Liability of Geographic Information Systems Provider in Contract and Tort

B.B. Sookman, McCarthy Tetrault

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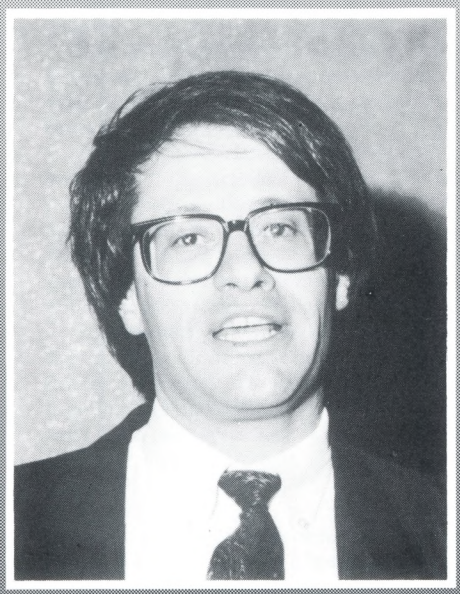

GIS

INTRODUCTION

The use of new computer related technologies for compiling, formatting, storing, and accessing information has lead to the emergence of whole new industries offering a seemingly endless variety of electronic information that previously would have seemed unimaginable. The dynamics of information technology, which has become indispensable to government, educational institutions, the professions, the administration of justice, and to small and large businesses alike, has also revolutionized the way in which spatial information is being collected, manipulated and displayed.

Geographic Information Systems, commonly referred to as GIS, and Land Information Systems, commonly known as LIS, are being produced, purveyed, promoted, commented upon, installed, and, apparently used at a rate verging on the exponential.[1] GIS technology is being used to manage real property, support economic development, and to manage natural resources. Geographic Information Systems are now being used or developed for purposes as varied as parcel mapping, managing hazardous materials, land use planning, tax assessment, natural resource management, urban and regional and transportation planning, geological exploration, groundwater management, public utility management, oil field facilities management, land registration systems, zoning administration, solid waste planning, highway facilities management, property tax inventory, census information, Cadastral map records, watershed management and crime analysis. The ultimate users of geographic and land data and information include increasingly wide segments of the population including citizens, planners, public officials, lawyers, developers, bankers, and similar decision makers.

A Geographic Information System may be defined as a system to input, manipulate and display spatially referenced digital data[2]. A geographic or land information system consists of a database containing spatially referenced land-related data, and the procedures and techniques for systematically collecting, maintaining, analyzing, representing, processing, and distributing that data and information[3]. As with any system that promises improvements and efficiencies over the manual procedures it replaces, Geographic Information Systems promise improvements in spatial data handling and analysis. It cannot be assumed however, that GIS will automatically be less susceptible to misuse or error than traditional charts, maps, and other printed spacial information. In fact, the widespread use and development of GIS information and expanded access to spatial data by wider segments of the community can actually increase the potential for misuse.[4]

Spatial data collection, manipulation and presentation as digital maps are among the several tasks required for the establishment and maintenance of Geographic Information Systems. Each of these tasks crease possibilities for error. Digital map accuracy depends upon methods of data collection, quality of data sources, and the adopted accuracy standards. Source errors in the positional description of data or in the identification and discrimination of spatial objects during data collection are one source of error.

Although some techniques for collecting data are less likely to lead to errors than others, each has the potential for introducing some errors. Geodetic methods for instance, considered to be the most accurate, are susceptible to errors caused by a range of factors, such as limitations in data collection instruments, adverse weather conditions, and time constraints.[5]

Additional errors can be introduced through the use of digital conversion techniques. Data from existing paper maps or graphs can be converted to be used in GIS databases. One method is by tracing the map features on a digitizing table and storing the data in digital files. A second method is by the use of scanners that produce digital data. Both methods can introduce errors into the database. The manual method is dependant on the quality and scale of the data source and the potential for human error. The use of a scanner is a quicker method of creating the data base, but as with the manual method, the automatic method inherits the same positional errors of the data sources.[6]

Still other errors can be introduced subsequent to collection through data manipulation, such as generalization, scale change, and projections. Process errors can also be introduced through graphic representation of data previously collected. Process errors are an additional risk in GIS when contrasted with traditional map production, as manipulation of source data, easily done in a digital environment, can always introduce new errors.[7]

