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## Innovation and Intellectual Property: A Canadian Perspective

*David B. Watters\**

**E**xactly one week ago in Geneva, a major milestone was passed in the global march towards an innovative society. This event was the General Agreement on Tariffs and Trade ("GATT") Agreement on Trade Related Intellectual Property ("TRIPs"), reached by almost one hundred developed and developing countries, to enter into detailed negotiations to regulate international trade in goods and services containing intellectual property. GATT negotiators will now pursue substantive negotiations in Geneva in May 1989, leading toward a detailed agreement on standards, enforcement and dispute settlement by the end of 1990.

As a result of these events, I will attempt to identify my perception of the major dynamic trends in the global context for innovation as it relates to intellectual property law, to situate Canada within these global developments, to highlight key features of the Canadian response to them, and to draw on a few key lessons from the Canadian experience which may be applicable to other countries.

### THE GLOBAL CONTEXT FOR INNOVATION AND INTELLECTUAL PROPERTY LAW

What are the major global developments which are forcing national governments, corporations and the international community to rethink the methods used to innovate, and the instruments used to protect those innovations and creations? One fundamental new development is the priority placed by countries and international companies on human creativity as the most critical factor of production and the corresponding application of intellectual property law to protect and encourage that creativity. Human creativity, the creation and use of new ideas and new technologies, is increasingly recognized as a major source of growth and development in modern economies and as a major comparative advantage of western industrialized economies in particular. It is argued that productivity change and technological development, rather than increases in the stock of labor and capital, account for most of the economic growth and improvements in economic well-being enjoyed by western economies since the end of World War II.

As a result, the dramatic rise in the importance of innovation to economic progress has required intellectual property law to take on an expanded role in many areas of economic activity. Intellectual property

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is now used for a wide range of purposes by a modern company: to support research and development investments and encourage in-house innovation; to protect brand name products and to maintain and enhance market share; to raise capital from banks and the stock market; to acquire technology from other companies; to attract and retain highly qualified personnel; and to establish joint ventures and other business collaborations.

Consistent with its growing importance to corporate decision-making and domestic economies, the role of intellectual property based products, services and technologies in international trade has expanded dramatically in the post-war period. Unfortunately, this has led to substantial growth in international trade in counterfeit and pirated products. Worldwide losses from counterfeiting and piracy to the creators and owners of intellectual property rights are reported to exceed \$10 billion.

In addition, weak intellectual property laws and a reluctance to enforce existing statutes send a signal to innovators and creators that their creative efforts are not appreciated by their own government and society. Furthermore, ineffective intellectual property laws which endorse the theft of intellectual property can distort economic relationships throughout an economy and force companies which honor intellectual property rights out of business because of unfair competition from counterfeiters and pirates. Finally, the inevitable outcome of weak intellectual property laws is greater use of trade secrecy law and sharply reduced dissemination of technology. For small companies and individual inventors, which traditionally have been a major source of innovation in many economies, this inability to access technology is a major constraint.

What other global economic changes are having an impact on innovation and intellectual property? While the production of goods remains important to many modern economies, the service sector has become a major engine of growth for most advanced industrialized countries. "Higher order" services, such as engineering, architecture, management consulting, computer services, advertising, entertainment, transportation and financial services, are now sold throughout the world and they are an expanding component of world trade. They are also the subject of a separate and very substantive negotiation at the GATT. Intellectual property protection plays an important role in many international service flows and provides the foundation for the advances in royalty payments and receipts which are taking on growing importance in many countries' balance of payments.

The last decade has seen a sharp acceleration in the pace of technological advance and in the speed with which new products and technologies become obsolete. This trend will continue, led by micro-electronics, advanced materials, communications technologies and biotechnologies. The consequences of this rapid pace of innovation are profound. A number of these new technologies and resulting products have too short a market life to be protected by the traditional forms of intellectual prop-

erty protection, such as patents. Leading-edge companies and industries which produce technologies, products and services with a short market life of six months to three years depend more on trade secrecy laws, confidentiality and non-disclosure agreements, and staying ahead of the competition through constant technological improvement and product adaptation.

