data outside the jurisdiction. Likewise, protections in one country could be undermined because the rules in neighbouring countries are silent, different or even contradictory. In 1980 principles were agreed to by an Expert Committee of the OECD. These were subsequently adopted by the Council of the OECD as a recommendation to member countries.<sup>12</sup> It is a matter of embarrassment that of the 24 nations of the OECD, the free countries of Western Europe, North America, Japan and Australasia, only three have not yet subscribed to these principles. The three are Ireland, Canada and Australia. Our excuse is said to be the need to consult the States.

In September 1982, in an address to the first meeting of a new Committee of the OECD concerned with Information, Computer and Communications Policy, an agenda for the study of the legal implications of informatics as it should concern the worldwide community of the OECD was outlined. Amongst the items identified for future study, both at domestic and international level, were the following—

*Privacy protection.* The extension of the concern about privacy protection from consideration of the 'basic rules' to more specific problems such as:

- The extent to which privacy protection should be available to legal as well as natural persons (that is, to protect the detailed information about associations, clubs, partnerships and small businesses).
- The development of codes of ethics for computer professionals to supplement legal regulation and to instil fair information practices. Work on this topic has already begun in the Council of Europe.

- The extent to which privatisation of the telecommunications systems of the world will reduce the protection for privacy that has existed in the past, in part at least because of the government monopoly and secrecy laws.
- The extension of the 'right of access' to documents to a right of the individual to have access to terminals and other equipment in order to interrogate computers about personal data. This is already under study in Sweden.

*Freedom of information.* A further topic is the consideration of freedom of information (FOI) laws. These laws are being passed in many countries, including Australia. But they give rise to future problems:

- The extent to which an FOI law in one country, with on-line accessibility in another, can undermine the laws of other countries. This problem was recently illustrated when a Norwegian social researcher gained access to data in the United States under its FOI law yet which was a State secret in Norway. The researcher was prosecuted.
- Data 'ownership' is now being talked of in Europe; that is to say the individual should be seen to be the owner of data about himself wherever it may flow.
- Implications of access to documents in the public sector, for the even more secretive private sector must also be studied.

*Vulnerability and crime.* A third topic was the vulnerability of society to computer crime, accident, terrorism, mistakes. In Sweden, examination of the legal consequences of the vulnerability of the wired society has already been conducted. There are many problems which have not been considered in Australia. As more and more vital data is transferred to computerised format, it will be imperative that practices and laws are developed which protect society from the massive damage that could be done if the data were destroyed or lost, whether deliberately or by accident. As far as computer crime is concerned, there are many problems for the law. Typically, crime is strictly defined. Yet old definitions of crimes, such as 'theft', may not be adequate for the new information technology. Typically crime is local. Yet the international technology may involve criminal acts with components in a number of overseas jurisdictions. Typically police investigate crime. Yet we lack an effective international police to examine crimes involving transborder data flows. Even within Australia, there is as yet no adequate recognition of the need for legal and administrative changes to accompany the transborder elements of computer

crime. The Costigan Royal Commission in Victoria, with its advanced use of computer technology to analyse suspected crime, is a clear illustration of the way ahead. It will be a sorry thing for our society if our police forces remain adept at catching shoplifters and petty thieves, but cannot keep pace with the sophistication and imagination of thieves who use advanced technology to work much greater aggregate anti-social damage.

*Conflicts and sovereignty.* A fourth area of concern is the need to develop new international law to determine which legal regime will apply to transactions involving the use of transborder data flows. When an electronic message is generated in country A, switched in countries B and C, transits countries E, F, G and H and is processed in countries I and J, stored in country K and involves entities residing in other countries, it is clear that the present rules on choice of law are inadequate. Likewise the issue of sovereignty and informatics is complex. In 1981 it was illustrated during President Reagan's Soviet pipeline sanctions. The company Dresser-France was contracted to deliver 21 compressors to the Soviet Union for the pipeline. On 26 August 1982, the day the President's sanctions took effect, the holding company of Dresser-U.S.A. in Pittsburg, simply changed the entry key to a computer. This effectively barred Dresser's French subsidiary from access to the technology it needed to complete the orders. Without access to the computerised data banks, Dresser-France's engineers lacked the information to build the made-to-order compressors. One of their systems engineers said that 'without the computer, the only thing we can do is duplicate compressors we have already made'. In fact, as reported in *Business Week*, Dresser-France, as a consequence of the computer adjustment, lost to Dresser's division in Olean, New York, a \$3.5 million order to supply three compressors to Australia's Santos.<sup>13</sup> The vulnerability of our societies to use of computers in this way may extend beyond domestic legal regulation. It is a feature to be recognised by home politicians.