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The widespread dissemination of GIS data will also increase the potential for its misinterpretation or the misapplication of such data for tasks for which it is not appropriate. The correctness of a map provides no guarantee that it will be used correctly. The data embodied in Geographic Information Systems are not likely to be static, as their historical predecessors the map were, and their continued existence over time create an increased probability for user errors. The possibilities for error include use of the information for one purpose though the information was compiled for another, use of out of date data, use of data where the scale or resolution is too coarse for the application, use of data where the classification and interpretation do not support the intended use, use of data for quantitative analysis without recognizing the effects of map scale, conventions or data types, failure to provide along with the data source material classification and interpretations made during generalization and graphical depiction of data in a potentially misleading form.[8]

The use of new information technologies have been accompanied by a myriad of situations in which their functioning have gone awry. Many of the errors or malfunctions have not been serious enough to be reported in the local, national, or international press, or be the subject of court proceedings and so the extent of the occurrences of malfunctions are not known.

In spite of the infrequency with which such problems are litigated in the courts, the number of cases already reported suggests that providers of goods and services created using computer and information technologies face increasingly greater exposure to liability when things do go awry. In many of the reported cases only financial loss to the complainant was in issue. In others, however, grievous personal injury was alleged.[9] Aggrieved persons in such situations will often have a variety of legal theories available to obtain redress for the harm suffered. The balance of this paper focuses on the remedies available based on breach of contract and negligence. Because of the originators of Land Information Systems and Geographic Information Systems are frequently governments, a short review of the liability of the crown for her tortious acts is discussed.

LIABILITY IN CONTRACT

It is unclear what liability a publisher who makes maps, charts or other tangible forms of geographic information generally available to the public is subject to. Where there is a contractual relationship between the information provider and the recipient of the information and the contract between the parties is silent as to scope of the duty of the information provider, if the former holds himself out, as or is known, as possessing some special knowledge, information, or expertise in the field and furnishes information in that field to the recipient knowing that the recipient is likely to rely on the information, a legally enforceable duty to exercise reasonable skill and care in furnishing the information will be present.[10]

If the provision of the information in tangible form is likened to the rendering of professional services, such as the preparation and delivery of a survey by an accredited surveyor to his client, a failure to meet that standard of care could render the publisher of the information liable for damages caused by inaccuracies encountered during its use.[11]

If the maps, charts, or other tangible form of the information, such as data in machine readable form are regarded as products or goods the position of the GIS publisher in contract is less clear. One uncertainty is whether provincial Sale of Goods legislation will imply into agreements with purchasers, who the publisher knows or aught to know will rely on the information, an implied condition that the maps or charts sold will be fit for their purpose or be of merchantable quality. No canadian case has yet dealt with this issue. In the United States the authorities on this question are divided. In Kercsmar v. Pen Argyl Area School District,[12] a Pennsylvania trial court held that a high school chemistry textbook was a "good" within the context of the Uniform Commercial Code and that the plaintiff's injury caused by the textbook's description of a chemistry experiment was sufficient to meet the requisites of pleading for breach of an implied warranty. A Florida court in the later case Cardozo v. True,[13] came to a different conclusion in a case that addressed the liability of a bookseller of a cookbook which failed to warn of the toxicity of one ingredient in a recipe. The court agreed that the bookseller had warranted that the book was fit for the ordinary purposes for which such goods are used, but limited the warranty to the tangible components of the book. The intangible content of the book did not fall within the implied warranty. This latter case could have been differently decided, however, if the bookseller had been involved in the preparation of the information in the book. Similarly, GIS providers could be subject to an implied condition of fitness for purpose or merchantability if they have knowledge of and control over the contents of the articles sold.

GIS providers should also be aware of United States product liability law which imposes strict liability on sellers of products which are unsafe or dangerous for their intended use.[14] In the United States Jeppesen & Company has been found liable in several cases for publishing unsafe instrument approach charts. In Aetna Casualty and Surety Company v. Jeppesen & Company,[15] Jeppesen was held liable because the graphic representation of the information in the chart in issue was unreasonably dangerous, even though the information in the charts was in all respects accurate.

In Saloomey v. Jeppesen & Co.[16] Jeppesen was held responsible for an airplane crash where its instrument approach chart designated an airport as having a full instrument landing system which it did not have. Jeppesen was also held responsible for a plane crash that killed six crew members in Brockleysby v. United States,[17] for failing to detect that its charts were unsafe, even though the latent unsafeness stemmed from data provided by the Federal Aviation Administration (F.A.A.) which was incorporated into the charts.