The future will bring even faster rates of diffusion of these advanced technologies to other industries and countries. Countries which, because of weak intellectual property laws, are not able to attract, diffuse and adapt the more advanced technologies will be left behind. In short, intellectual property protection will be a crucial ingredient in the production and transfer of these advanced technologies.

Let's turn to other global changes affecting innovation. The research and development ("R&D") expenditures and effort needed to develop new products and technologies have increased sharply, particularly in many high technology industries. For example, many new drugs are the product of over \$100 million of R&D investment. Such higher R&D costs increase both the need to protect innovations and creations by applying adequate intellectual property law as well as the need to protect market share and profits from illegal copying and other infringement. As a result, the financial stakes in intellectual property protection and infringement are now enormous.

What about the need to protect new innovative technologies? Many of the new technologies do not fit cleanly into the traditional types of intellectual property protection, which were designed largely for technologies of the 1800s. Devising an appropriate method to protect computer software has been a matter of intense international debate for almost twenty years. The development of the semiconductor chip has led to the emergence of a totally new form of intellectual property protection in the United States, Japan and other countries. In addition, all countries are now wrestling with the moral and economic dilemmas posed by biotechnological inventions.

Vastly improved international communication is rapidly creating a single global marketplace. This fact is placing intense pressure on national governments to harmonize their corporate framework laws, including intellectual property statutes across national jurisdictions. This pressure is coming from small and large companies alike. Multinational corporations want international intellectual property law to be analogous to their own corporate operations, involving the application of the same set of corporate and legal rules, regardless of where production and marketing take place. In short, international companies demand international rules for the global marketplace.

However, smaller companies reach the same conclusions for different reasons. Smaller companies, which increasingly are looking outward for sales and profits, do not have the legal expertise and financial resources to accommodate and adjust to dramatically different legal sys-

tems. For them, harmonization of laws and administrative practices cuts overhead costs, reduces risk and uncertainty, and enhances profits. Consequently, both large and small companies believe they should be able to make their investment, trade and licensing decisions with minimal interference from the perceived distortions caused by differences in national law. In the years ahead, national governments will encounter growing corporate and international pressure to adopt common international intellectual property norms.

Other geopolitical developments are having strong influences on the link between innovation and intellectual property. These developments include the dramatic economic advances achieved by the newly industrializing countries ("NICs") located largely in Asia (the "Six Tigers" of Asia). Such economies, with low wage costs and high organizational skills, are putting relentless competitive pressures on many Western industries. In addition, there are growing disparities in income and levels of economic and technological development between the developed and developing countries as well as among the lesser developed countries ("LDCs") — South Korea now has more in common with the United States than India. Despite efforts to raise the technological capabilities of the developing world, innovation continues to be concentrated in the advanced countries. The industrialized countries, as defined by the United Nations, account for about 95% of the world's patent applications and create all but 2% of the world's patented inventions. Moreover, technology flows from advanced to developing countries were much lower in the 1980s than the previous decade. This was the result, in large part, of reduced investment flows and the international debt crisis.

New economic directions have emerged in the Soviet Union, the People's Republic of China and other socialist countries. Many socialist countries are developing new intellectual property laws, radically revising their existing statutes, and expressing an interest in joining the World Intellectual Property Organization ("WIPO"). This provides further evidence of the strong attractions provided by innovation, Western technology and the legal environment needed to encourage innovation and creativity.

Perhaps the most important long-term development is the establishment of a single unified European Community ("EC") market by 1992. The successful completion of a unified EC market and the adoption of unified intellectual and related company laws covering the entire community will place enormous pressure on North American and other governments to harmonize laws among each other and, in particular, with Europe. The implications of a unified European market and economy for the rest of the international community are enormous, and as yet have been only dimly perceived by many of us.

*How have industrialized countries reacted to these global pressures?*

The more advanced nations and the largest multinational corporations have responded to these challenges in part by critically evaluating and employing the market power and revenue potential of their intellectual property rights and similar corporate assets. Many advanced countries and their multinational corporations have come to the conclusion that in the past they undervalued the importance and revenue potential of their innovative and creative products protected by intellectual property law, corporate assets which set them apart from new competitors, particularly the NICs and other LDCs.

