Intellectual Property and Canada's Innovation Agenda

Submission to Innovation, Science and Economic Development Canada
By the Intellectual Property Institute of Canada

September 2016

IPIC
INTELLECTUAL PROPERTY INSTITUTE OF CANADA
INSTITUT DE LA PROPRIÉTÉ INTELLECTUELLE DU CANADA

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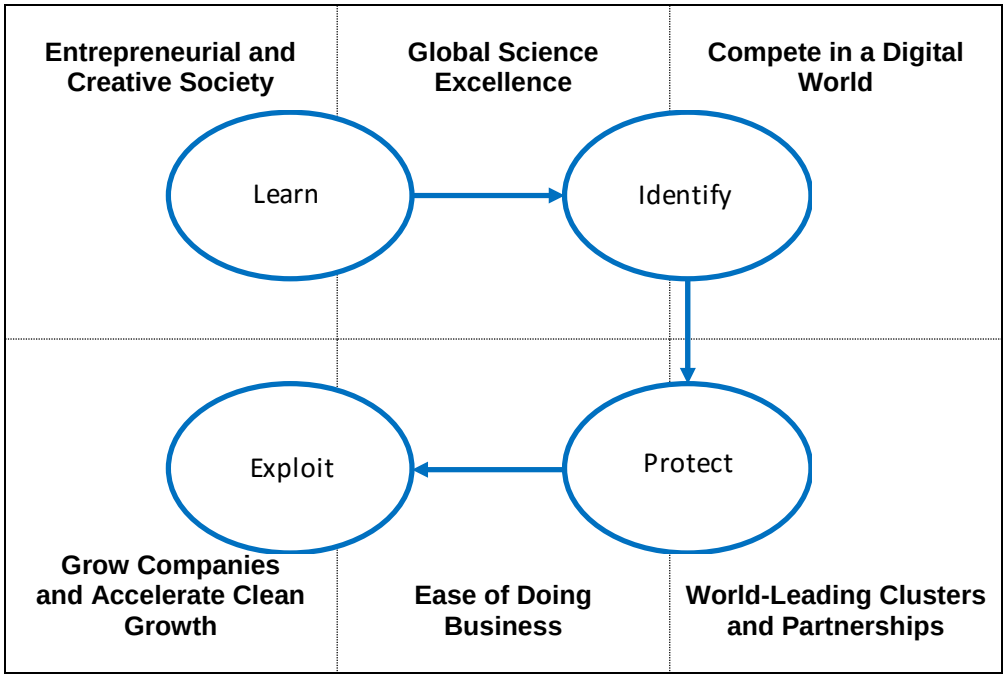
Executive summary

Intellectual property is a fundamental element in the growth of innovative companies. The road from idea to commercial product or service includes the four key steps shown in the diagram below. In essence, entrepreneurs learn about IP, identify the intellectual property that they create or acquire, seek protection for that IP (e.g. in the form of a registered trademark, patent or industrial design), and then exploit the IP by manufacturing a product, licensing the IP, selling a branded service, seeking financing or partners, etc.

IP is therefore important to all six areas for action identified in the Innovation Agenda.

Intellectual Property and the Six Areas for Action



Because innovation and intellectual property are inextricably linked, countries that are global innovation leaders have robust IP systems. These systems function effectively because of many elements including legislation, education, incentives, and the way each IP actor performs to sustain innovation. Accordingly, IPIC has identified issues at the intersections of the four IP steps and the areas for action and, in this submission, provides the following recommendations to help make Canada a global innovation leader.

Entrepreneurial and Creative Society

a) Include IP in high school, college, and university programs
b) Support programs to encourage IP development in a controlled-risk environment

Global Science Excellence

a) Consider changes to the SR&ED program in light of the government's innovation agenda
b) Develop programs to help bridge the innovation gap

Compete in a Digital World

a) Maintain or increase ISED policy-making capacity in IP
b) Continue improvements to CIPO's IT infrastructure

World-Leading Clusters and Partnerships

a) Create a First Patent Program
b) Continue to consult IP professionals on regulatory, policy, and practice changes

Ease of Doing Business

a) Create the College of Patent and Trademark Agents of Canada
b) Further update the *Patent Act* and the *Trade-marks Act*

Grow Companies and Accelerate Clean Growth

a) Explore the feasibility of an innovation box
b) Identify opportunities to increase support for clean growth through the IP framework

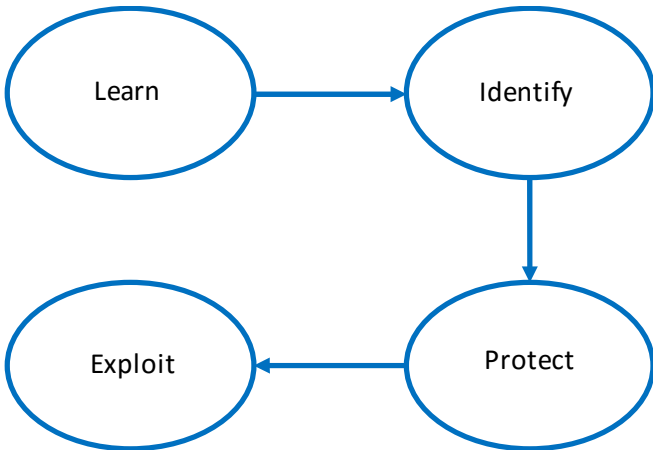
Introduction

The Intellectual Property Institute of Canada (IPIC) is pleased to respond to the consultation on Canada's innovation agenda.

Supporting innovation for 90 years, IPIC is the professional association of patent agents, trademark agents, and lawyers practicing in all areas of intellectual property (IP) law. Our membership totals over 1,700 individuals, consisting of practitioners in law firms and agencies of all sizes, sole practitioners, in-house corporate intellectual property professionals, government personnel, and academics. Our members' clients include virtually all Canadian businesses, universities and other institutions that have an interest in intellectual property (e.g. patents, trademarks, copyright, and industrial designs) in Canada or elsewhere, and also foreign companies who hold intellectual property rights in Canada.

Intellectual property is a fundamental element in the growth of innovative companies. The road from idea to commercial product or service includes the four key steps shown in the diagram below. In essence, entrepreneurs learn about IP, identify the intellectual property that they create or acquire, seek protection for that IP (e.g. in the form of a registered trademark, patent or industrial design), and then exploit the IP by manufacturing a product, licensing the IP, selling a branded service, seeking financing or partners, etc.