In most cases, sophisticated information providers will contractually limit their legal exposure by exacting exculpatory and limitation of liability clauses to curtail their exposure in the event of errors or malfunctions. Recently, the Canadian information provider who had insulated itself from liability by an appropriately drafted exculpatory clause.[18]

DUTY OF CARE IN NEGLIGENCE

The law of torts provides a variety of potential means for redress where remedies in contract may not be available. The torts of defamation, injurious falsehood, conversation, and nuisance have been applied as a means for obtaining compensation where the novel situation fell within well-established principles of tort law.

While those and other torts will continue to be applied to new situations, the most versatile of the actions for obtaining redress will probably be an action framed in negligence. The plaintiff in such an action will have to establish a duty of care is owed to him, conduct falling below the standard of care required by the law of negligence, and damage caused by the defendant.

As a result of the decision in Anns v. London Borough of Merton,[19] a cause of action in negligence can exist even if a duty of care was not previously recognized for that fact situation

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by a previous case. Rather, as Lord Wilberforce of the English House of Lords pointed out, the question has to be approached in two stages:

> First one has to ask whether, as between the alleged wrong-doer and the person who has suffered damage there is a sufficient relationship of proximity or neighbourhood such that, in the reasonable contemplation of the former, carelessness on his part may be likely to cause damage to the latter, in which case a prima facie duty of care arises. Secondly, if the first question is answered affirmatively, it is necessary to consider whether there are any considerations which ought to negative, or to reduce or limit the scope of the duty, or the class of person to whom it is owed or the damages to which a breach of it may give rise.

The application of these principles has been relatively straightforward where the failure to exercise skill and care resulted in damage to persons or property. The courts have had difficulty in deciding whether a duty of care exists if only economic loss is suffered.[20] In Junior Books Ltd. v. Veitchi Co. Ltd.,[21] the House of Lords recognized that a duty of care can arise if there is a close relationship of proximity involving reliance on the defendant and financial loss to the plaintiff resulting therefrom.

Decisions after Junior Books, especially in England, have not been prepared to hold that foreseeability of harm or loss alone, automatically leads to a duty of care. Something more is required, such as a voluntary assumption of responsibility towards a particular party giving rise to a special relationship.[22]

In the case of the negligent provision of information, it is now established that if, in the ordinary course of business or professional affairs, a person seeks information from another, who is not under contractual or fiduciary obligation to give the information, in circumstances in which a reasonable man so asked would know that he was being trusted, or that his skill or judgment was being relied on, and the person asked chooses to give the information without clearly so qualifying his answer as to show that he does not accept responsibility, then the person replying accepts a legal duty to exercise such case as the circumstances require in making his reply. If the person fails to exercise that care an action in negligence will lie if damage results.[23] An earlier line of cases which imposed liability for negligent provision of inaccurate information only on professional people[24] does not have the precedential authority it once did.

A legitimate concern of geographic information providers is that the class of persons who can maintain an action against them not be too large. Many information providers liken their legal position to traditional publishers of media of mass communication, such as newspapers and tickertape services which are not liable at common law for the negligent provision of inaccurate information, as the burden of their putative liability is incompatible with any assumption on their part of responsibility for misinformation so widely disseminated and apt to influence their captive public in countless ways.[25] Where electronic information is widely disseminated there is an understandable industry fear that there not be liability "in an indeterminate amount for an indeterminate time to an indeterminate class".[26]

Courts have remained conscious throughout of the need for reasonable limitations on the scope of the class of persons who can claim a duty of care is owed to them.[27] This subject was addressed in Ministry of Housing v. Sharp,[28] a case in which a clerk at a land registry office negligently missed an existing charge on title.

The mistake was incorporated into a certificate which was relied upon as to the state of the title. The holder of the charge sued the land registrar and the municipality that employed him. Lord Denning of the English Court of Appeal expressed the opinion that the:

> Duty to use due care in a statement arises, not from any voluntary assumption of responsibility, but from the fact that the person making it knows, or ought to know, that others, being his neighbours in this regard, would act on the faith of the statement being accurate. That is enough to bring the duty into being. It is owed ... to the person to whom the certificate is issued and whom he knows is going to act on it ... but it is also owed to any person whom he knows, or ought to know, will be injuriously affected by a mistake.

The Supreme Court of Canada in Haig v. Bamford[29] took a more restrictive approach. Mr. Justice Dickson noted that several possible tests could be applied to invoke a duty of care on the part of third parties. He concluded that the duty of care in that case was owed to the limited class of persons who, to the defendants actual knowledge, would rely on the information.

It is unlikely the courts will develop special rules for determining the class of persons to whom a duty of care is owed merely because computers and computerized data bases are involved. This issue was canvassed in the United States case Daniel v. Dow Jones & Company, Inc.,[30] where the plaintiff alleged that the defendant data base provider owed him, a subscriber, a duty of care not to publish inaccurate news information.