*Intellectual and business law.* There are many other items for consideration in the catalogue of legal action on informatics. They include the reform of intellectual property law, the development of business law, the design of insurance against computer loss and rules that will clarify liability for loss and error.

## A COMPUTER/LAW INSTITUTE?

In a time of economic downturn, the computing industry is one of the few bright spots for profitability, development, advance. Yet very few of the great resources generated by this industry are being devoted to helping society to sort out the numerous legal and social implications of computerisation. If only a tiny fraction of the profits of the industry was devoted to ensuring a proper servicing of the legal and social problems, some of which have been mentioned, we would stand in a better position to tackle and solve them, than is presently the case. In Australia, there is no body which is examining the mosaic of problems which informatics brings in its train. The Law Reform Commission looks at privacy. ASTEC has looked at robotics. Intergovernmental committees look at some aspects of FOI. The Federal Police may be examining computer crime. So far as I am aware, there is no body with the agenda to see all these developments in context and to bring together an appropriate rational response. There is a special element of urgency in Australia because our Federal system itself already provides impediments for coherent action which must not be underestimated. There is no clear constitutional power for the Australian Federal Parliament to enact comprehensive laws on all of the legal and social consequences of informatics. There are a few heads of power settled in the 1890's which may be utilised — especially the telecommunications power. But a coherent social response in Australia will be difficult, unless there is a higher degree of Federal/State co-operation than has been a feature of Australia's history to date.

What is needed is the creation of properly funded Institutes which would be independent of the industry but financially supported by it. Such Institutes could help hard-pressed officials in Government to respond promptly and with some of the efficiency of the technologists, to the social and legal challenges of the informatics revolution. So far the response to this proposal, which has been made earlier and often both internationally and domestically, has been a deafening silence.

In Sweden, there has been established a Research Institute for Law and Informatics. It is set up within the University of Stockholm. It brings together research into the legal aspects of information systems and information processing which has been going on in the Faculty of Law in that University since the 1960s. Many of the projects are financed by external institutions, including the Swedish Ministry of Justice, public authorities, private companies and professional organisations. Basic resources are

provided by the Swedish Research Council for the Humanities and the Social Sciences, and the University of Stockholm. Amongst the topics included in the description of the work of the Institute are the study of legal information systems, the examination of freedom of information laws, the regulation of teledata and computer networks, a study of labour law as affected by changes in information systems, the development of contracts for information products and services, and scrutiny of vulnerability and security issues. Certain specific projects, such as computer assisted decision-making in tax administration and tax collection, are being given priority. Data law is now a well established feature of the courses at all Swedish law faculties. The interdisciplinary mixture of the ancient legal art with the most modern information technology provides an example that we in Australia would do well to follow. Yet we are not doing so. There is no legal text on computers and the law in Australia. The largest law publishers have reportedly said that there is simply no market in the topic. There is little interest in our law schools in computer law. Like Canute, they perhaps hope that the flood of informatics will recede. There is a new *Journal of Law and Information Science* published by the Law School of the New South Wales Institute of Technology, but it is very much the effort of a few beleaguered enthusiasts who see the future more clearly than do their colleagues. How more easy and comfortable it is to linger lovingly with the problems of cattle trespass, estates entailed, quantum meruit and tax avoidance than to confront the truly challenging problems of the future, which is hostage already to information science.

Estates entailed, the Statute of Mortmain, the rule against perpetuities and the complex paraphernalia of land law are the compulsory diet of most law students in Australia. The law of England, which we have generally inherited, grew up largely to protect property. Crucial for property interests was the protection of real property — land. Proving land title, establishing ownership or other interests in land and transferring those interests from one person to another, from one generation to another, has been one of the key functions of the legal system. Indeed, one of the most important contributions of Australia to law reform was the introduction, originally in South Australia, of the system of registered land title and guaranteed land dealings. That system has now spread to all parts of Australia. It now stands on the brink of adaptation to the technology of informatics.

