

# Patents and innovation: Why is government policy for one so badly out of alignment with the other?

Doug Calhoun\*

23 Versailles Street, Karori, Wellington

## Introduction

The then Minister of Science, Dr Wayne Mapp, announced in July 2009 that his top priority was to enhance the migration of science from the laboratory to the market place. On his watch we saw the 2010 CRI Taskforce Report recommend that technology transfer should become a core responsibility of CRIs: CRIs should develop, invest in and manage intellectual property (IP) and get it off their balance sheets. In his swan song, Dr Mapp launched the report commissioned by the Ministry of Science and Innovation<sup>1</sup>, 'Powering Innovation'. That report recommended ways to improve access to and uptake of R & D in the high-value manufacturing and services sector (HVMSS). High-quality technology transfer was again seen as a critical factor.

The Patents Act 1953 is about to be replaced by an updated Patents Bill. Midway through 2012, the new law had been through several iterations of public consultation, and scrutiny by a select committee, and was awaiting its second reading. You would be entitled to think that patent policy would be aligned with innovation policy. But you would be looking for any link between the two in vain.

At the heart of the patent policy is the observation that about 90% of New Zealand patents are granted to foreigners. The benefits of these may flow overseas. Therefore, we should make it as difficult as possible to get a patent. The Patents Bill will bring more rigorous examination of patent applications, more opportunities to attack patents and the exclusion of patents for certain technologies. The excluded technologies are among those identified as being HVMSS technologies.

## Uniservices report

The Ministry of Economic Development<sup>2</sup> (MED) commissioned Auckland Uniservices to carry out a study of the eco-

nomics effects of patents. The study was in two parts; a literature review and a survey of how businesses used intellectual property. The survey concluded that while there was a widespread awareness of IP among those surveyed, that awareness was not matched by a detailed knowledge of IP and how to manage it. From their literature review the authors concluded:

*... the role of patents in facilitating partnerships and exchange between inventors and developers or other financial backers is an area of increasing interest to academics and policy makers alike. Improving the function of such markets may yet prove to yield substantial welfare gains. This is particularly important in the case of New Zealand, which is reliant both on foreign technology and foreign markets for domestic innovations. The IP system plays an important role in facilitating this exchange. Considerable evidence exists regarding the role of the IP system in facilitating technology transfer and foreign technology adoption via licensing and royalties, trade and foreign direct investment R&D-focused FDI.*

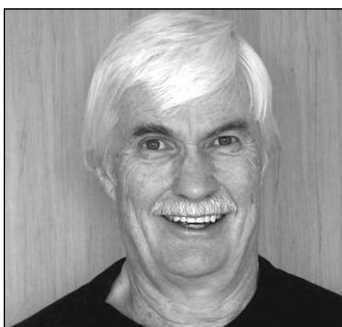
In a nutshell, technology transfer is important in the uptake of innovation, and patents are the currency of technology transfer.

MED sees domestic patents as an economic leak that allows benefits to flow overseas to foreign owners. The Uniservices Report sees patents as facilitating partnerships and exchange between inventors and developers and other financial backers – which is particularly important for New Zealand, with its reliance on foreign technology and foreign markets for domestic innovation.

<sup>1</sup> As of 1 July 2012, the Ministry of Science and Innovation has become part of the new Ministry of Business, Innovation and Employment (<http://www.mbie.govt.nz/>) – Editor.

<sup>2</sup> As of 1 July 2012, the Ministry of Economic Development has become part of the new Ministry of Business, Innovation and Employment (<http://www.mbie.govt.nz/>) – Editor.

\*Correspondence: [Calhoun@paradise.net.nz](mailto:Calhoun@paradise.net.nz)



**Doug Calhoun** is a retired patent attorney/lawyer. During his 32-year career in Wellington he advised innovators in both the public and private sectors in many technologies. Since his retirement he has continued to follow and comment on emerging issues where science and intellectual property meet. He has made written and oral submissions to select committees, the GM Royal Commission, and the Waitangi Tribunal. When not exploring IP blogs, reading cases and reports, or debating policies, he can be found admiring wind turbines – from the fairways and greens of the Karori Golf Course.

The Uniservices Report was published three weeks after the public had had their final say on the Patents Bill. And MED's response?

*The views in this report do not represent the views of the Ministry of Economic Development. Should the Ministry decide to act upon any of the recommendations in the report, we will consult with stakeholders.*

## Patent economics – A primer

The interface between patents and economics has been the subject of more heat than light since the first British patent law, the 1623 Statute of Monopolies. In his seminal 1958 study for the American Senate, Austrian/American economist Fritz Machlup observed wryly that he had not found any new or inventive argument made in the 20<sup>th</sup> century about the economic effects of patents. He identified three eras (1750–1850; 1850–1873; and 1873–1958) characterised by pendulum swings when patents were in favour, out of favour, and in favour again. Throughout those eras economists tended to ignore what had been written before and unwittingly trotted out many of the same assertions without a shred of supporting evidence. (I wonder what Machlup would have made of the economic theory behind MED's patent policy.)