In addition, dissatisfaction with inadequate laws and enforcement procedures in many LDCs and the perceived failure of existing instruments administered by WIPO to provide adequate standards and dispute settlement procedures for intellectual property, have led developed countries to push for the inclusion of the Trade Related Aspects of Intellectual Property in the Uruguay Round of the GATT negotiations.

For over one hundred years, until the Uruguay Round of the GATT, almost all international negotiations with respect to intellectual property — patents, trademarks, copyright, industrial designs and trade secrets — had been pursued in the WIPO, a specialized agency of the United Nations. The international conventions and treaties which evolved over many decades set minimum standards for protection and required national treatment, i.e. that nationals of all member states were to be treated in the same manner as residents under domestic legislation. While the protection provided by the WIPO treaty framework encourages the exchange of ideas and innovation, provides incentives for creativity and supports the harmonization of statutes and practices among trading partners, some countries find that it is often a slow, cumbersome and unwieldy process.

A third reaction to those global pressures is the growing use of unilateral and bilateral measures by major producing countries to pressure LDCs to improve intellectual property protection within their national jurisdictions. The United States in particular has been very assertive in employing bilateral negotiations and trade sanctions against countries it believes are failing to provide adequate protection to American intellectual property rights holders. However, as a result of U.S. actions, many newly industrializing countries have improved their protection for intellectual property rights. Pressure continues to be applied against other developing countries such as Brazil and India.

*How important is intellectual property protection to the Canadian economy?*

The Legislative Review Directorate has just completed an extensive economic research program on the role of intellectual property in the Canadian economy and in international trade. This research has brought

home to us the growing importance of intellectual property to Canada's economic performance, innovation, creativity, cultural development and international trade. From an industry perspective, we found that the creation of patentable inventions and other intellectual property is quite highly concentrated in Canada. For example, over 90% of the Canadian patents granted from 1972 to 1987 were created by only six manufacturing industries. By contrast, however, the use of patents and other intellectual property rights is broadly distributed through most sectors of the Canadian economy. As a result, intellectual property touches the lives of virtually all Canadians in one way or the other.

A major tool in our research program was a company survey of intellectual property use and importance, conducted by the consulting firm Price-Waterhouse. The survey covered all of the major R&D performers in Canada in addition to companies chosen from selected high, medium and low technology sectors and the major copyright-using industries. Company participation was well beyond expectations. The response rate was 81%, pointing out the strong interest in intellectual property and innovation shared by companies across a wide spectrum of Canadian industries. We found that more than 80% of the company respondents are currently using one or more intellectual property rights in their business operations, and better than a third of the companies are using intellectual property rights abroad, a number which is much higher than expected.

The survey further pointed out that intellectual property plays an important role in many key corporate goals. These range from R&D investment decisions, maintaining market share, developing and acquiring technologies to establishing joint ventures in Canada and other countries. Industries which significantly depend on intellectual property to support their sales, exports and profitability now account for about 10% of Canadian gross domestic product ("GDP"), and their share of the GDP is expected to increase in the years ahead. In short, intellectual property law is clearly very important to the R&D, innovation and investment decisions of many companies in Canada.

### *How important is intellectual property protection to Canada's trading interests?*

I would like to emphasize at the outset that Canada has supported the decision to add intellectual property to the Uruguay Round agenda from the very beginning and that our TRIPs position is closely aligned with the positions of the United States, the European Community and Japan.

Regarding our international interests, Canada is a net importer of technology and other goods, services, and cultural and entertainment products with a significant intellectual property right component. We rely heavily on the innovative activities of others and our external deficits

in all of these areas appear to be growing. Canadian producers contribute a comparatively small share (less than 4%) to world trade in R&D-intensive products and Canada has trade deficits across the full range of technology, products and services protected by intellectual property statutes.

Nonetheless, Canadians recognize that effective and non-discriminatory intellectual property protection is critical for access to the latest innovative technology for Canadian application, as well as to innovation and creativity within Canada. Canadian export sales of high technology products are now on the order of \$20 billion per year. Continued access to foreign technologies at affordable prices is essential to maintaining Canadian international competitiveness. Effective intellectual property law both in Canada and the source countries is needed to facilitate access to the foreign technologies, materials and equipment which embody intellectual property rights.