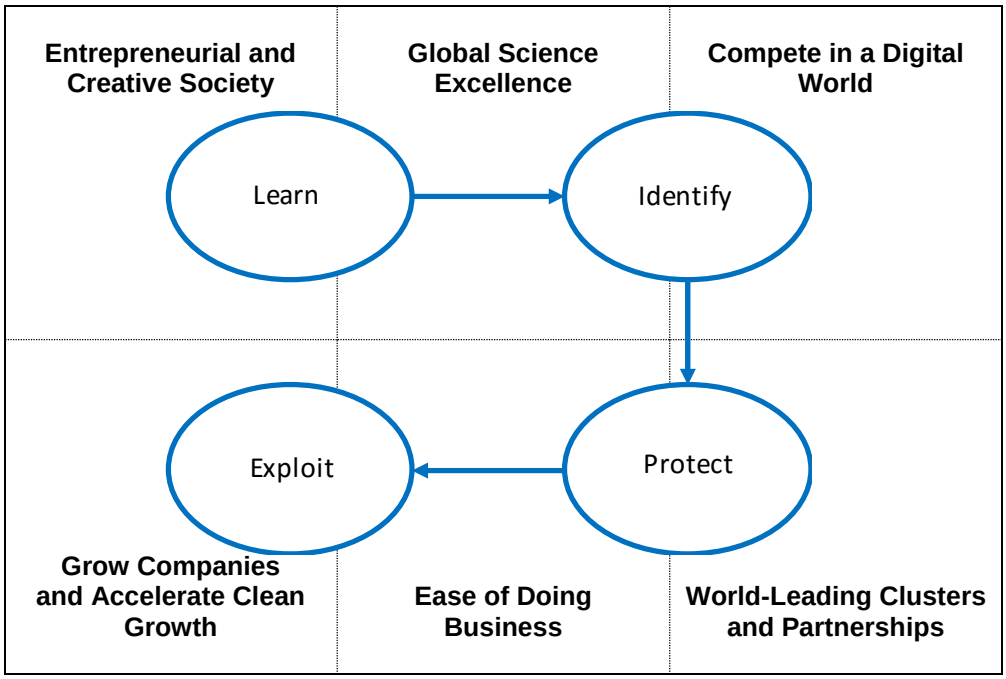
Four IP Steps



Intellectual property obviously plays a key role in one of the six areas in which the Government of Canada will take action to make Canada a global innovation leader: *grow companies and accelerate clean growth.*

In fact, IP is important to all six areas for action. Overlaying the four basic IP steps over the six areas for action identified in the Innovation Agenda provides this map.

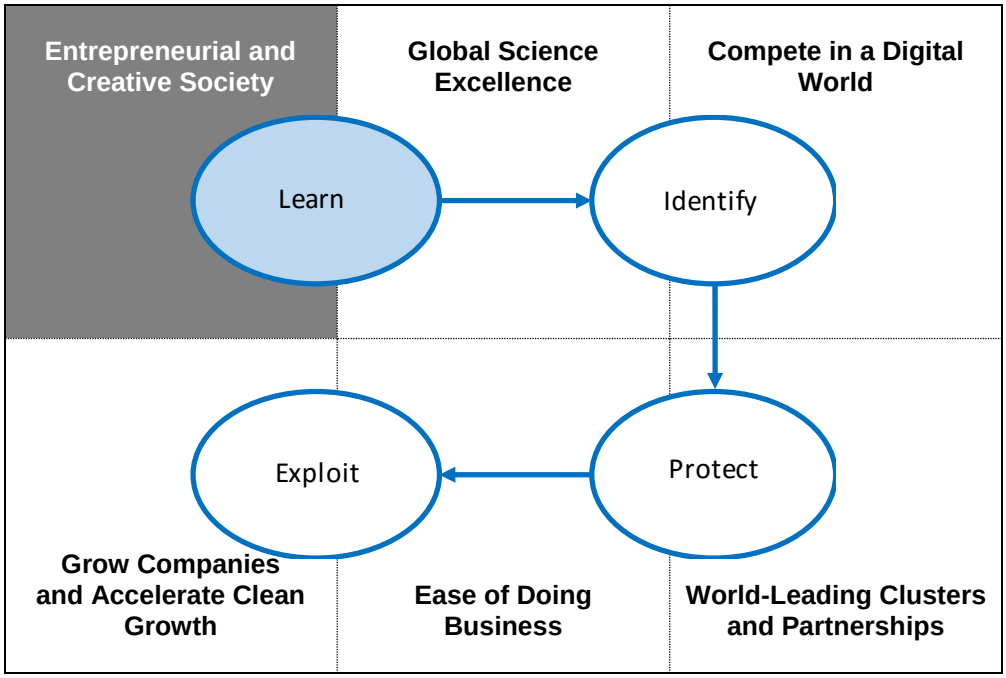
Intellectual Property and the Six Areas for Action



Because innovation and intellectual property are inextricably linked, countries that are global innovation leaders have robust IP systems. These systems function effectively because of many elements including legislation, education, incentives, and the way each IP actor performs to sustain innovation. Accordingly, IPIC has identified issues at the intersections of the four IP steps and the areas for action and, in this submission, provides recommendations to help make Canada a global innovation leader.

1. Entrepreneurial and Creative Society

In this first area for action, the government is aiming to have "being innovative" become a core Canadian value. Understanding at least some basic notions of IP is part of being innovative.



In this regard, IPIC proposes the following for consideration, recognizing that some elements may be under provincial jurisdiction.

a) Include IP in high school, college, and university programs

First**,** entrepreneurship content should be offered in both high school and university courses. These courses should include teaching regarding IP principles, such that Canadians will be able to recognize opportunities for innovation in their personal and professional lives, and take steps to evaluate those innovation opportunities in a way that preserves their IP.

Similar courses could be made more accessible to the general public, akin to the Bank of Speakers Program offered by the Canadian Intellectual Property Office (CIPO) in partnership with IPIC. In the first ten years of this program, 750 presentations on the basics of IP have been delivered to over 23,000 participants.

Second, core subjects in school curricula could be taught in association with their commercial outcomes and applications.

For example, a high school art student should be able to describe and distinguish between relevant forms of IP (e.g. copyright, trademark, industrial design protection, and patent protection), be exposed to entrepreneurship principles (commissioned work, agency, etc.), and investigate career paths (advertising, fine arts, interior design, architecture, etc.) relevant to their work. Likewise, a high school chemistry student should be familiar with the principles of documenting research and concepts, the need for preserving confidentiality regarding innovative ideas, basic information regarding the patent system, entrepreneurship principles, various commercial applications of chemistry, and would have studied Canadian examples of developments in chemistry from the idea stage to commercialization.

Third, students could be encouraged to participate in programs such as Junior Achievement or Future Students (U of T), or programs from UBC, DECA Ontario, SAGE Canada, or other institutions which provide relevant support and courses related to preparing students for the world of startup businesses.

