
**DOWN TO BUSINESS:
PATENT PROTECTION FOR BUSINESS
METHODS IN NEW ZEALAND**

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INTRODUCTION

This paper will explore the issue of whether, and to what extent, business methods ought to receive patent protection in New Zealand. Currently, the Patents Act 1953 makes no explicit reference to business methods; whether a business method is eligible for patent protection is determined by whether it comes within the concept of a “manner of new manufacture”.¹ Unfortunately, judicial interpretation of that term has resulted in a confused and often inconsistent approach to patentability. Consequently, the extent to which business methods are patentable in New Zealand is unclear.

This gap in the law has not gone unnoticed. In 2002, the Ministry of Economic Development (MED) considered the business method problem in the context of a wider review of the patentability requirements within the Patents Act 1953.² Whilst providing a useful survey of both domestic and foreign approaches to the issue, the MED review did not recommend any special treatment for business methods.³ This approach is reflected in the Patents Bill 2008 that resulted from the Ministry’s review and which is, at the time of writing, awaiting its second reading in the House of Representatives. Notably, despite the Select Committee that reviewed the Bill taking the arguably bold step of recommending an express exclusion of computer programs from patentability,⁴ it does not recommend a similar categorical exclusion of business methods.

International consistency is considered particularly important in the area of intellectual property law. As a net importer of innovation,⁵ New Zealand must strike a careful balance between attracting foreign investment and protecting domestic interests. However, the countries from which New Zealand normally takes its lead take divergent approaches to the issue of business method patents. It is therefore necessary for us to examine the merits of extending patent protection to business methods for ourselves.

¹ Patents Act 1953, s 2, definition of “invention”.

² Ministry of Economic Development *Review of the Patents Act 1953 Stage 3: Boundaries to Patentability: A Discussion Paper* (March 2002) [MED Review].

³ See MED Review at [205]–[207], which concluded that the other requirements for patentability would suffice, especially if the changes to these requirements recommended by the Ministry were adopted.

⁴ Patents Bill 2008 (235-2) (select committee report) at cl 15(3A).

⁵ Geoff McLay and Susy Frankel *Intellectual Property in New Zealand* (Butterworths, Wellington, 2002) at 323, noting that the majority of patents registered in New Zealand originate from overseas.

The 2010 case of *Bilski v Kappos*⁶ provided an opportunity for the highest court of the United States to supply some guidance on the appropriate limits of business method patents. While many had hoped that the Supreme Court would make a definitive statement as to when methods of doing business would be patent-eligible,⁷ the Court avoided taking such a step by deciding the case according to long-established principles and confining their ruling to the particular facts, a decision which has been criticised as “palpably unsatisfying”.⁸

However, the difficulty of the task confronted by the Supreme Court in that case is not to be underestimated. The persistence of the business method controversy is testimony to the complexity of the concepts involved and the polarity of views as to how much protection business methods deserve. Some of the reasons for this persistence will be outlined in chapter one. Chapter two will discuss the treatment of business method patents in New Zealand and Australia. Chapter three will first explore the technical contribution approach in the United Kingdom and European Union, and will then outline the colourful history of business method patents in the United States of America. Chapters four and five contain an analysis of the arguments for and against business methods of different kinds. Chapter six will first consider the impact of the proposed exclusion of software patents before discussing several options for reform of New Zealand’s current approach. I conclude that business methods ought to be excluded from patentability, unless they involve an advance in the useful arts.

⁶ *Bilski v Kappos* 2010 US LEXIS 5521 (SC).

⁷ See for example Jonathan Lucas “Bilski – patentability of business methods in the US” *NZLawyer* (New Zealand, 9 July 2010) 14 at 15, noting that some people were expecting an “earth-shattering decision”; see also Daniel Fisher “Bilski may take down business method patents with him” (May 25 2010) *Forbes Blog: On the Docket* <<http://blogs.forbes.com/docket>>, anticipating that the decision “may deliver a knockout blow to business method patents”; contrast Transcript of Argument in *Bilski v Kappos* at 48, where the advocate for the Solicitor General’s Office stated that the Government thought the Court should never have taken the case because it was an “unsuitable vehicle for resolving the hard questions” of patentable subject matter.