After trolling through all of the competing economic theories for and against patents Machlup concluded that the single most important reason for their existence is to promote investment in innovation. Patents slow down the diffusion of innovation until the original investor has recovered a profit adequate to induce the original investment. The justification is that by slowing down the diffusion of technical progress there will be more progress to diffuse. He warned that because patents are rooted in that contradiction, there can be no ideally beneficial patent system. There will be some negative results in providing a net beneficial result.

His concluding advice to the US senators was that economic analysis provides:

*... a sufficiently firm basis for decisions about 'a little more or a little less' of various ingredients of the patent system. Factual data of various kinds may be needed even before some of these decisions can be made with confidence. But a team of well-trained economic researchers and analysts should be able to obtain enough information to reach competent conclusions on questions of patent reform.*

A (perhaps) Machlup-inspired team of researchers and analysts employed by the World Intellectual Property Organisation (WIPO) published a 186 page report with updated information and conclusions on patent economics in December 2011. That report explored the role of innovation as the driving force behind economic growth. It found that there is growing investment in and internationalisation of science and innovation. IP is increasingly being treated as a tradeable end in itself, as well as a means to an end. There are emerging new collaborative mechanisms for trading IP, and IP intermediaries for doing it. It echoes and expands upon the Uniservices Report conclusions: technology transfer is important for innovation, and patents are its currency.

Two important principles for patent law reform can be distilled from the findings:

- Innovation must be appropriate if it is to be a part of the emerging IP trading market.
- The primary aim of patent systems should be to deliver quality patents – patents for inventions that are new and inventive and that are fully supported by the description, and whose description enables the reader to carry out the invention.

## Patent economics – The MED analysis

There was little, if any, analysis of the economic effects of patents in the discussion papers, explanatory notes and other material prepared before the drafting of the Patents Bill. However, the initial advice that MED gave to the Commerce Committee said:

11. *Empirical research on how the patent system works in practice (as opposed to how it is thought to work in theory) has revealed that the actual relationship between patents and innovation is not as straightforward as the "textbook" rationale might suggest. The research suggests that, in many industries, patents are not the only, or even the most important, incentive for innovation.*
12. *Studies suggest that patents are important mainly in those industries where development costs are high and imitation costs are, by comparison, very low. These conditions are common in the pharmaceutical and chemical industries. In both these industries, a significant proportion of innovations would not be developed or commercialised if patent protection was not available. But in other areas, such as motor vehicles or textiles, most innovations would have been developed or commercialised even without patent protection.*
13. *In small countries like New Zealand, the link between innovation and patents is more complex. Because New Zealand is a small market, many local innovators may not be able to make a profit from the New Zealand market, regardless of the nature and scope of patent rights available. On this basis, the New Zealand patent system may provide little incentive for innovation in New Zealand. In fact, the prospect of obtaining patent rights in larger overseas markets may have more effect on innovation in New Zealand than the local patent system.*
14. *More than 90% of New Zealand patents are granted to overseas applicants. Because of New Zealand's small market, the nature and scope of the patent rights available in New Zealand are unlikely to have any effect on innovation outside New Zealand. That is, the inventions that are the subject of these overseas-owned patents would have been developed whether or not a patent is granted, or even applied for, in New Zealand. Only a small percentage of inventions patented overseas are actually the subject of patent applications in New Zealand.*
15. *A study of the Australian patent system has suggested that, in countries where most patents are overseas owned (around 90% of patents granted in Australia originate from overseas), only around 3–4 per cent of inventions patented in Australia were induced by the patent system. Yet it is the benefits provided by these patents that must offset the costs imposed by the patent system. The situation is likely to be similar in New Zealand.*

16. *One consequence of the large number of New Zealand patents granted to overseas owners is that New Zealand may bear the potential costs imposed by these patents, but may not gain any benefit over and above what would have been gained if these patents had not been granted in New Zealand.*

The MED hypothesis (in paragraph 13) is that, because of the small local market, New Zealand innovators may not be able to make a profit here regardless of the nature and scope of available patent protection. Therefore, our patent system may provide little incentive for innovation in New Zealand. Do your patenting overseas. New Zealand patents are irrelevant to innovation.

This begs the question: if you do your patenting overseas, why not do your innovating there too?