The plaintiff was a law student and securities investor. He became one of the more than 200,000 subscribers to the Dow Jones New/Retrieval Service offered by the Defendant. The service was promoted by the defendant as being "timely", and "accurate".It was accessed by the plaintiff using a personal computer and modem.

The plaintiff alleged he received a new report from the Dow Jones News/Retrieval Service which was false and misleading in that it omitted a material fact relating to the price of shares in the Canadian company Husky Oil. The plaintiff claimed he relied on the pricing report to his detriment.

One of the central issues in the case was whether the plaintiff was in the class of persons to whom the defendant owed a duty of care. The plaintiff argued that a special relationship existed between him and the defendant because he contracted with the defendant for timely and accurate information services.

The court rejected this argument on the basis that the modern techniques for delivering news did not change the rule that providers of mass media communication are not generally liable for inaccurate information on the ground of negligence:

> The relationship between the parties here is the same as between any subscriber and a news service; it is functionally identical to that of a purchaser of a newspaper. The advances of technology bring the defendant's service into the home or office of more than 200,000 persons; indeed even non-subscribers may receive defendant's service through computerized linkages with other database enterprises. There is no functional difference between defendant's service and the distribution of a moderate circulation newspaper or subscription newsletter. The instantaneous, interactive, computerized delivery of defendant's service does not alter the facts; plaintiff purchased defendant's news reports as did thousands of others. The "special relationship" required to allow an action for negligent misstatements must be greater than that between the ordinary buyer and seller. Technological advances must continually be evaluated and their relation to legal rules determined so that antiquated rules are not misapplied in modern settings. Yet, if the substance of a transaction has not changed, new technology does not require a new legal rule merely because of its novelty.

In 87118 Canada Ltd. v. The Queen,[31] a duty of care was imposed on a computerized information provider by the Federal Court of Canada's Trial Division. The action was brought against the Department of Consumer and Corporate Affairs after the plaintiff paid a search fee of $10. to search a proposed corporate name "Mondial Ceramic & Marble Ltd." The search failed to reveal the previously registered name "Mondeal Ceramics Ltd." The search was conducted using a computer program called A.N.S. (Automated Name Search System), the predecessor to the N.U.A.N.S. (New Improved Automated Name Search System).

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After the discovery of the previously registered confusing name, the plaintiff was forced to change its name causing it to suffer damages. Mr. Justice Addy was of the opinion, that apart from contract, the defendant was liable to the plaintiff based on Article 1053 of the Civil Code of the Province of Quebec, which, like the common law action in negligence, created a duty of care not to provide inaccurate information.[32]

The common law duty of care will not be imposed where the defendant expressly or impliedly makes known to the plaintiff that he is not assuming a duty of care with respect to the information provided.[33] Information providers therefore, can[34] and usually do, attempt to insulate themselves from liability in negligence. Licenses with all users of the information service and warnings of limitations of liability displayed at sign-on are common techniques used to avoid an imposition of a duty of care.

STANDARD OF CARE IN NEGLIGENCE

Once it has been shown that a duty of care exists, it becomes necessary to ascertain whether the standard of care required by the law of negligence has been exercised.

The standard of care usually adopted is that of a reasonable man. It is described in the classic statement of Baron Alderson in Blyth v. Birmingham Water Works Co[35].:

> Negligence is the omission to do something which a reasonable man, guided upon those considerations which ordinarily regulate the conduct of human affairs would do: or doing something which a prudent and a reasonable man would not do.

In considering whether the standard of reasonable care has been met in any particular case, the courts take a variety of matters into account, including the magnitude of the risk, the likelihood of injury, the gravity of the consequences, the cost and practicality of overcoming the risk, the common practice of persons engaged in similar conduct, statutory codes regulating the conduct of the type of issue, and a myriad of other subsidiary matters that fall within each of these categories.[36]

The standard of care to which an information provider must adhere to will, of necessity, be governed by the type of information made available, the importance of the information, the uses to which it will likely be put, the cost and practicality of providing "error free" information, who has compiled the information, the common practices of others in the business, the reliability of the manual system which the computerized system is designed to replace, and the technology available at the time.[37]

If an information provider fails to take reasonable skill and care in compiling, inputting, verifying,or retrieving information, relied on by a customer to his detriment, the information provider may be liable for the resulting damages, suffered by the customer.[38]

In 87118 Canada Ltd. v. The Queen,[39] it was suggested that the design of an information system which replaces a manual one must be at least as efficient as can reasonably be expected having regard to the state of the art of the information technology at the time.