⁸ Donald Chisum “Notes on Bilski” (June 29 2010) Chisum.com at [6] <www.chisum.com>.

CHAPTER ONE: THE BUSINESS METHOD CONTROVERSY

1.1 What are Business Methods?

A distinctive feature of the business method debate is that there is disagreement as to the parameters of the subject matter at issue. There is no universal definition of what exactly constitutes a “business method”. One reason for this is that, unlike areas such as biotechnology and pharmaceuticals, business methods are not limited to a particular industry, making them harder to categorise with precision.⁹ Furthermore, within a single industry, there can be several levels of abstraction at which the notion of a “business method” may be drawn. For example, can it refer to a series of steps for carrying out individual activities within a business, or is it limited to methods of conducting an entire enterprise such as a business model?¹⁰ Does it encompass internal methods of structuring and managing a business?¹¹

While it could be argued that formulating a definition of “business method” is a pointless exercise, especially if business methods are to be treated the same as all other methods, a definition would nonetheless have significant practical advantages. In particular, it would improve the effectiveness of the patent examination process by providing a pool of prior art against which to examine new applications of this type for novelty and inventive step.¹² It would also aid patentees by enabling identification of intellectual property assets to be included in financial statements.¹³

⁹ Sam Ricketson “Business Method Patents – A Matter of Convenience? (The Stephen Stewart Memorial Lecture 2002)” (2003) 2 IPQ 97 at 127.

¹⁰ For example, in *Aerotel Ltd v Telco Holdings Ltd/Re Macrossan’s Application* [2006] EWCA Civ 1371, [2007] 1 All ER 225 at [67], the Court of Appeal disagreed with the reasoning of the High Court judge that methods of doing business were limited to ways of conducting an entire business.

¹¹ See for example United Kingdom Intellectual Property Office *Manual of Patent Practice – Patents Act 1977* at [1.26], suggesting that the business method concept “embraces the purely organisational and managerial activities of manufacturing industry”.

¹² Currently, the Intellectual Property Office of New Zealand [IPONZ] does not examine for inventive step; obviousness is a ground for opposition or revocation only. The Patents Bill 2008 (235-1) proposes to change this, allowing the Commissioner of Patents to refuse a patent application due to lack of inventive step: cl 13(b)(ii).

¹³ John Bagby “Business Method Patent Proliferation: Convergence of Transactional Analytics and Technical Scientifics” (2000) 56 Bus Law 423.

To help delineate the boundaries of the business method concept, the following is a non-exhaustive list of the types of processes that have been considered to be business methods:

- **Marketing and advertising methods.** Examples include: a system for providing shopping incentives to customers through a computer network, where customers receive electronic coupons with an embedded identification of the customer and the retailer;¹⁴ Google's AdSense scheme,¹⁵ which involves a method of placing relevant advertisements on the Internet by matching the target criteria of advertisers with the content of the website on which the advertisements are to be published; and the patent application in question in *Cool 123 Ltd v Vodafone New Zealand Ltd*,¹⁶ which was for an "interactive marketing and/or survey system...utilising short message services (SMS) provided on mobile or cellphones."¹⁷
- **Methods of customer service.** A European patent for an electronic system that determines which customers are to be served at which counter where there are multiple service points would fall into this category.¹⁸
- **Organisational and managerial methods, including methods of bookkeeping.** A very early example would be the patent that was received by John Hicks in 1893 for "a method and means for cash registering and account checking" and declared unpatentable by the courts in 1908.¹⁹ Hicks' system involved numbered slips that corresponded to members of staff in a restaurant, its purpose being to "secur[e] hotel or restaurant proprietors...from losses by the peculations of waiters, cashiers, or other employees".²⁰
- **Financial services methods.** For example, Merrill Lynch's 1982 patent for a computer system that effected an improved securities brokerage and cash management system, which enabled automatic investment of free credit cash balances and a full range of security brokerage transaction functions.²¹

¹⁴ European patent EP0870264.