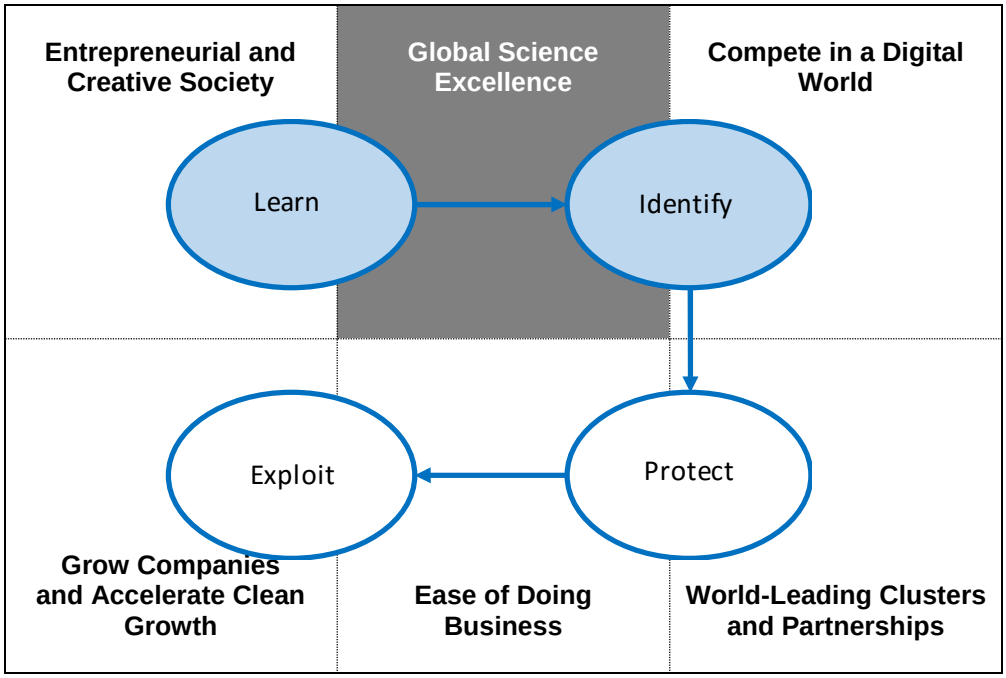
Finally, in the university setting, technology transfer offices (TTOs) could be involved in educating students and staff in addition to faculty, providing opportunities to understand the institution's IP strategy. TTOs are now typically only funded and resourced for handling inventions and opportunities led by academics. A more proactive approach is needed in educating students about IP and commercialization principles.

b) IP development in a controlled-risk environment

Supporting programs that allow individuals and companies to evaluate and develop early-stage opportunities in a controlled-risk environment will encourage resourcefulness and informed risk-taking. Appropriate safeguards will enable protection and development of the IP and the commercial opportunity, connecting people and ideas with appropriate funding and/or receptor capacity in the business community. For example, supporting entrepreneurship hubs such as Innovate Calgary and MaRS Discovery District, and encouraging this type of entrepreneurship support across the country can help to foster the development of an entrepreneurial and creative society.

2. Global Science Excellence

The government's *backgrounder* explains that this area of action focuses on strengthening basic and applied research capabilities, while promoting partnerships with businesses. The latter involves two steps: learning about IP and identifying IP in the results of the research.



We have addressed learning in the previous section and we will simply emphasize here that learning about IP equally applies to the research setting in universities and businesses.

Our focus in this section is on identifying IP, and more particularly on programs that can encourage researchers and businesses to take the steps required to identify, and eventually protect, the IP that is created.

It is well-documented that Canada already has a strong track record of basic research and bench-scale innovation. Much of the success has been through significant investment in academic research, as well as through the Scientific Research and Experimental Development program (SR&ED) to fuel basic research by companies.

However, much of our world-class research and innovation stalls at the pre-commercialization stage due to an inability of Canadian innovators to move concepts to a commercially-ready

stage, and a lack of Canadian receptor capacity willing to invest in early-stage commercial development. As a result, an "innovation gap" exists in Canada that results in many early-stage technologies languishing without commercial development, or being taken up and commercialized by foreign countries. In either case, there is little economic benefit to Canada.

One shortcoming of the SR&ED program, is that IP arising from SR&ED-eligible projects may not be protected, as tax credits are not granted for costs to protect the IP. For example, the following are not eligible as SR&ED expenses: studies to assess the commercial feasibility of a given technology, patent applications, and initiation and closing of licensing agreements. As a result, basic researchers are typically not concerned with, or are otherwise not able to secure, IP protection for their research.

Therefore, the focus of the SR&ED program does little to encourage firms to maintain their IP in Canada or to commercialize their IP here once developed. When a Canadian company gets a SR&ED credit but does not protect its invention through a patent, it is essentially giving away its technology while the Canadian taxpayer effectively subsidizes foreign innovation.

To help bridge the innovation gap,

a) IPIC recommends that changes to the SR&ED program be considered in light of the government's innovation agenda.

b) IPIC suggests that new programs be considered, for example:

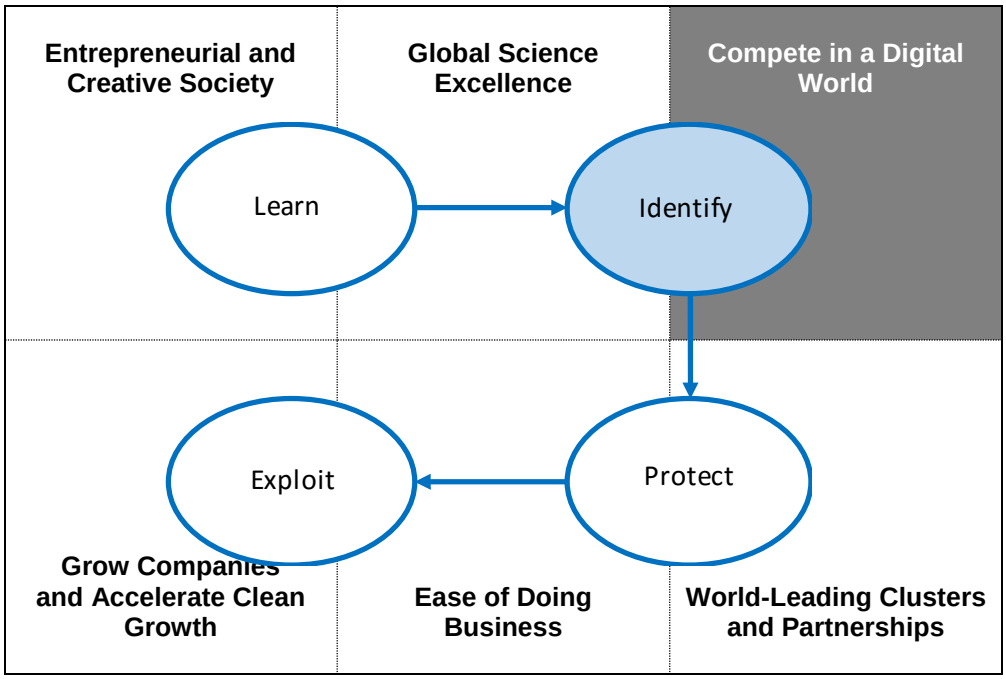
i) Colleges could promote prototyping and other fee-for service contract work. This would advance entrepreneurs through the innovation gap at low cost and with low risk, while providing college students with industry contacts, valuable real-world experience, and exposure to the commercialization life cycle.

ii) Implement programs to remove barriers to researchers and innovators in pushing their ideas further towards commercialization, closing the innovation gap from the front end. For example, the First Patent Program launched by the Québec government in 2015 (more about this in section 4).

iii) Implement incentives for existing Canadian businesses to invest in early-stage technologies, develop Canadian receptor capacity, and conduct commercial proof-of-concept pilot studies. This will contribute to closing the innovation gap from the back end.