The need to computerise not only land and titles, but also data governing the use of land throughout Australia, was addressed in a paper presented in 1980 to a surveyors' conference.<sup>14</sup> Nothing has

happened since 1980 to make the need for work towards a national land use data bank less feasible or less urgent. The technology does not stand in the way. Only Australia's local obsessions, a lack of national vision and parochial attitudes, limit the development of the common standards and definitions necessary to establish a national land use data bank. A report of the New South Wales Division of the Institution of Surveyors, *Information Needs of Surveyors in the 80's*, recorded that the incremental cost to land development that could be attributed to development delays as plans are put through the planning maze of multiple individual authorities, was something between \$60 million and \$120 million a year in New South Wales alone.<sup>15</sup> A national land use data bank, into which was fed the relevant data and requirements of the various authorities of Commonwealth, State and Local Government, would not destroy the opportunity for local experimentation and variation. It would inevitably reduce the mechanical costs of urban development, planning and home purchase and the delay inherent in the current checking procedures. Australia's relatively small population, the widespread use of the Torrens System of land registration, and technological expertise are advantages with which we start. There are, however, many practical and some legal obstacles which stand in the way of progress. They include different codes, different standards of measurement, different specific and local interests, different statutory definitions, and so on. The authorities which keep land inventories are extremely numerous. And they tend to move slowly.

It will be a tragedy if, on the brink of computerisation of the data of all of the many land authorities in Australia, they all decide to 'do it their way'. There have been some political calls for a 'worthwhile attempt' to undertake a joint Federal/State land use survey to develop a 'national land use data bank, inventory and land use strategy'.<sup>16</sup> Such calls should be heeded. But it would probably require much more active concern about the inefficiencies of inaction than exists among Federal authorities. In a continental sized country, there is only one place where an initiative for a national, mutually-compatible land use data bank can come with proper authority, proper collection of expertise and proper funding. That is the Commonwealth. It is no negation of State or local rights to suggest that the Commonwealth should take the leadership role in this matter. It is unreasonable to leave leadership to the hardy band of dedicated private professionals who do their best at weekends and on busy afternoons after a heavy day at work. It is unrealistic to expect State authorities to take the initiative. They will have their own concerns and will often be quite innocently

ignorant of the laws, practices and problems of colleagues in other States.

In New Zealand the Government has established a working party on computerised land information systems.<sup>17</sup> But it is easier in New Zealand or England where the complexities of the Federal division of power can be ignored. That division will not go away and it must be squarely faced in Australia as a potential impediment to the early adoption of a cost-saving national computerised land information system. Unless the initiative is taken soon, and at a Federal level, it will be extremely difficult later and much more costly to secure compatibility between the approaches being taken in different States. The Commonwealth's Landsat Program would seem to offer a useful starting point for Federal leadership. Its data is consistent in scale and quality across the continent. There is repetitive coverage on a 16 day cycle, permitting the data base to be regularly updated. Old data is safely archived. The next generation Landsat in 1984 will permit accuracy to 10 metres. This would be adequate for a national grid suitable for domestic household lots.

In Western Australia an initiative has been taken by the Land Information Systems Support Centre of that State. Mr Brian Humphries, a land information consultant directing the Computer Policy Committee, said in April 1982 that his investigation had revealed that 475 man years annually were expended by government departments and the private sector in the mechanical task of retrieving information about land in Western Australia. It is little wonder that the economies of computerisation are at last being recognised.

The biggest problem is that all the information we have is a reflection of the 150 years of history of W.A. and the first task I have is to get all that information into computer form. If I can do that from a number of different sources and start to merge them one against the other, I can start to identify clearly what are the anomalies . . . The most important thing is that here in the West we have this ability whereas other States of Australia are still dreaming about it.<sup>18</sup>

'Dreaming' is a harsh word. It may be unfair to the one or two other States which have taken some initiatives. But it does seem true that other parts of Australia, and the country as a whole, could take lessons from the Western Australian experience. The first of these lessons would be that until institutional problems are resolved, rivalries settled and bureaucratic empires vacated, real progress cannot be made. Secondly, it must be realised that there are many different types of land information systems. There is no system which of its nature could be described as 'a standard system'. The call for 'standards' applies to data exchanges between systems. To



secure 'standards' it is necessary to have both the resolve and the authority to compromise and settle on what will be the 'standard'.

Thirdly, to achieve this recognition, it is absolutely vital that elected officers of government address the complex institutional problems that exist. Without a commitment by the Executive government, vested departmental interests will undoubtedly preclude rationalisation of land management systems. The problem is not to be solved by the simple expedient of assigning the co-ordinating role to a land related department. Such departments are able to address the functional needs of a system, but of equal importance is the need for financial co-ordination (involving the Treasury), organisational co-ordination (involving the Public Service Board) and co-ordination of departmental politics (involving, normally a Premier's officers).