¹⁵ United States patent application 20040059708.

¹⁶ *Cool 123 Ltd v Vodafone New Zealand Ltd* HC Wellington CIV-2006-485-698, 29 August 2007.

¹⁷ New Zealand patent application 503817.

¹⁸ European patent EP0086199.

¹⁹ United States patent 500071.

²⁰ Gregory Stobbs *Business Method Patents* (Aspen Publishers, New York, 2002) at 261.

²¹ United States patent 4346442.

- **Methods of trading and transacting, including e-commerce methods.** It is this type of business method that has featured most prominently in litigation and media in recent years. Two particularly high-profile examples are Amazon.com's "one-click" patent for a system of placing orders on the Internet that allows the customer to purchase an item using a single click, without having to re-enter their payment and delivery details²² and DE Technologies' patent for a method of conducting global e-commerce transactions.²³ The method of hedging risk in commodities trading at issue in *Bilski v Kappos*²⁴ would also come within this category, as would the patent in *Welcome Real-Time SA v Catuity Inc*²⁵ for a method and device for the operation of smart cards in conjunction with the loyalty schemes of different traders, enabling the customer to use just one card for multiple traders.²⁶

It is clear from even this small sample that the business method concept encompasses a broad range of techniques and schemes that may be used in many areas of commerce. For the purposes of this paper, I will define "business method" as simply a method, plan or series of steps for conducting commercial transactions.²⁷ As can be seen from the examples listed above, business methods are frequently claimed as involving a computer program or machine. It is thus sensible to include these implemented business methods within my definition.

1.2 Opposing Theories of Patent Law

A further obstacle to the resolution of the business method issue is the wide ideological gap between the supporters and opponents of business method patents. Advocates insist

²² New Zealand patent 503311 (currently under proceeding); United States patent 5960411; Australian patent application 94779/98 (currently under opposition).

²³ New Zealand patent 505284; United States patent 6460020.

²⁴ *Bilski v Kappos* 2010 US LEXIS 5521 (SC).

²⁵ *Welcome Real-Time SA v Catuity Inc* [2001] FCA 445.

²⁶ Note that while the Federal Court of Australia stated at [128] that the patent "is not a business method," it is submitted that it can be inferred from the remainder of that paragraph that the Court was merely emphasising that the business method was tied to a technological implementation, which falls within my definition of "business method". This is supported by William van Caenegem "The Technicality Requirement, Patent Scope and Patentable Subject Matter in Australia" (2002) 13 Australian Intellectual Property Journal 41 at 52.

²⁷ Although this definition may seem too reductive, it is similar to that used in the Canadian Intellectual Property Office *Manual of Patent Office Practice* (last updated December 2009) at [12.06.02] ("a scheme or plan for conducting commercial interactions").

that new business methods play an important role in the economy and that patent rights are essential for encouraging their creation. Business methods are no different to other methods, it is argued, and should therefore be held to the same standards of patentability.

Opponents of business method patents reject this all-encompassing view of the patent system. Patents are properly concerned with technology, and business methods do not represent technological advances. Furthermore, patents for business methods allow exclusive ownership of concepts and practices that ought to remain in the public domain because they destroy legitimate competition without any compensatory public benefit. The monopolies that have been granted over seemingly simple methods such as Amazon.com's "one-click" system and the actions of patent holders such as DE Technologies, which in 2003 wrote to numerous New Zealand internet retailers demanding them to stop using, or pay for, its patented international e-commerce methods,²⁸ have only added fuel to the fire.

But these sorts of pre-emptive strikes are merely a manifestation of the fact that patent law is an "arms race";²⁹ in today's knowledge economy, intellectual property rights are an important source of a firm's value³⁰ as well as conveying competitive advantages,³¹ and businesses must not only consider the opportunities to be gained by patenting their methods, but also the risks that they run in not doing so.³²

²⁸ Peter Griffin "Retailers join forces to beat licence fee" (July 10 2003) [nzherald.co.nz](http://www.nzherald.co.nz) <www.nzherald.co.nz>.