3. Compete in a Digital World

The government aims to place Canada at the forefront of economy-wide digital development and adoption. In this context, we discuss identifying IP from a broad policy perspective, and we insist on a very practical *digital world* application.



Innovations in cloud computing, digital manufacturing, quantum computing and other high tech areas have stimulated much discussion in IP circles, as IP offices and IP protection regimes around the world try to keep pace with the rapid rate of technology development and deployment in this sector.

In this regard, certainty in what constitutes patentable subject matter is an area of importance. For example, in Canada, much confusion surrounds the ability to patent computer-implemented inventions. With few court decisions in this area, patenting of computer-implemented inventions continues to be a challenge and as such further clarification is incumbent on federal policy-makers and legislators. Currently, CIPO's Practice Guidelines define patent claim construction and patentable subject matter in a manner that is inconsistent with leading case law, resulting in erroneous rejection of patent applications in this area.

The term “Open Innovation” is also creating confusion. Open Innovation should be about collaborating with different entities and not be equated with Open IP. It is important that innovators understand the different approaches to protecting and exploiting IP.

The digital world also raises numerous trademark and copyright issues around website design and content, the streaming and downloading of various types of content, crowdsourcing and the creation of other forms of innovative ideas and content.

In this context, CIPO faces many challenges to ensure that the Trademark Registry is a reliable source, which provides guidance and consistency, for both IP advisors and businesses prior to launching new products or services. IPIC will continue to provide the perspective of its members to support CIPO in helping Canadian businesses compete in a digital world.

Further, the case law with respect to copyright in the evolving digital world remains largely uncanvassed.

IPIC makes two recommendations regarding government capacity to help businesses compete in a digital world.

a) Policy-making

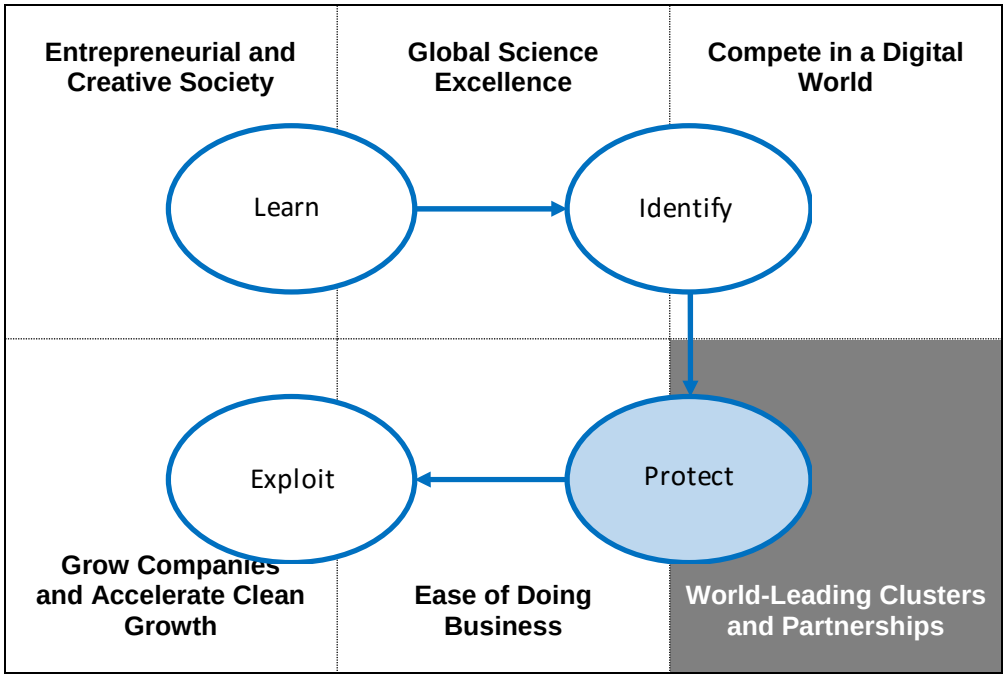
Innovation, Science and Economic Development Canada must continue to have, and possibly increase, its capacity to hold discussions on IP policy issues and to do so in a prompt manner, for example when a court decision brings a change or creates uncertainty in Canada’s IP system.

b) IT infrastructure

CIPO must have access to the best digital infrastructure possible. It is important that CIPO continue its work to modernize its IT systems and the information available on-line to applicants and their agents. This affects the competitiveness and efficiency of Canada’s IP system.

4. World-Leading Clusters and Partnerships

The government wishes to create super clusters that are the destination of choice for ideas, talent and capital, and increase participation by Canadian companies in global supply chains. Both objectives require the protection of IP.



IP is extremely important for entrepreneurs, universities, and companies that want to collaborate, either in local clusters or in global supply chains. The IP of Canadian innovators must be protected, and partners will want to know that the Canadian company has secured this commercial advantage in Canada and internationally.

The C.D. Howe Institute produced an E-Brief on "Measuring Innovation in Canada: The Tale Told by Patent Applications" by Brydon *et al.* on November 28, 2014. The brief explains that Canada often performs well on measures of R&D inputs, such as journal publications or academic citations, but as measured by patent applications it appears to be struggling with the commercialization aspect of the innovation process.

The brief addresses the topic of clusters, including these comments at p. 10:

> "Looking at innovation from the perspective of cities and clusters of industry can help explain spillover effects of innovation. For example, the cluster of unconventional oil and gas deposits in Alberta may create patent activity with localized applications, and localized gains from innovation.
>
> Patents are by no means the last word on innovation, but they represent an important piece of the broader puzzle, particularly given the wide variation in patent productivity in Canada. Understanding the sector-by-sector levels of innovation as well as which provinces are innovating the most is a starting point of assessing these policies and patenting in Canada more generally (…)"

However, a troublesome trend in Canadian patent protection has been noted: Canadian patent applications are declining. It appears that Canadians do not leverage the patent system at home, nor, according to the Conference Board of Canada, do they do so abroad. In its innovation report cards, the Conference Board has regularly given a "D" to Canada regarding the triadic patent families per million population (triadic patent families are a series of corresponding patents filed at the United States Patent and Trademark Office (USPTO), the European Patent Office (EPO), and the Japan Patent Office (JPO), for the same invention, by the same applicant or inventor).

A failure to secure patent rights contributes to the innovation gap by making commercialization opportunities less attractive to receptor companies. And, given the investments in R&D, the lack of patenting can lead to the conclusion that Canadian innovation is being given away to our global competitors.

Canada cannot be seen as a weak link in a global supply chain.

Much has been done in recent years to harmonize Canada's IP system with other jurisdictions and these initiatives should have a positive effect in the future, but more needs to be done, as we discuss below and in the next section.

One element that needs to be considered is the provision of incentives for IP and commercialization. Annex A provides an overview of such incentives offered in other jurisdictions.