Fourthly, to establish a national land use data bank it would be necessary to settle on a standard land use coding system. A recommendation for a land use coding system has been made in Western Australia. Those who take the initiatives will almost certainly offer leadership. Unless State governments quickly recognise now the need to manage technological change, it is likely that any technological development, regardless of how small it may be, will be a progressive constraint to *national* standards being possible, let alone adopted and implemented. The diversity of railway gauges in Australia, which took the better part of a century to resolve and was then resolved only after much of time had passed the railways by, stands as a warning to us of what will happen if each State 'goes it alone' with its own home-grown land information system. The problems facing governments in connection with the introduction of computerised land information systems are complicated by the fact that the present manual systems have themselves never been planned as a homogenous or integrated operation. In many cases they are not even adequately described in a comprehensive single text. Accordingly, implementation of computerised land information systems requires a number of steps to be taken:

- identification of the present manual system
- correction of anomalies and removal of duplications
- standardisation of fundamental tools such as street addresses
- computerisation of the data bank.

Even when the decision of principle is made to move to computerisation, the problems facing governments remain problems of finance and commitment. A cost/benefit study undertaken of present land information systems would show significant benefits to the community, in aggregate, from the move to computerisation of land use data. This study has not been under-

taken. The result is that computerised land information systems are just springing up by default in much the same way as the separate manual systems developed earlier. The same hunch that has led particular land data operators to move to informatics, should justify governments moving to a compatible, national system. The Western Australian authorities have already reached the hardly surprising view that the highly labour-intensive, complex, slow, tedious system of checking land data used at present, is, of its nature, susceptible to major cost savings by a move to computerisation.

More uncertain is the problem of commitment. Computerised land information systems are now developing in all parts of Australia. Local Government Councils are adopting them in every form, from the sophisticated systems of the Sydney and Brisbane City Councils to quite primitive systems of small local authorities. They are being developed in some government authorities and semi-government authorities, such as the State Electricity Commission of Victoria and the Metropolitan Water, Sewerage and Drainage Board of Sydney. They are appearing at the State level of some States (South Australia, Western Australia and Northern Territory). They are under investigation in all other States. The Commonwealth has its own entirely separate and legitimate interests because of the Commonwealth statutory authorities which have relevance to land use, the most obvious being Telecom. In this environment, there is little doubt that even if no active promotion of computerised land information systems were undertaken, forms of automated systems would be operating at all levels of government and semi-government authorities throughout Australia in 10 or 15 years, using (as the manual systems do) different definitions, different criteria, different indicia; a cacophony of computers, appropriate to the Tower of Babel, unable to communicate with each other for a lack of a common computer tongue.

Australia runs the risk, for want of appropriate commitment, leadership and perception of the real economies involved, of creating for ourselves a special Land Information Babel. It is not too late for this distinct danger to be seen in the appropriate quarters. An obstacle to the early implementation of the national land use data base includes the continuing lack of interest and commitment by politicians and administrators in Government. In the States, where investigations are being carried on, the investigations are themselves often under the control of interdepartmental committees, special enemies of prompt and effective administrative action in Australia. In those States where there is no one individual

in a key position in government with a commitment, the State itself tends to show little commitment. The Commonwealth has failed to offer leadership, co-ordination, expertise or financial help. If, as a country, Australia did its social arithmetic and calculated the savings and efficiencies that would be secured for the Australian community in aggregate, the result would surely justify a major co-operative Federal/State effort for a national land information system. But without the leadership, it is likely that the country will drift unevenly and languidly in the direction of the computer Babel.

## TWO SYMBOLS

The pessimist might say that there are two symbols of Australia's history that should constantly be before us. The first would be the railway lines with their incompatible gauges, symbols of the dangers of the Federal system of government in a country the size of Australia. With so many strengths for local experimentation and achievement, the Federal system does have weaknesses and we need to be constantly alerted to them.

The other symbol would be Sturt's pathetic little boat. It will be recalled that the early British settlers were sure that in the centre of the continent was a great inland lake that would nourish and prosper their settlements, if only it could be found. Sturt was so sure of it that he took on his mission of exploration a little boat, so that he and his party could cross the great inland lake that never was.

The railway gauges are our warning. The boat we should make a symbol of optimism. Despite all odds, despite Australia's history with its frustrations and disappointments, we should persist with the exploration and remain optimistic. It may be hoped that commentators in the 21st century will not reproach us as we reproach the railway bureaucrats. Will they say of this generation that, locked into a political compact achieved in the closing days of the 19th century, it lacked the imagination, the national will and the plain perception of its economic self-interests to take advantage of the technology presented to it? It is up to Australians to decide what the future will say.

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