Having written off patents on the basis of the above analysis, MED recommended to the Commerce Committee:

20. *In developing patent legislation for New Zealand, the aim must be to maximise the benefits of the patent system to New Zealand. In light of the preceding discussion, there would seem to be no value to New Zealand in having a patent system that provides wide patent rights. This would probably have little effect on innovation in New Zealand or anywhere else, but would, because of the high proportion of overseas patents, potentially impose significant costs on New Zealand for little compensating benefit.*

21. *The best policy for New Zealand, given what is known about the workings of the patent system, would be to have the strictest criteria for granting a patent that are consistent with our international obligations, and apply these criteria as rigorously as possible.*

What is known about the workings of the patent system to the authors of this advice is considerably less complex and evidence-based than what has been published by Machlup, Uniservices, and WIPO. But the MED advice was accepted, largely without question, by the Commerce Committee. MED did not suggest that the Committee should consider what effect the restrictive policy might have on foreign direct investment in innovation in New Zealand, nor what effect it might have on technology transfer, particularly on the excluded HVMSS technologies.

## Differences between patent and innovation policies

The intended consequence of the MED patent policy is to minimise benefits from New Zealand patents flowing overseas. But the emphasis on that one consequence ignores some possible unintended consequences:

- In paragraph 12, the analysis acknowledged that patents are important in industries where development costs are high and imitation costs low. Government innovation policy is to promote investment in HVMSS industries – where many development costs are high and imitation costs are low. So the patent exclusions are in a technology area where MED conceded, “a significant proportion of innovations would not be developed or commercialised if patent protection was not available.”

- If a policy is directed towards discouraging benefits from patents flowing overseas, the other side of that coin is that it could discourage foreign direct investment in innovation supported by foreign-owned New Zealand patents.

The bogeyman in the MED analysis is the ‘significant cost’ of overseas-owned patents in New Zealand. Nowhere is the nature of those costs identified, let alone quantified. The costs are just assumed to be significant with ‘little compensating benefit’. The evidential basis for the MED analysis begins and ends with the percentage of patents granted to foreigners.

Even ignoring the absence of evidence, the suggestion that the benefits of foreign-owned New Zealand patents would flow overseas is counter-intuitive. The rights granted under a New Zealand patent can only be exercised in New Zealand. A logical reason to obtain such a patent is as protection for investing in the commercialisation of the patented invention in New Zealand. Before writing off the New Zealand patent system on the basis of its costs, one would hope to see some estimate of those costs – and, balanced against those costs, some estimate of foreign direct investment in New Zealand tied to innovation protected by New Zealand patents. But again, that hope would be in vain.

The CRI Taskforce Report and the Powering Innovation Report both highlight the chronic problem of bridging the gap between the laboratory and the marketplace (the ‘valley of death’) in New Zealand. The recommendation in both reports is for more high-quality technology transfer. The Uniservices Report has identified patents as the currency of technology transfer. But innovation policy never got a look-in during the development of patent policy.

## An integrated innovation/patent policy

A mission statement for an integrated innovation/patent policy might read:

*The patent regime should deliver high-quality patents in all fields of technology in an efficient and transparent manner that is supportive of innovation and transfer of technology.*

The emphasis on more rigorous examination of patent applications under the Patents Bill is intended to achieve high-quality patents. That objective is consistent with the WIPO Report recommendations – and with the existing patent law. Everyone is in favour of motherhood, too.

However, the second emphasis of patent policy is to promote a patent regime culture of goalkeeping – as opposed to gatekeeping. In a gatekeeping culture, once a patent application is found to be eligible, a patent is granted. In a goalkeeping culture, a patent application is subject to endless challenges and red tape – and useful inventions are abandoned when money and patience have been exhausted. Achieving a gatekeeping culture will be more of an administrative challenge than getting the letter of the law right – that is where the ‘supportive’ language of the mission statement comes in.

But the biggest patent policy fly in the innovation policy ointment is the exclusion of patents for certain technologies. The excluded technologies were not chosen on any economic principles. They were chosen because they did not breach any international obligations. That they might be HVMSS

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technologies was never a consideration. That the excluded technologies will not be appropriable for technology transfer was irrelevant.

How did this patent policy fly get into the innovation policy ointment? Each was developed in a separate silo; and in the tribal culture of policy development, agencies tend to stamp out any attempts at quantum tunnelling between silos.

And how can it be fixed? The Patents Bill can be fixed with a short Parliamentary supplementary order paper removing the technology exclusions. Modifying the tribal culture, which incubates the silos, will be a bit more of a challenge – but combining the two policy groups under an integrated mission statement would be a good start. The establishment of the new Ministry of Business, Innovation and Employment is (according to the Cabinet papers released when its formation was announced) intended to break down policy silos and produce whole-of-government results. Let's hope it does.

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