²⁹ *Aerotel Ltd v Telco Holdings Ltd/Re Macrossan's Application* [2006] EWCA Civ 1371, [2007] 1 All ER 225 at [18].

³⁰ A recent study by Ocean Tomo, a Chicago intellectual property consulting firm, concluded that Microsoft Corporation's patents have, in total, more value than any other company. Horacio Gutiérrez, the company's chief intellectual property officer, says that patents are treated "as a currency that you use to trade to another company" for its patents: Steve LeVine "IBM May Not Be the Patent King After All" (13 January 2010) Bloomberg Businessweek <www.businessweek.com>.

³¹ Teresa Cheung and Ruth Corbin "Is There a Method to the Madness? The Persisting Controversy of Patenting Business Methods" (2005) 19 IPJ 29 at 72, quoting the Conference Board of Canada.

³² *Ibid.*, at 34.

1.3 A Relatively Recent Controversy

If business method patents are so sought-after, why were so few of them applied for and granted globally before the late 1990s?³³ It cannot be because business methods were simply not invented before then, because, as pointed out by Stevens J in *Bilski v Kappos*, people have been creating new ways to conduct business “[s]ince at least the days of Assyrian merchants”.³⁴

Rather, the lack of business method patents is better explained by the widely-held view that business methods were not the sort of thing protected by the patent system.³⁵ What, then, sparked such a radical change in perceptions? There were three related events in the 1990s that are likely to have contributed to the meteoric rise of the business method patent. First, the explosion of Internet and computer-based technologies during this time provided unprecedented opportunities to implement improved ways of conducting businesses that could create massive competitive advantages if monopolised.³⁶

Second, the extension of patents to computer programs in the mid 1990s³⁷ may have created the impression that the boundaries of the patent system were more malleable and accommodating than previously thought and that patents were no longer limited to the traditional products and processes of manufacturing industries.

Finally, the decision in *State Street Bank & Trust Co v Signature Financial Group Inc*,³⁸ in which the United States Court of Appeals for the Federal Circuit renounced the “ill-conceived”³⁹ exclusion of business methods from patentability, opened the door to

³³ Only a handful of patents relating to business methods were recorded as being granted in the 17th and 18th centuries. Compare to the estimated 40,000 business method patent applications filed in the United States since 1998: *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 992.

³⁴ *Bilski v Kappos* 2010 US LEXIS 5521 (SC) at 87.

³⁵ See Ministry of Economic Development *Review of the Patents Act 1953 Stage 3: Boundaries to Patentability: A Discussion Paper* (March 2002) at [166], and *Grant v Commissioner of Patents* [2006] FCAFC 120 at [14].

³⁶ Scott Locke & William Schmidt “Business Method Patents: The Challenge of Coping with an Ever Changing Standard of Patentability” (2008) 18 *Fordham Intell Prop Media & Ent L J Journal* 1079 at 1081.

³⁷ In New Zealand, computer programs were first held to be patentable in *Clarks Ltd's Application* (30 June 1993) Commissioner Burton, Patent Application No 193718, Patent Office. This approach was confirmed in *Hughes Aircraft Application* (3 May 1995), Commissioner Popplewell, Patent Application Nos 221147, 233797, and 233798, Patent Office.

³⁸ *State Street Bank & Trust Co v Signature Financial Group Inc* 149 F 3d 1368 (Fed Cir 1998).

³⁹ *Ibid*, at 1375.

business method patents in the United States. This landmark decision caused a clamouring for business method protection globally, because, naturally, “[i]f your competitors are getting or trying to get the weapons of business method...patents[,] you must too.”⁴⁰

⁴⁰ *Aerotel Ltd v Telco Holdings Ltd/Re Macrossan’s Application* [2006] EWCA Civ 1371, [2007] 1 All ER 225 at [18].