We recommend a first incentive program below and a second one in section 6.

a) Create a First Patent Program

The Office of Chief Economist of the USPTO recently studied the effect of a patent on 45,819 start-ups who filed their first patent application in the USPTO. The study confirmed that a patent allowance has a significant economic impact on these start-ups, such as on sales growth (51%), employment growth (36%) and an

improvement of the quality of subsequent innovations. Moreover, it was found that patents play an important role in securing external financing for these start-ups and ensuring that financing is injected into worthy innovations. Namely, by facilitating the exchange between an entrepreneur and an investor to secure financing, a patent points to a firm's ability to monetize its invention. The patent also makes it easier for an entrepreneur to share details on the invention with an investor without fear of expropriation and allows sharing of said details credibly while functioning as a signal of quality to investors.[1]

The Québec government launched its "First Patent Program" in July 2015 to encourage small and medium-sized businesses to patent their inventions. The Quebec Program offers eligible businesses a subsidy on expenses related to obtaining a first patent. The credit equals 50% of the incurred expenses, up to $25,000.[2] There has been high demand for this program as funds allocated for the period of July 2015 to March 2016 were exhausted prior to the end of the period.

IPIC proposes that the Federal government adopt a similar program for Canada.

The Program would provide assistance to inventors, start-ups, and SMEs at a critical point where they have developed an innovative idea and are in a position to seek patent protection but may not have the financial resources to do so – or may not understand the importance of doing so. Thus, the Program would encourage qualified Canadian inventors and companies to file patent applications for inventions that provide the foundation of a successful venture. It would thus provide businesses with financial aid for protecting their inventions at an early stage, and allow businesses to reallocate capital saved in the patenting process into further developing their business ventures.

IPIC would be pleased to assist with the development of the criteria and application process, and of a promotional strategy. IPIC members would be well placed to promote the program, as would IPIC itself in its public awareness activities such as our Bank of Speakers partnership with CIPO. The Program could also possibly be a venue for IP education.

[1] Farre-Mensa, Hegde and Ljungqvist, "The Bright Side of Patents", Office of Chief Economist, USPTO Economic Working Paper Series, Working Paper No. 2015-5, December 2015

[2] Additional information on the Program may be obtained at: Ministère de la science, de l'économie et de l'innovation, *Programme premier brevet*, updated on March 15, 2016, https://www.economie.gouv.qc.ca/bibliotheques/programmes/aide-financiere/programme-premier-brevet/ (accessed on April 14, 2016).

Costs of the Program

- The grant would cover 50% of patenting expenses. Such expenses would include patenting costs and professional fees incurred up to the patent's grant.
- IPIC believes the maximum funding provided by the program (the 50% of expenses) should be $25,000.
- We estimate that there are currently about 600 to 800 applicants/year who file a first patent application.
- Therefore, if the program is successful in increasing the number of applications, we could use the figure of 1,000 applicants/year for financial estimates.
- The program cost would therefore be in the range of $25 million plus administration costs.

b) Continue to consult on regulatory, policy, and practice changes

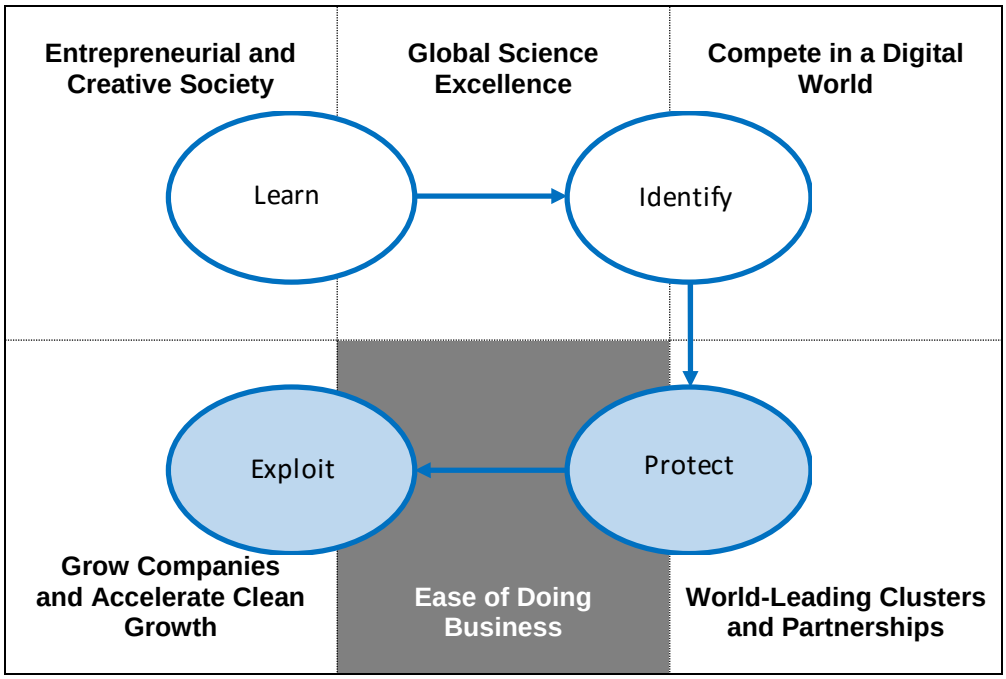
The regulations to implement the legislative changes adopted in recent years will have a significant impact on the ease (and costs) of submitting and prosecuting patent, trademark, and industrial design applications. It will be important that CIPO continue to give consideration to the views of the professionals who understand the impact of the regulations on innovators.

5. Ease of Doing Business

We note in particular these statements from the *backgrounder*:

- One important area of action focuses on ensuring that Canadian laws, regulations and standards keep pace with rapid change, while protecting consumers.
- Government has a role in promoting innovation as well as a business environment that supports commercialization and the freedom to compete in a global economy.

Laws and regulations have a significant impact on the ease of obtaining IP protection. Being able to exploit that IP is a key element in competing in a global economy.



Our two recommendations to improve the ease of doing business are legislation-based.

a) Create the College of Patent and Trademark Agents of Canada

Our regulatory framework for the innovation professionals who help businesses and universities obtain intellectual property rights – patent and trademark agents – is incomplete.

CIPO, with assistance from the profession, administers rigorous qualification exams for patent and trademark agents, and these agents form a profession with a tradition of excellence. However, most of the hallmarks of a professional regulatory system are missing: there is no mandatory code of ethics, no continuing education requirements, and no proper discipline process.

There is therefore a double anomaly by Canadian standards: a profession regulated by a government agency and a regulatory framework that is not complete.

Given the objectives of improving the ease of doing business and encouraging companies to grow, these companies must see that their innovation professionals are regulated like the other professionals they hire (e.g. engineers, accountants, and lawyers).

IPIC proposes the adoption of legislation to allow the profession to manage a regulatory body accountable to the Minister of Innovation, Science and Economic Development. This new regulatory body, the College of Patent and Trademark Agents of Canada, could then administer the admission process, require continuing education and insurance, maintain a code of conduct, and manage a complaints mechanism and discipline process.