Commercial counterfeiting, piracy and other intellectual property infringements are hurting the sales efforts of some Canadian producers in foreign markets, and are expected to have a further dampening effect on our long-term export interests unless the international community comes to grips with this difficult problem. Canadian companies, especially in western Canada, are now establishing joint ventures, licensing agreements and other business collaborations with companies in the Pacific Rim. These arrangements in most cases are not sufficiently advanced for the Canadian partners to be hurt by the obvious gaps in these countries' intellectual property laws and practices, but it is only a matter of time. Canada's growing dependence on the international economy, combined with strong advances in high technology and other industries dependent on intellectual property rights, indicates Canadian companies are becoming increasingly vulnerable to the intellectual property laws and practices of other countries.

*What approach has Canada taken toward the need for stronger intellectual property protection?*

The government of Canada has recognized the importance of intellectual property to the Canadian economy and is committed to stronger intellectual property laws throughout the world. The Canadian government has made major strides since 1984 in strengthening Canada's intellectual property system, in modernizing intellectual property laws and their administration, and in bringing Canadian intellectual property laws closer to international standards and practices. Three major pieces of legislation have been passed. These include the revision and modernization of two critical intellectual property statutes, the Patent Act and the Copyright Act, and the introduction, in the Copyright Act, of a right of payment for retransmission of broadcast signals as part of the implementation of the Canada-U.S. Free Trade Agreement.



The amendments to the compulsory licensing provisions of the Patent Act were designed to improve market protection for pharmaceutical products and encourage research related to health care in Canada. Other amendments to the Patent Act, bringing Canada's patent system more in line with international norms, will allow innovators considering patent protection to respond more rapidly to market needs, and will make technological information more readily available to researchers. These amendments will encourage the spread of new technology in Canada, more than 90% of it from other countries, and will facilitate the process of reviewing patent applications. The amendments to the Copyright Act provided explicit protection for computer programs, strengthened the moral rights of creators, and increased penalties for criminal copyright infringement. With these amendments, Canada's substantive intellectual property standards are now comparable to the best of those of our developed country trading partners.

*For a medium-sized country like Canada, what would be the components of an intellectual property strategy to enhance innovation?*

Building on the Canadian government's accomplishments since 1984, work is currently ongoing to formulate a Canadian intellectual property strategy.

The overall goal of the emerging strategy is to expand the utilization of Canadian intellectual property statutes as effective instruments in supporting Canadian innovation and in the achievement of Canada's economic and cultural objectives. The action plan, which is at the core of the strategy, is comprised of a large number of discrete activities which will introduce new intellectual property rights, revise and modernize existing statutes, improve the operations of the Canadian patent and trade mark office, coordinate Canada's negotiation positions at various international fora and provide a long-term policy framework to guide Canada's intellectual property development over the next decade.

Internationally, and as part of an overall strategy, we intend to work very closely with our trading partners to ensure a successful TRIPs outcome at the GATT and to ensure successful WIPO negotiations on the development of treaties on patent law harmonization and integrated circuit protection; the revision of the Paris Convention; the development of a model copyright law; and expert policy reviews in key areas such as protection for life forms and measures against counterfeiting. Clearly, the international intellectual property system is at a watershed. International negotiations over the next two years will determine whether the "multilateral rule of law" will prevail in intellectual property matters over the next one to two decades or whether bilateral "hardball" will be the norm.

In this context, Canada believes that the WIPO negotiations are especially important to smaller Canadian-owned high-tech companies

which have no formal links to foreign multinationals. These companies require both improved intellectual property protection for emerging technologies to protect their innovations, and more harmonized intellectual property laws worldwide to reduce business costs and support their exporting efforts off the North American continent.