CHAPTER TWO: THE APPROACH IN NEW ZEALAND AND AUSTRALIA

2.1 The Patent System

A patent confers a monopoly as a reward for invention. The patentee gains the exclusive right to exploit the invention in the country in which the patent is granted⁴¹ for a period of 20 years;⁴² in return, the patent holder must disclose the invention and fairly describe the method by which the invention is performed.⁴³

Not all advances are eligible for patent protection, however. The patent system is a utilitarian construct, and a patent is only justified where the social cost of the monopoly is outweighed by the benefit to society of encouraging the creation and disclosure of new and useful innovations. In New Zealand and Australia, this balance is implicit in the requirement of an “invention”,⁴⁴ which is defined similarly in both countries as “any manner of new manufacture”.⁴⁵ As novelty is examined separately, the core requirement is simply a “manner of manufacture”.⁴⁶

The phrase “manner of manufacture” harks back to the English Statute of Monopolies 1623,⁴⁷ from which the patent systems of New Zealand and Australia are derived. While the phrase has no ordinary meaning today,⁴⁸ the concept has been judicially sculpted so as to embrace only those innovations that are justifiable in the utilitarian sense just described. In New Zealand, if an alleged invention is a manner of manufacture, it is patentable subject matter, and will then be examined for novelty. When the Patents Bill 2008 is finally passed into law, applications will also be examined for inventive step⁴⁹ and utility;⁵⁰ currently, lack of inventive step (or “obviousness”) is a ground for

⁴¹ Patents Act 1953, sch 3; Patents Act 1990 (Cth) (Aus), s 13.

⁴² Patents Act 1953, s 30(3); Patents Act 1990 (Cth) (Aus), s 67.

⁴³ Patents Act 1953, s 10; Patents Act 1990 (Cth) (Aus), s 40.

⁴⁴ Patents Act 1953, ss 21(1)(f) & 41(1)(d); Patents Act 1990 (Cth) (Aus), s 18.

⁴⁵ Patents Act 1953, s 2; Patents Act 1990 (Cth) (Aus), sch 1, s 3.

⁴⁶ Note that the Patents Bill 2008 (235-1), cl 13(a), defines a patentable invention as an invention that “is a manner of manufacture within the meaning of section 6 of the Statute of Monopolies”.

⁴⁷ Statute of Monopolies 1623 (21 Jac 1, c 3), s 6.

⁴⁸ *Wellcome Foundation Ltd v Commissioner of Patents* [1983] NZLR 385 (CA) at 387.

⁴⁹ Patents Bill 2008 (235-1), cl 13(b)(ii), cl 60(1)(b).

⁵⁰ *Ibid*, cl 13(c), cl 60(1)(b).

opposition⁵¹ or revocation only,⁵² and lack of utility is a ground for revocation only.⁵³ In Australia, applications are examined for a manner of manufacture⁵⁴ and also for novelty⁵⁵ and inventive step.⁵⁶

2.2 The General Approach to Interpreting “Manner of Manufacture”

The general principles for determining whether an alleged invention is a manner of manufacture are set out by the High Court of Australia in *National Research Development Corp v Commissioner of Patents (NRDC)*,⁵⁷ which was subsequently approved in New Zealand.⁵⁸ In *NRDC*, the Court found that a new method of applying herbicides to a weed-infested crop so as to kill the weeds without harming the crop qualified as an invention because it consisted of:⁵⁹

... an artificially created state of affairs, discernible by observing over a period the growth of weeds and crops respectively on sown land on which the method has been put into practice. And the significance of the product is economic...

The Court also held that to be patent-eligible, a process:⁶⁰

... must be one that offers some advantage which is material, in the sense that the process belongs to a useful art as distinct from a fine art...

The *NRDC* case thus sets down three requirements for a process to be patentable subject matter. First, there must be some “artificially created state of affairs”, some discernible end result in which the new and useful effect of the method may be observed.⁶¹ In *NRDC*, the weed-free condition of the crop-bearing land was sufficient to satisfy this

⁵¹ Patents Act 1953, s 21(1)(e).

⁵² *Ibid*, s 41(1)(f).