This legislative action would:

- help to foster a culture of innovation,
- better protect the public interest,
- free the government from devoting resources to an activity not usually performed by government in Canada,
- and allow CIPO to focus on its core innovation mandate of processing IP applications.

b) Further update the *Patent Act* and the *Trade-marks Act*

Aspects of the *Patent Act* and of the *Trade-marks Act* can create uncertainty or ineffectiveness in the IP system, which in turn increase costs for applicants or reduce their ability to exploit their IP. This is sometimes due to a provision in the legislation that no longer reflects Canadian needs, or in other cases it is due to a gap in the legislation. When other countries resolve these issues, Canada falls behind and Canadian businesses can be disadvantaged.

Some of these problems have been resolved, most recently with the coming into force of sections of the *Patent Act* and of the *Trade-marks Act* to create a privilege for the

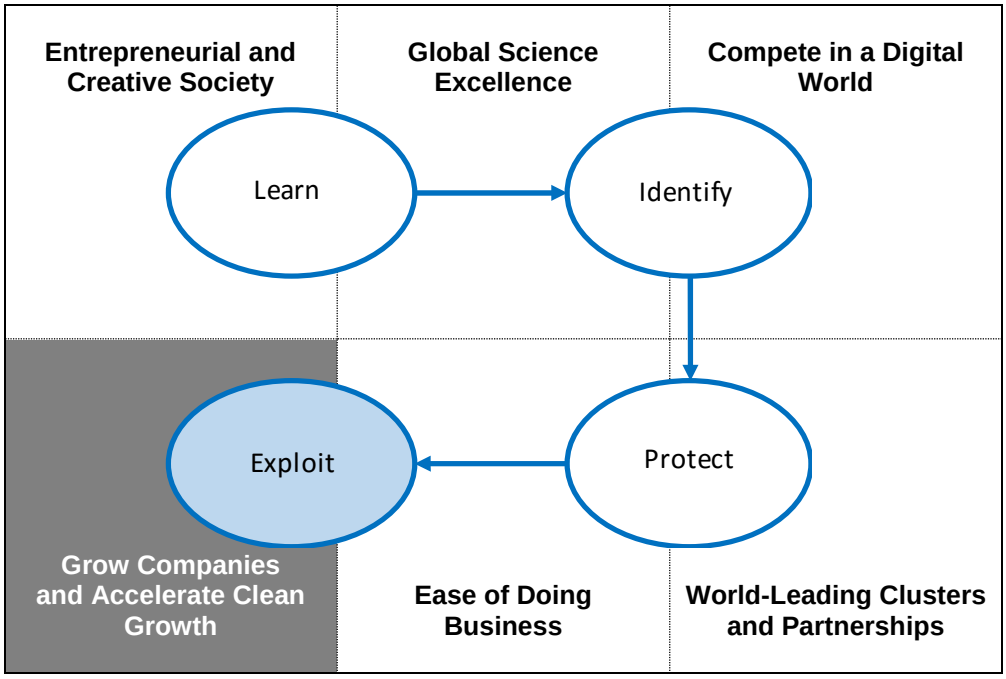
communications between clients and their patent and trademark agents. Another example that was adopted, but is not yet in force, are measures to prevent loss of IP rights in the case of *force majeure* events.

Because members of IPIC help Canadian businesses obtain IP rights in Canada and around the world, they are familiar with the strengths and deficiencies of Canadian legislation as it compares to other jurisdictions. From this knowledge, IPIC committees have identified other issues within the *Patent Act* and the *Trade-marks Act* that could be addressed to increase certainty and reduce costs for users of the system.

IPIC will provide this list of issues as a separate document.

6. Grow Companies and Accelerate Clean Growth

The government's objective is to see Canadian companies compete to win and create jobs. A focus on building and accelerating the growth of clean technology companies will position them to succeed in global markets.



The sum of our recommendations will help companies grow as they exploit their IP. We make two additional recommendations in this area of action.

a) Explore the feasibility of an "innovation box"

As we noted earlier and as shown in Annex A, Canada must be competitive not only with regard to its IP legislation but more and more in the offer of incentives for innovation and IP.

An "innovation box" is a tax incentive that allows business income from intellectual property to be taxed at a lower rate than regular business income. The expression innovation box comes from a checkbox provided on tax forms to identify revenues that

would be eligible for the reduced innovation tax rate. The term "patent box" is also used but we favor innovation box because the results of innovation can include many forms of IP such as patents, trademarks, and industrial designs; a broader term therefore seems more appropriate, at least for a feasibility study.

There is a distinction between R&D tax incentives and innovation boxes. R&D incentives support technology developments or input into the innovation process; conversely innovation boxes support the output or commercialization of R&D. In other words, innovation boxes differ from tax credits for R&D because they operate on the "back end" of the production cycle; innovation credits and deductions, on the other hand, operate on the "front end" of the cycle. These incentives are *complements* and not substitutes, working together to improve both R&D activity and commercialization activity in Canada.

Notably, Québec announced, in its latest budget, an innovation box scheme that would lower corporate income tax from 11.8 to 4 percent, as of January 2017.

The federal government should consider modifying Canada's tax regime by adopting an innovation box model to provide favorable tax treatment for income derived from exploiting the fruits of domestic R&D activities.

The innovation box regime would encourage companies to test and develop Canadian innovations and, in doing so, generate new market opportunities and new taxable revenue.

An innovation box may serve as a tool to attract "highly mobile IP" to relocate to Canada. That is, an innovation box regime would "pull" R&D activity into Canada by encouraging firms to adopt innovative processes and by requiring domestic IP ownership and development. This would help address the innovation gap in Canada. Such a regime should also avoid domestically-developed IP from relocating outside Canada.

Studies indicate that firms are typically inclined to locate production facilities in the vicinity of their R&D activities[3]. Thus, by incentivizing the domestic location of R&D facilities, further domestic investment in production facilities may result, which would have economic benefits to Canada. It is believed that added or "found" tax revenue resulting from firms maintaining R&D and production facilities in Canada would result in the tax incentives funding themselves.[4]

[3] Commentary NO. 379 *Improving the Tax Treatment of Intellectual Property Income in Canada* C.D. Howe Institute, April 2013
[4] Ibid

b) Identify opportunities to increase support for clean growth through the IP framework

A special committee of the International Association for the Protection of Intellectual Property (AIPPI) produced the "Intellectual Property and Green Technology Report" in May 2014. The AIPPI Report notes that the "argument that existence of patents causes hindrance to technology transfer does not appear to have a factual foundation." Rather, the Report indicates that "the patent system is a *conditio sine qua non* to support technology transfer since without patents to protect their products and processes, the source companies may be reluctant to engage in technology transfer and associated investments."

Therefore, as with the growth of companies generally, all the IP steps are key to successful development and deployment of technology in this emerging sector, beginning with IP awareness.

In addition, special measures can be taken to help foster growth in this area.

One useful tool is CIPO's Green Technology program to obtain accelerated examination of patent applications relating to green technology. With a swift patent allowance in Canada, an applicant can use the Patent Prosecution Highway (PPH) to get faster patents in the US, Europe and China.