*What position has Canada been taking at the GATT TRIPs negotiations?*

As noted earlier, Canadian intellectual property interests at the GATT are closely aligned with those of our major trading partners. Canada is working toward a final TRIPs outcome which: 1) raises intellectual property standards throughout the world; 2) provides for effective non-discriminatory enforcement of intellectual property rights; and 3) fully accommodates the GATT principles and procedures of national treatment, most-favored nation, transparency and dispute settlement. However, while supporting our partners wherever possible, we will be placing an emphasis on Canada's own interests as well. Canadian points of emphasis include:

- 1) A final outcome which addresses the trade distorting effects of both inadequate and excessive or discriminatory intellectual property protection;
- 2) The elaboration of effective multilateral procedures for the settlement of intellectual property disputes between countries;
- 3) The elaboration of rules and disciplines governing the use of discriminatory or capricious border enforcement measures;
- 4) Strong measures against counterfeiting and piracy; and
- 5) Mutual cooperation between GATT, WIPO and other agencies.

### Trade Distorting Effects

Canada strongly favors a final TRIPs outcome which addresses the trade distorting effects of both inadequate and excessive intellectual property protection. A TRIPs agreement should therefore strike an appropriate balance between the needs of users and creators of intellectual property, as well as between the needs of importers and exporters of technology. Intellectual property standards which are too high and intellectual property laws which are enforced too zealously by customs officials and the courts can distort international trade patterns just as much as inadequate intellectual property standards and enforcement. Canada, like many other medium-sized industrial countries, is highly dependent on foreign technologies to achieve economic and trade goals. Of the patents granted in Canada, 93% are for patents created in other countries, mainly the United States. The corresponding ratios in the larger industrialized countries are around 50%. The TRIPs outcome must assure Canada and other medium-sized industrialized powers that foreign technologies and other goods and services protected by intellectual property

rights will continue to be available at affordable prices. If intellectual property based technologies, goods and services become prohibitively expensive or unavailable to companies in technology importing countries, innovation and the diffusion of technologies worldwide will suffer and all countries, including the technology leaders, will be worse off in the final analysis.

In this regard, smaller companies in Canada and other technology importing countries look with some dismay at the large U.S. patent infringement suits now occurring in the U.S. courts and their multimillion dollar settlements. These days, some multinationals appear to be earning more from successful litigation than from their normal business operations. Only the largest international companies can play in this league and we recognize that few of these companies are headquartered in countries the size of Canada.

### Effective Multilateral Procedures for Dispute Settlement

Canada hopes that the TRIPs negotiation will strengthen the multilateral trading system by bringing the unilateral and bilateral trade actions of member countries under international rules and disciplines. The negotiation of an effective dispute settlement mechanism for intellectual property related disputes between participants is critical to building credibility in the GATT system among medium-sized countries. Compared to their American counterparts, Canadians are less enamored of section 301, section 337 and other unilateral trade actions of the U.S. government. Although Canada can sympathize with the American frustrations which led to recent section 301 actions against Brazil, Canada strongly believes that such intellectual property related disputes are better pursued through a multilateral forum. From the Canadian perspective, it is important that the TRIPs agreement place unilateral trade policy instruments under multilateral discipline, incorporate an effective dispute settlement mechanism and encompass as many signatories as possible, including key participants from the developing world.

### Discriminatory Border Enforcement

A number of Canadian companies have been hurt by section 337 and similar U.S. border enforcement measures. Section 337 type actions particularly hurt smaller Canadian-owned companies, who do not have the resources and legal expertise to fight back. Canadians look to these companies to be major sources of research and development, innovation, entrepreneurship and jobs in the future. As a result, section 337 actions can have a chilling effect on Canadian high-tech companies and, it can be argued, remove from them a portion of the trade benefits gained through the Canada-U.S. Free Trade Agreement. Canada's position is that border enforcement should be applied only for the most serious offenses, particularly commercial copyright piracy and trademark counterfeiting,

or where private enforcement actions have clearly proved to be ineffective. As the GATT panel concluded, border actions are not appropriate to patent infringement suits where ownership rights often are not clear, and where national treatment of imported goods is placed at risk.