In that case the plaintiff alleged the defendant's automated name search system failed to reveal a previously registered confusing corporate name. The defendant sought to defend the action by establishing the computer system which it used was the state of the art at the time. Mr. Justice Addy, of the Federal Court gave short shrift to this argument:

> Where a service could obviously be performed properly by an individual and where that service has been computerized and has not been rendered properly, it is no answer, as the defendant has attempted to do in the case at bar, for the person who has chosen to install the computerized system to establish that it was efficient as a computerized service as could be reasonably furnished having regard to the state of the art at the time. Before installing such a service, or at least before relying on it in substitution for a previously existing manual one, then, failing full disclosure of the reduction of the quality of the service to be rendered or failing any valid legislation limiting or exempting liability, the person rendering it must satisfy the Court that the new automated service is as efficient as the previous existing manual one.
>
> The normally applicable standard of care cannot be changed unilaterally, without more, by the mere installation of machinery to replace human effort. Where, as the present case,the standard of performance is obviously lowered by the installation of an automated system, then, before the service is offered, there must be a clean and unequivocal disclosure to the other party that the standard of performance to be expected will be inferior and also a disclosure of the general areas where such inferior standards are likely to occur. Failing full disclosure or some special exemption, the standard to be applied is still that of the reasonably prudent individual skilled in the art. Mechanical and electronic machines and devices today are so complicated that the general public cannot be expected to even begin to understand or realize their possible weaknesses and failings. As a result, where ordinary human skill and expertise is replaced by such devices, the persons employing them do so at their peril and remain subject to the tests as to performance which would otherwise prevail, unless there has been either an express or implied waiver given by the other party, after the latter had been adequately informed of the nature and of the extent of the inferior quality of the service to be expected, as compared with a manual service.[40]

A number of other cases have also suggested that a defendant who owes a duty of care in providing a computerized service cannot reply of deficiencies in the design of its computer system to escape from liability that would be imposed if the service was performed manually rather than by computer.

As one court aptly put it "Trust in the infallibility of a computer is hardly a defence, when the opportunity to avoid the error is apparent".[41] In view of the general law which requires surveyors to use reasonable skill and care in checking the accuracy of information received from others,[42] providers of digital geographic and spatial information could also find themselves liable for inaccurate information collected and processed by another, but made available or incorporated into the published geographic information.[43]

Computers are programmed to act only in accordance with pre-defined instructions. They cannot exercise the discretion of a human being, although in time expert systems may advance to such a state that it may seem as if they can.

Where a computer systems performs the function of a human being and the situation calls for the exercise of some discretion, the inability of the system to exercise that discretion may not relieve the defendant from its obligation to do so. One court, United States Court, pointed out[44] over 15 years ago that

"Holding a company responsible for the actions of its computer does not exhibit a distaste for modern business practices....A computer operates only in accordance with the information and directions supplied by its human programmers. If the computer does not think like a man, it is man's fault".

The design of an information service must therefore take into account the myriad of demands which will be made of it and be able to respond "intelligently" to those demands.

In some cases therefore the failure of a system to display relevant information may also form the basis of an allegation that the system design is deficient.[45]

Persons who provide information services which extensively use computer and communications technologies should, in most cases, foresee that the system, or a component part thereof, may go down or fail and if there are no

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contingency plans to deal with that eventuality, loss or damage might be suffered by customers relying on the system.

If a reasonable person would foresee that the failure to make contingency plans may cause a loss to someone to whom a duty of care is owed, the failure to take reasonable steps to avoid this loss may render the information provider liable for the damages suffered by the customer.[46]

CROWN LIABILITY

Historically, the position of the Crown in tort was much different from that of its subjects. At common law "The King could do no wrong".[47] In Halifax City Railway v. R[48] Richards C.J. quoted from Feather v. R., 122 E.R. 1191, where it was stated:

> The maxim that the King can do no wrong applies to personal as well as political wrongs, and not only to wrongs done personally by the sovereign ... but to injuries done by a subject by the authority of the sovereign. For, from the maxim that the King cannot do wrong, it follows as a necessary consequence that the King cannot authorize wrong ... it follows that a petition of right which complains of a tortious act done by the Crown, or by a public servant, by the authority of the Crown, discloses no matter of complaint which can entitle the petitioner to redress.