⁵³ *Ibid*, s 41(1)(g).

⁵⁴ Patents Act 1990 (Cth) (Aus), s 45(1)(b).

⁵⁵ *Ibid*, s 45(1)(c)(i).

⁵⁶ *Ibid*, s 45(1)(c)(ii).

⁵⁷ *National Research Development Corp v Commissioner of Patents* [1959] HCA 67; (1959) 102 CLR 252.

⁵⁸ *Swift & Co v Commissioner of Patents* [1960] NZLR 775 (SC); *Wellcome Foundation Ltd v Commissioner of Patents* [1983] NZLR 385 (CA); *Pfizer Inc v Commissioner of Patents* [2005] 1 NZLR 362 (CA).

⁵⁹ *Swift & Co v Commissioner of Patents* [1960] NZLR 775 (SC) at [25].

⁶⁰ *Ibid*, at [22].

⁶¹ *Ibid*, at [23].

requirement.⁶² Second, the process must be commercially useful; this was present on the facts due to the “remarkable advantage” that the process provided to the cultivation of the soil for the growing of crops.⁶³

The third requirement, that the process belong to the “useful arts”, is usually considered to limit patent protection to inventions that are technical in nature.⁶⁴ While this requirement has subsequently been considered to add nothing to the requirement of commercial utility,⁶⁵ a proper reading of *NRDC* shows that the Court did not intend to move away from the general approach that patent law is limited to technological innovations.⁶⁶

2.3 Evolution of the *NRDC* Principles

The principles from *NRDC* have undergone substantial evolution since their original application to a weed-infested crop. In New Zealand and Australia, business methods receive no special treatment; they will be patentable subject matter so long as they meet the requirements set out by *NRDC*. It is thus helpful to track the development of the *NRDC* principles by reference to how they have been applied to processes of all kinds.

(a) *Australian cases*

(i) *International Business Machines Corp v Commissioner of Patents (IBM)*⁶⁷

IBM involved an application for a “method and apparatus for generating curves on computer graphics displays.”⁶⁸ According to Burchett J, the claim was directed to patentable subject matter under the *NRDC* principles because the method resulted in the

⁶² *Ibid*, at [27].

⁶³ *Ibid*, at [25].

⁶⁴ James Dwyer (ed) *Patents, trade marks & related rights* (looseleaf ed, Butterworths, 2006) at [12,480]; William van Caenegem “The Technicality Requirement, Patent Scope and Patentable Subject Matter in Australia” (2002) 13 Australian Intellectual Property Journal 41 at 51.

⁶⁵ *CCOM Pty Ltd v Jiejing Pty Ltd* (1994) 28 IPR 481 (FCA) at [113].

⁶⁶ William van Caenegem “The Technicality Requirement, Patent Scope and Patentable Subject Matter in Australia” (2002) 13 Australian Intellectual Property Journal 41 at 52.

⁶⁷ *International Business Machines Corp v Commissioner of Patents* (1991) 22 IPR 417 (FCA).

⁶⁸ *Ibid*, at [3].

production of an improved curve image, which was considered a commercially useful effect in computer graphics.⁶⁹

While this decision has been read as reducing the test for patentable subject matter to the sole requirement of commercial utility,⁷⁰ it seems more likely that the Court in *IBM* also thought that the method produced an artificially created state of affairs. Burchett J makes it clear that the effect of the method is to “achieve an end, the production of the improved curve image.”⁷¹ It is emphasised in *NRDC* that the term “artificially created state of affairs” covers every end produced and includes “any physical phenomenon in which the effect...may be observed”.⁷² The end result of the operation of the method in *IBM*, the improved curve image on a computer screen, would thus fall within this concept. Furthermore, because the claimed method involved an advance in the technology of computer graphics, the invention is in the realm of the useful arts.