The results of this program should be studied to see if changes, or increased promotion, are required.

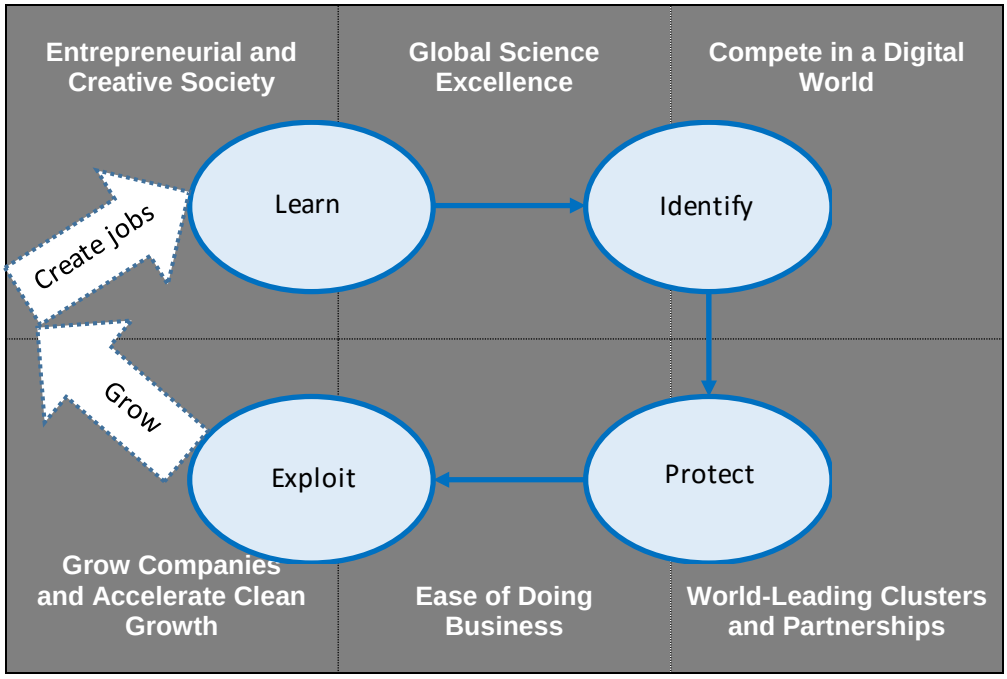
Similar programs to stimulate or accelerate development and/or patenting of technologies in this sector could be appropriate, especially when targeted to prevent an innovation gap in this sector.

Conclusion

In this submission, IPIC has made 12 recommendations to address challenges inherent to the six areas for action.

Implementing these recommendations will complete an IP "virtuous circle": as a company exploits its intellectual property, it grows and creates jobs. Some of the persons hired must know about IP… and the cycle begins again.

IP, Growth, Action!



For more information about this submission, please contact Anne-Josée Delcorde, Acting Executive Director, Intellectual Property Institute of Canada, at ajdelcorde@ipic.ca or 613-234-0516.

Annex A: IP incentives in other jurisdictions

International IP Incentives Chart – Aug 2016

LEGEND

Initial Stages: Refers to the initial stages of the company's existence and R&D. It reflects assistance provided at the initial research stage, before attempting to secure IP protection, and before trying to commercialize. This stage covers incentives for hiring people to do R&D, and other related investments.

Innovative R&D: Refers to the stages where there is key innovation and where the company will attempt to secure IP protection. This stage covers incentives relating to the acquisition of IP and associated research.

Commercialization: Refers to the stages where the incentives relate to the commercialization of the innovation, such as lower tax rates on income derived from patented products.

Country	Incentive	Type
Belgium	Belgium has taken advantage of tax incentives to drive patent applications. Here the patent income deduction (PID) provides for 80% tax exemption of gross patent income. This deduction can be applied to patents that are fully or partly developed by Belgian companies or to patents that have been acquired from foreign parties so long as they are "improved" in R&D centres in Belgium.	Commercialization
China	In 2012 China's Ministry of Finance issued the "Measures for the Administration of Special Funds for Subsidizing Foreign Patent Applications". These policies are financially supported by local governments and regulated at the provincial and municipal level.[5] The program allows individuals who file patent applications abroad to qualify for subsidies related to charges for the process of filing and searching, service expenses paid to patent agents, and fees paid for patent examination. In order to qualify, applicants need to be domestic small and medium enterprises, public institutions or scientific institutions. Importantly, subsidies are only granted after the patent is issued.[6] Each patent project appears to support up to 5 countries, the amount of subsidy for each country of not more than 10 million Yuan (C$2M), excluding major innovative projects.[7]	Innovative R&D
China	Since 1985 China has employed the "patent fund policy" where any applicant having difficulty paying patent fees has the right to apply to the State Intellectual Property Office for reduced or postponed fees.	Innovative R&D
Colombia	A five-year tax exemption is available from 1 January 2013 to 31 December 2018 for new software, developed in Colombia and covered by new patents registered with the competent authority, provided they have a high content of national scientific and technological research, certified by COLCIENCIAS. New software	Commercialization

[5] Haijun Jun, "Government-Backed Patent Funds in China", 2013 Tech Monitor 24, online: <http://www.techmonitor.net/tm/images/f/f1/13oct_dec_sf2.pdf>

[6] Blog: "China IPR", online: (Accessed Aug 8, 2016) <https://chinaipr.com/2012/06/12/china-to-provide-financial-incentives-for-filing-patent-applications-abroad/>

[7] "Grants to foreign patent special funds Interim Measures", online: (Accessed Aug 9, 2016) <http://www.wipo.int/wipolex/en/text.jsp?file_id=335868>.

	development has to be produced in Colombia, registered and certified by the relevant authorities, and be a result of a research project. The incentive is applicable to current investments.[8]	
France	Similarly to Belgium, France has also implemented a tax regime where the tax rate on income derived from patents is reduced from 34% to 15%. In addition to the tax deduction France also provides R&D grants which are allowed to cover costs related to patent maintenance. In addition to the tax deduction France also provides R&D grants which are allowed to cover costs related to patent maintenance.	Commercialization
Hungary	Hungary's scheme includes a provision according to which 50% of the pre-tax amount of the royalties received may be deducted from the tax base. The adjustment is capped at 50% with no carryforward of the total accounting profit before tax. The result is a 5% or 9.5% nominal tax rate on profits of licensing activities. The definition of royalties for the purposes of this deduction is broad and can include income from patent licensing and other industrial IP, know-how, trademarks, trade names, business secrets and copyrights.[9]	Commercialization
India	Although India does not allow for deduction of revenue generated from patents, it does allow for a "super-deduction" of 200% for qualifying scientific research and R&D expenditures. Expenditures on scientific research include expenses incurred performing clinical drug trials, obtaining approvals from regulatory authorities and filing patent applications.[10]	Innovative R&D
Ireland	Ireland implemented a Knowledge Development Box scheme in 2015 after having abolished the Patent Royalty Income Exemption in 2011. The Knowledge Development Box offers a reduced tax rate of 6.25% (down from standard 12.5%[11]) on qualifying profits generated from patented or similarly protected inventions and copyrighted software in periods commencing on or after January 1, 2016. The Irish scheme is the first to be compliant with the Organisation for Economic Co-operation and Development's (OECD's) Base Erosion and Profit Shifting program.[12] The standard corporate income tax rate in 2014 was 12.5%.	Commercialization

[8] "Worldwide R&D Incentives Reference Guide, 2014-2015", Ernst and Young, online: (Accessed Aug 8, 2016) <http://www.ey.com/Publication/vwLUAssets/EY-worldwide-randd-incentives-reference-guide/$FILE/EY-worldwide-randd-incentives-reference-guide.pdf> [*EY*].