Prior to the enactment of any Federal or Provincial statutes authorizing actions against the Crown it was necessary to obtain a fiat for a petition of right before the crown could be sued in tort. This procedure was seen as part of the prerogative right of the sovereign.[49]

The Crown in right of Canada became subject to a limited form of liability by the passage of the Exchequer Court Act[50] which imposed on the Crown vicarious liability for the negligence of its servants. Later, the Crown Liability Act,[51] placed the Crown in the same legal position with respect to liability in tort as a private person of full age and capacity. The liability of the Crown in right of Canada is now determined by the law of negligence in force in the province in which the negligence occurs.[52] The liability of the Crown in right of each province is dependent on specific provincial legislation. In the Province of Ontario prior to 1963, the provincial Crown was not liable for any torts committed by its servants.[53]

Present provincial legislation permits actions to be brought against the Crown without a fiat, where one was previously necessary.[54]

The Crown is also made expressly subject to all liabilities in tort to which, it if were a person of full age and capacity, it would be subject in respect of a tort committed by any of its servants or agents.[55]

Municipal corporations may be sued in tort as these governmental institutions are not the "Crown". They are merely corporate bodies created by the province. The power to sue a municipal corporation is an incident to the creation and existence of the corporation.[56] Municipalities, therefore, are liable to be sued for breach of contract or for damages occasioned by their acts or defaults.[57]

Crown immunity from liability still exists where the governmental body has exercised, or failed to exercise, "governmental", "Legislative" or "planning" functions,[58] and not "administrative", "business" or "operational" functions, for which the Crown may be liable.[59]

The rationale for special treatment of public authorities can be readily appreciated. The Crown is called upon to exercise its choice between alternative courses of action and to base its choice upon what it perceived to be in the public interest. In deciding to take one course of action rather than another, the Crown should be concerned solely with the public interest and should not have its attention deflected by the threat of a law suit on the part of a disgruntled individual who might be adversely affected.[60] This policy was articulated by Laskin C.J. of the Supreme Court of Canada in Welbridge Holdings Limited, v. Metropolitan Corporation of Greater Winnipeg,[61] where he stated:

> .....the risk of loss from the exercise of legislative or adjudicative authority is a general public risk and not one for which compensation can be supported on the basis of a private duty of care. The situation is different where a claim for damages for negligence is based on acts done in pursuance or in implementation of legislation or of an adjudicative decree.[62]

There is little doubt that the Crown may be liable under ordinary tort principles for the negligent provision of inaccurate information.[63] Therefor, if the Crown undertakes the compilation, formatting, storage, and retrieval of information, and make the information available to general members of the public, it is not likely that there will be Crown immunity on the basis that there has been the exercise of "governmental", "legislative", or "planning" functions.

It is more probable that such activities will be classified as "business" or "operational" activities.

COMPENSATION FUNDS

Even if government information providers have immunity from liability for their negligence, public policy may dictate that where the public must rely on a government sponsored and operated system, where errors occur causing loss to a particular member of the public, the person suffering the loss should be entitled to compensation. Several statutorily created registration systems have established compensation funds to address the inevitable situations in which errors will occur. If the costs of the contingency fund are built into the costs of using the system, the losses resulting from the system's use can be paid for by users of the service.

One example of a compensation fund is the assurance fund created under the Ontario Land Titles Act.[64] Under Part V of the Act,[65] an assurance fund is created for the indemnity of persons who may be wrongfully deprived of land or some estate or interest therein by reason of the land being brought under the Act, or by reason of some other person being registered as owner through fraud, or by reason of a misdescription, omission or other error in a certificate of ownership of land or of a charge or in an entry on the register.

A similar scheme is set up by the Ontario Registry Act,[66] which grants access to the Land Titles Assurance Fund where a person is wrongfully deprived of Land registered "by reason of, ...any error or omission in recording a registered instrument".

The land registration systems in Ontario are gradually moving toward the creation of an automated title record and property mapping system where each designated piece of land will receive an identifying number through which the title to the land can be searched by computer.[67] To protect users of the system, the Province established access to the assurance fund by legislating that "A person who suffers damage because of an error in recording an instrument affecting land designated under part 2 of the Land Registration Reform Act, 1984, in the parcel register is entitled to compensation from the Land Titles Assurance Fund.[68] The Ontario government has also created a similar fund in the area of secured transactions under Personal Property Security Act.[69] The Act has attempted (although with not complete success) to create a centralized computer based registration system to replace the older multiple systems that existed formerly.