(ii) *CCOM Pty Ltd v Jiejing Pty Ltd (CCOM)*⁷³

In *CCOM*, the Full Federal Court of Australia overturned the finding of the trial judge that a method of using a word processing apparatus for assembling text in Chinese language characters did not amount to patentable subject matter. The trial judge held that because the method used conventional computer hardware, it did not involve a technical contribution, but rather “human intellectual activity lying in the fine arts and not the useful arts.”⁷⁴ The Full Court, however, considered it enough that the invention was commercially useful and produced an artificially created state of affairs in the form of the retrieval of graphic representations of the Chinese characters.⁷⁵ In equating the requirement that the invention belong to the useful arts with the requirement of commercial utility, the Full Court advocated a non-technical approach to the question of patentable subject matter that is inconsistent with the spirit of *NRDC* and of patent law in general.

⁶⁹ *Ibid*, at [16].

⁷⁰ *Hughes Aircraft Application* (3 May 1995) Commissioner Popplewell, Patent Application Nos 221147, 233797 and 233798, Patent Office, at 25.

⁷¹ *Ibid*, at [17].

⁷² *National Research Development Corp v Commissioner of Patents* [1959] HCA 67; (1959) 102 CLR 252 at [23].

⁷³ *CCOM Pty Ltd v Jiejing Pty Ltd* (1994) 28 IPR 481 (FCA).

⁷⁴ *CCOM Pty Ltd v Jiejing Pty Ltd* (1993) 27 IPR 577 at 594.

⁷⁵ *CCOM Pty Ltd v Jiejing Pty Ltd* (1994) 28 IPR 481 (FCA) at [128].

(iii) *Welcome Real-Time SA v Catuity Inc (Welcome)*⁷⁶

So far we have seen the *NRDC* principles applied to methods that are implemented by computer programs. The case of *Welcome*, however, related to a method that involved a physical device. Welcome Real-Time SA owned a patent for a process and device for the operation of smart cards in connection with the individual loyalty programs of multiple retail traders. The Federal Court of Australia found that the patent was directed to patentable subject matter. An artificially created state of affairs was produced by the method through the issuance of the physical cards to customers.⁷⁷ The patent was clearly commercially useful, as it facilitated the use of loyalty schemes by traders who may not have otherwise been able to support such a scheme.⁷⁸

Perhaps relying on *CCOM*, the Court in *Welcome* did not consider whether the invention was within the useful arts, even though a technical contribution was undoubtedly present. What was innovative about the invention was that it allocated memory space on the smart card in a new way that enabled the card to be used in conjunction with thousands of retail loyalty programs, something that had not previously been possible.⁷⁹ The invention thus solved a technical problem in smart card technology. Despite this, the Court did not seem to consider technical contribution a prerequisite to patentable subject matter. The status of the useful arts requirement from *NRDC* thus remained in doubt following *Welcome*.

(iv) *Grant v Commissioner of Patents (Grant)*⁸⁰

In *Grant*, the Federal Court of Australia appears to have adopted the approach from *CCOM* of equating the useful arts with a field of commercial endeavour.⁸¹ The Court

⁷⁶ *Welcome Real-Time SA v Catuity Inc* [2001] FCA 445.

⁷⁷ *Ibid*, at [127].

⁷⁸ *Ibid*.

⁷⁹ *Ibid*, at [18]. Prior to this innovation, there had to be allotted space on the chip card for every single trader involved in the scheme, regardless of whether the customer actually visited those traders. This meant that only a small number of traders could be accommodated. The solution offered by the invention was to “dynamically” store each individual loyalty program in a separate record called a “Behaviour file”. Through the interoperation of the “Behaviour file” and point of sale (POS) terminals, only the information relating to the traders actually visited by the customer are stored in the chip memory.

⁸⁰ *Grant v Commissioner of Patents* [2006] FCAFC 120.

goes even further by asserting that limiting patent law to “the area of science and technology”⁸² would be inconsistent with the need to interpret the term “manner of manufacture” flexibly.