[9] "Taxation and Investment in Hungary 2015", Deloitte Touche Tohmatsu Ltd, 2015, online: (Accessed Aug 8, 2016) <http://www2.deloitte.com/content/dam/Deloitte/global/Documents/Tax/dttl-tax-hungaryguide-2015.pdf>.

[10] *EY, supra* note 8.

[11] *EY, supra* note 8.

[12] "Knowledge Development Box - Adding to Ireland's R&D incentives", Deloitte Touche Tohmatsu Limited, online: (Accessed Aug 8, 2016) <http://www2.deloitte.com/ie/en/pages/tax/articles/knowledge-development-box-ireland.html>.

Luxembourg	The IP box will be repealed as of tax year 2016 to comply with the conclusions of the EU and the OECD regarding IP taxation.[13] However, existing IP companies may continue to benefit from the current favorable regime (i.e. an 80% exemption from income tax on income and gains deriving from the qualifying IP rights and a full net wealth tax exemption) until June 30, 2021. The old rules should be applicable during this time period (i.e. until June 30, 2021) to IP rights developed or acquired before June 30, 2016.[14] The 80% scheme covers patents, trademarks, designs, domain names and software copyrights. The tax exemption only applies provided the following conditions are met: • The qualifying IP must have been established or acquired after December 31, 2007. • The expenses, amortization and deductions for write-downs related to the right shall be recorded as an asset in the taxpayer's balance sheet.[15]	Commercialization
Netherlands	The Netherlands employs an innovation box, where income derived from either the finished product or the capital gain from the sale of IP can be claimed. These profits are taxed at 5% rather than the statutory rate of 25%. Qualifying IP includes self-developed patent or plant breeder rights.	Commercialization
Portugal	The Portuguese Government also uses a taxable means to incentivize use of patents as only 50% of the gains obtained from the disposal or lease of patents and other industrial IP rights developed in Portugal will be taxed.[16]	Commercialization
Portugal	Portugal also offers R&D cash grants which can be used towards expenses associated with patent applications and patent maintenance fees.[17] The conditions applicable to this incentive are: • Minimum investment of €100,000 • Minimum incentive rate of 25%, which can be increased by 20% for small companies, 10% for medium companies or 25% for industrial investigation projects • Nonrefundable grant for attributed incentive amounts below €1 million • For attributed incentives above €1 million, a nonrefundable grant is attributed up to €1 million and for the exceeding amounts; 75% are granted as nonrefundable incentives, and	Innovative R&D

[13] Christophe Clément, "Proposed Abolition of the Luxembourg IP Tax Regime", Clément & Avocats, November 2015, online: (Accessed Aug 8, 2016) <http://cc-law.lu/en/publications/november-2015--ip-box-regime>.
[14] *Ibid*.
[15] *Ibid*.
[16] *Ibid*.
[17] *EY, supra* note 8.

	the remaining 25% as a refundable loan.[18]	
Spain	The Spanish regime exempts 50% of the gross income derived from qualified IP from the corporation tax for Spanish-domiciled countries. Qualified IP includes patents, secret formulas, processes, plans, models, designs and know-how. The benefit is capped at six times the costs incurred to develop the IP.[19]	Commercialization
Switzerland	Patents, supplementary protection certificates and marketing authorisations are considered to be qualifying IP for Switzerland's License Box. Either full legal title, beneficial ownership or an exclusive license is required to constitute ownership. Relevant income includes income from production, rendering of services, patent royalties, other income from licensing patents, sale of patents, and sale of products incorporating patents. Damages from infringement may also be included. The envisaged effective tax rate in a draft bill is around 10% (including federal, cantonal and communal taxes) but may be lower depending on the location within Switzerland.[20] The effective tax rates in Switzerland for ordinary taxed companies on the level of federal, cantonal and communal corporate income tax amount from 12.32% to 22.79%.[21]	Innovative R&D
United Arab Emirates	The Takamul program provides for legal and financial support for international patent filings at the USPTO and for the filing of a subsequent patent application the PCT. This program was initiated primarily for Abu Dhabi but now extends its support to all emirates of the UAE, including Dubai. The program offers funding to applicants under the government's initiative to support innovation in the UAE and does not acquire any rights to patents later obtained through such funding. The percentage of financial support is as high as 90% for individuals, 60-75% for academic institutions, and 50% for commercial organizations. The amount of support is dependent upon the applicant's circumstances, the amount available being up to AED48, 000 (C$17k) for filing and AED20,000 ($C7k) for prosecution.[22]	Innovative R&D
UK	The UK patent box regime taxes qualifying IP at 10%. A company can benefit if it owns or exclusively licenses-in patents granted by the: UK Intellectual Property Office, European Patent Office, Austria, Bulgaria, Czech Republic, Denmark, Estonia, Finland, Germany, Hungary, Poland, Portugal, Romania, Slovakia, or Sweden. Other stipulations apply.[23] Changes are expected to align the regime with OECD recommendations.[24] The top UK corporate income tax rate in 2014 was 21%.[25]	Commercialization

[18] *EY, supra* note 8.

[19] Peter R. Merrill, James R. Shanahan Jr., José Elías Tomé Gómez, et al., "Tax Practice – Tax Notes: Is It Time for the United States to Consider the Patent Box?", PriceWaterhouseCoopers LLP, March 26, 2012, online: (Accessed Aug 8, 2016) <http://www.pwc.com/us/en/washington-national-tax/assets/merrill0326.pdf>.

[20] Stefan Kuhn, "Introduction of a Swiss Licence Box Regime", International Tax Review, March 11, 2015, online: (Accessed Aug 8, 2016) <http://www.internationaltaxreview.com/Article/3435289/Introduction-of-a-Swiss-Licence-Box-regime.html>.

[21] *EY, supra* note 8.

[22] "TAKAMUL: TERMS AND CONDITIONS", obtained from foreign associate.

[23] "Business tax – guidance – Corporation Tax: the Patent Box", Government of UK, January 1, 2007, online: (Accessed Aug 8, 2016) <https://www.gov.uk/guidance/corporation-tax-the-patent-box>.

[24] "UK to modify Patent Box in line with OECD recommendations", Pinsent Masons LLP, Oct 23 2015, online: (Accessed Aug 8, 2016) <http://www.out-law.com/en/articles/2015/october/uk-to-modify-patent-box-in-line-with-oecd-recommendations/>.
[25] *EY, supra* note 8.