### Counterfeiting and Piracy

Compared to the United States and Europe, Canadian commercial interests in the domestic and export market have been less affected by trademark counterfeiting and copyright piracy. Nonetheless, reducing commercial counterfeiting and piracy is essential to achieving the trade and development goals of Canada and other contracting parties. In this regard, Canadian high-tech companies and entertainment industries may be about ten years behind their U.S. counterparts. These companies are just starting to export, mainly to the U.S. market, where intellectual property protection is more than adequate. Many of these companies hope to use the Canada-U.S. Free Trade Agreement to develop their export capabilities and expertise before launching their offshore marketing efforts in a few years time. When that occurs, Canada's current losses from counterfeiting and piracy in foreign markets, now calculated in the tens of millions of dollars, could expand many times over unless these problems are brought under control.

Canada's view is that the trade distorting effects of counterfeit trade and piracy are best addressed through a comprehensive TRIPs agreement covering intellectual property standards, enforcement and the GATT principles. Canada has little to gain from a separate code narrowly focused on border enforcement of registered trademarks and would be concerned if the development of a narrow code comes to be seen as a possible fall-back position as the TRIPs negotiation proceeds.

### Mutual Cooperation Between Agencies

The GATT is not a replacement for WIPO. As the work of the TRIPs negotiating group proceeds, negotiations are continuing on several important intellectual property rights areas under the auspices of the World Intellectual Property Organization. The TRIPs negotiation should not be allowed to prejudice complementary initiatives that may be taken in WIPO and elsewhere to deal with intellectual property rights. As well, the TRIPs negotiation and final outcome should be used to encourage GATT members to join the WIPO treaties and upgrade their levels of compliance to the Paris, Berne and other intellectual property conventions.

Despite a relatively long list of objectives, Canada recognizes that negotiators from both the developed and developing countries will need to be realistic about what can be accomplished in the relatively short time available to conclude the TRIPs negotiation. In the final analysis, Canada may have to be satisfied with a TRIPs outcome which: 1) estab-

lishes in international trade law some basic intellectual property standards, principles and norms related to international trade; and 2) provides a strong foundation for building a comprehensive international intellectual property framework through the 1990s and into the next century.

*What lessons has Canada drawn from this experience?*

This review of global developments and Canada's experience with intellectual property and innovation points out a number of lessons which may be important to other medium-sized countries and the international community in general. First, medium-sized countries like Canada have just as important a stake in the international intellectual property system as the United States, Japan and the EC. However, for medium-sized economic powers which are net importers of technology, the intellectual property system must work not only for the creators of intellectual property, but also for the importers and users of intellectual property.

Second, good intellectual property law worldwide helps the sellers and buyers of technology complete the deal and once the deal is completed, becomes just as important for the licensee as for the original creator of the technology, a point which is lost on many of the critics of intellectual property rights. Countries like Canada cannot be leaders across the full range of technologies, and therefore must have access to foreign technologies at affordable prices in order to promote economic growth and to ensure a steady supply of high quality goods to our consumers at affordable prices. As a result, a fair and effective international intellectual property system is fundamental to the process of importing, diffusing, adapting and learning from foreign technologies, a process which is critical to the past and future development of the Canadian economy.

Thus, countries like Canada have to be concerned not only with inadequate intellectual property standards and enforcement but also with their excessive enforcement, as exemplified for Canada by section 337 and section 301 procedures. In the development of technology, medium-sized economic powers must apply a highly selective, cost-effective approach which requires access to foreign technologies, good intellectual property protection at home and secure market access in other countries.

Countries the size of Canada are home to comparatively few multinational corporations, international brand names and international artists. Our exporters tend to be smaller and sell specialized products in niche markets. Accordingly, while totally supporting international efforts to stop trade in counterfeit and pirated products, countries like Canada will also be interested in greater harmonization and transparency of intellectual property laws, effective multilateral dispute settlement procedures which protect the interests of the large and small alike, as well as

the application of national treatment and most-favored nation principles to ensure market access and fair treatment. For countries like Canada, the TRIPs negotiation is important, but so too is the harmonization process at WIPO.

When it comes to international intellectual property negotiations at the GATT, Canada and other medium-sized economic powers also have a great deal at stake. However, the major participants should not be surprised if Canada is interested in obtaining a slightly different outcome, in order to maximize domestic innovation within a more secure, harmonized and transparent multilateral legal system.