The system provides for the registration of a notice document which is entered into the system, through which any interested party may search for any prior security interest given by a debtor. Here the government created an assurance fund, known as The Personal Property Security Assurance Fund, which by regulation, receives a portion of the users' registration fees. Any person who suffers loss or damage as a result of reliance upon a certificate of the Registrar issued under the Act that is incorrect because of an error or omission in the operation of the system of registration, recording, and production of information is entitled to have compensation paid to him out of the fund.[70]

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20. *Caltex Oil (Australia) Property Limited v. The Dredge "Willemstead", (1976), 136 C.L.R. 529 (H.C. Aust.), Rivtow Marine Ltd. v. Washington Iron Works, [1974] S.C.R. 1189, Kamloops v. Nielsen, Hughes and Hughes, [1984] 5 W.W.R. 1 (S.C.C.), D&F Estates Ltd and Others v Church Commissioners for England and Others [1988] 2 All. E.R. 992 (H.L.), East River Steamship Corp. v Transamerica Delaval Inc. (1986) 476 U.S. 858*
21. *[1982] 3 All E.R. 201 (H.L.)*
22. *Simaan General Contracting Co. v. Pilkington Glass Ltd., [1988] 1 All E.R. 791, London Congregational Union Inc. v. Harriss & Harriss, [1988] 1 All E.R. 15, Yuen Kun-yeu v. A-G of Hong Kong, [1987] 2 All E.R. 705, Greater Nottingham Co-Operative Society Ltd v Cementation Piling and Foundations Ltd and Others [1988] 2 All. E.R. 971 (C.A.)*
23. *Carman Cons. Ltd. v. C.P.R. Co. (1982), 136 D.L.R. (3d) 193 (S.C.C.), Town of the Pas v. Porkey Packers Ltd., [1977] 1 S.C.R. 51, Nelson Lumber Co. v. Kock, (1980) 13 C.C.L.T. 201 (Sask. CA.)*
24. *Mutual Life and Citizens' Assurance Co. v. Evett, [1971] A.C. 793 (P.C.)*
25. *Fleming, The Law of Torts, 6Th. edition, pp. 609, Guay v. Sun Publishing Co., [1953] 2 S.C.R. 216*
26. *Ultramares Corpn. v. Touche, 74 A.L.R. 1139 (N.Y. Ct. App. 1931).*
27. *B.D.C. Ltd v Hofstrand Farms Ltd (1986), 26 D.L.R. (4th) 1 (S.C.C.) Per Estey J.*
28. *[1970] 2 Q.B. 223 (C.A.)*
29. *[1976] 3 W.W.R. 331 (S.C.C.)*
30. *520 N.Y.S.2d 334 (N.Y.Sup. Ct. 1987)*
31. *53 C.P.R. (2d) 177, rev'd 56 C.P.R. (3d) 209 (Fed.C.A.)*
32. *See also, Budai v. Ontario Lottery Corp., (1983), 142 D.L.R. (3d) 271 (Ont. Div. Ct.)*
33. *Hedley Byrne & Co. v. Heller & Partners Ltd., [1963] 2 All E.R. 575 (H.L.)*
34. *87118 Canada Ltd. v. The Queen, 56 C.P.R. (3d) 209 (Fed. C.A.)., Central Trust v. Rafuse, [1986] S.C.R. 147*
35. *(1856), 11 Ex. 781*
36. *Charlesworth on Negligence, 6th. edition, London Sweet & Maxwell, 1977*
37. *One New York court suggested that the failure to incorporate features into a system made possible by new technological developments may constitute negligencesee Swiss Air Transport Company v. Benn, 467 N.Y.S.2d 341 (New York City Civ. Ct. 1983).*
38. *Thompson v. San Antonio Retail-Merchants Association, 682 F.2d 509 (5th Circ. 1982).*
39. *53 C.P.R. (2d) 177, rev'd (1981), 56 C.P.R. (3d) 209 (Fed.C.A.)*
40. *The decision of Addy J. was reversed on appeal to the Federal Court of Appeal due to the presence of an exculpatory clause. Pratte J. doubted the judge's finding of negligence was supported by the evidence, but did not express an opinion on that point.*
41. *Ford Motor Credit Co. v. Swarens, 447 S.W.2d 53 (Ky. Ct.App. 1969); Remfor Industries Ltd. v. Bank of Montreal, (1978), 90 D.L.R. (3d) 316 (Ont. C.A.)*
42. *MacLaren-Elgin Corp. Ltd v Gooch, [1972] 2 O.R. 474 (H.C.), Moneypenny v Hartland (1824), 1 Car. & P 351*
43. *See, Brocklesby v United States, 767 F.2d 1288 (9th Circ. 1985)*
44. *State Farm Mutual Auto Ins. Co. v. Bochorst, 453 F. 2d 533 (10th. Cir. 1972)*
45. *See, FBDB v Reg. of Personal property (1984), 45 O.R. (2d) 780 (Div.Ct.)*
46. *See Jack Brown "Some Current Litigation Issues Arising from the Use of Computer Systems in the Rendering of Financial Services", Computer Law & Practice, Volume 4, No. 4, March/April, 1988, pp. 199-124.*
    In Moss v. Richardson Greenshields of Canada Ltd., (1988), 53 Man. R. (2d) 1217 Aff'd [1988] M.J. No. 54 (Man. C.A.), a computer link from Winnipeg to New York to Chicago used by stock brokers for trading in call options was temporarily suspended resulting in a sale and cancel order being suspended and allegations of negligence against the stock broker.

47. *Montreal Trans. Co. v R., [1923] Ex. CR. 139, affirmed [1924] 4 D.L.R. 808 affirmed [1926] 2 D.L.R. 862 (P.C.), Gooderham & Worts Limited v CBC, [1942] O.R. 130, reversing [1939] to D.L.R. 654 (C.A.)*
48. *(1877) 2 Ex. CR. 433*
49. *Fitzpatrick v R., 57 O.L.R. 178, affirmed 59 O.L.R. 331 (C.A.), Orpen v Attorney General of Ontario, 56 O.L.R. 327 varies 56 O.L.R. 530 (C.A.)*
50. *R.S.C. 1927, c. 34, s. 19(1)(c), re-enacted by 1938, c. 28, s. 1, later R.S.C. 1952, c. 98, s. 19(1)(c)*
51. *1952-53 (Can.), c. 30*
52. *Gaetz v R., [1955] Ex. CR. 133.*
53. *Nelles v. The Queen, (1985), 51 O.R. (2d) 513 (C.A.)*
54. *Proceedings Against the Crown Act R.S.O. 1980, c. 393 S.3*
55. *Proceedings Against the Crown Act R.S.O. 1980, c. 393 S.5*
56. *Rogers, The Law of Canadian Municipal Corporations 2nd Edition (Carswell) p. 1313. See also The Interpretation Act, R.S.O. 1980, c.219, s.26*
57. *Ibid, p 1314*
58. *See for instance, Barratt v District of North Vancouver, (1981), 13 M.P.L.R. 116 (S.C.C.) (the fixing of pot holes was a matter of "policy" with no duty to do so); Bowen v City of Edmonton (No. 2), (1977) 4 C.C.L.T.105 (Alta. C.A.) (matters ancillary to the zoning of land, such as soil tests, "legislative" acts).*
59. *See for instance, Berardinelli v O.H.C., [1970] 1 S.C.R. 275 (housing authority's obligation to remove snow from its projects is "operational"); City of Kamloops v Nielsen, [1984] 2 S.C.R. 2 (municipality's failure to enforce its by-law is "operational"); R. v Nord-Deutsche, [1971] S.C.R. 849 (Crown negligent in allowing lights which it set up, to go into disrepair, causing an accident between ships); Hendricks v R., [1970] S.C.R. 237 (Crown negligent in failing to replace warning signs leading to boating accident); Malat v The Queen, (1980) 14 C.C.L.T. 206 (B.C.C.A.) (Crown liable for erecting median on highway smaller than government policy required); Dorschell v City of Cambridge, (1980) 117 D.L.R. (3rd) 630 (Ont. C.A.) (municipality liable for failure to create snow removal policy in breach of statutory duty to do so).*
60. *See, "Liability of Public Authorities in Negligence", Richard E. Shibley Q.C. in Law Society of Upper Canada Special Lectures (1983) pp.225-272, Anns v London Borough of Merton, [1977] 2 All E.R.492 (H.L.)*
61. *(1971) 22 D.L.R. (3d) 470, (S.C.C.)*
62. *at p. 478*
63. *Roberts v Sollinger Industries and O.D..C. (1978), 19 O.R. (2d) 44 (C.A.), Grand Restaurants of Can. Ltd. v. City of Toronto, (1981) 32 O.R. (2d) 757, aff'd 39 O.R. (2d) 752 (CA.),Ministry of Housing v Sharp,[1970] 2 Q.B. 223 (C.A.)*
64. *R.S.O. 1980, c. 230, as amended*
65. *s. 57(1)*
66. *R.S.O. 1980, c. 445, as amended*
67. *See, Land Registration Reform Act, 1984 Part 2*
68. *See, Land Titles Act, S.60(4)(a), Registry "Act, s.108(3a)*
69. *R.S.O. 1980 c. 375, S. 43*
70. *Research assistance of Andrew Wilson of McCarthy Tetrault is acknowledged.*