In this case, Mr Grant sought to patent a method of structuring a financial transaction so as to protect an asset from judgment creditors. The method comprised a series of legal steps, namely: establishing a trust, gifting a sum of money to the trust, borrowing that same sum of money from the trust and the trustee securing the loan by taking a charge over the asset.⁸³ The Federal Court upheld the finding of the lower court that the method was not a manner of manufacture, concluding that there was no artificially created state of affairs produced by the method. The Court stated that a “physical effect in the sense of a concrete effect or phenomenon or manifestation or transformation is required.”⁸⁴ According to the Court, Mr Grant’s legal method had no physical consequence whatsoever, and was a mere scheme or abstract idea.

One problem with this finding is that Mr Grant’s method could, if perceived differently, be seen to have a “physical effect”. The application of the method results in the creation of physical documents (the trust, loan and security documents).⁸⁵ How are these end results different from the smart cards issued to customers in *Welcome*, or the graphic representations of Chinese characters in *CCOM*?

(v) *Invention Pathways Pty Ltd (Invention Pathways)*⁸⁶

A potential answer to this question is offered in the 2010 decision of *Invention Pathways*. In that case, the Australian Patent Office (APO) drew a distinction between a physical effect that is integral to the purpose of the claimed method and one that is

⁸¹ Ibid, at [34], interpreting the requirement that the invention must not lie in the fine arts with a requirement that the invention must have “an industrial or commercial or trading character”.

⁸² Ibid, at [38].

⁸³ Ibid, at [3].

⁸⁴ Ibid, at [32].

⁸⁵ Charles Lawson “*Grant v Commissioner of Patents* and patenting knowledge inventions” (2008) 15 JLM 626 at 640–641.

⁸⁶ *Invention Pathways Pty Ltd* [2010] APO 10 (21 July 2010).

peripheral to it. In order to constitute a manner of manufacture, the artificially created state of affairs or “physical effect” produced by the method:⁸⁷

... must be one that is significant both in that it is concrete but also that it is central to the purpose or operation of the claimed process or otherwise arises from the combination of steps of the method in a substantial way.

This approach entails determining whether the artificially created state of affairs is a substantive effect of the method.⁸⁸ The production of the tangible legal documents in *Grant* was not a substantive effect, because the desired outcome of the method was the legal protection afforded to the assets, not the documents that would be produced along the way.⁸⁹ In contrast, the issuance of the smart cards in *Welcome* and the retrieval of the Chinese characters in *CCOM* were not peripheral effects; they were central to the purpose of the claimed processes.

Ironically, *Invention Pathways* involved a method for commercialising inventions that included the step of applying for patent protection. The APO refused the application, finding that the method was not a patentable invention because the artificially created state of affairs produced by the operation of the method – an “electronically fillable checklist” on a computer – would be incidental; the substance of the method was a scheme for the commercialisation of inventions.⁹⁰

With respect to the useful arts requirement, the APO followed the trend of *CCOM* and *Grant* and equated the useful arts with commercial utility, interpreting *NRDC* as merely applying a “test of vendibility”.⁹¹

⁸⁷ Ibid, at [38]. The APO uses the example of a method of acquiring a house that includes the physical step “build the house”, with all the other steps setting out contractual relationships; while the step of building the house would undoubtedly be an artificially created state of affairs, it is peripheral to the purpose of the method which is to legally acquire a house.

⁸⁸ Ibid, at [43].

⁸⁹ However, it could be argued that the retention of tangible assets was another “physical effect” of the method in *Grant*, and that this is a substantive effect because it was the central purpose of the method.

⁹⁰ *Invention Pathways Pty Ltd* [2010] APO 10 (21 July 2010) at [39]–[41].

⁹¹ Ibid, at [34].

(b) *New Zealand decisions*

(i) *Hughes Aircraft Application (Hughes)*⁹²

In *Hughes*, Commissioner Popplewell accepted a patent application for a computer-controlled process for calculating the “conflict alert status” of approaching aircraft. Following *IBM*, the Commissioner primarily based his finding of patentable subject matter on the presence of a commercially useful effect in the improvement in air traffic control and prevention of mid-air collisions.⁹³ However, the Commissioner, who was perhaps wary of adopting such a low threshold for patent-eligibility, also justified his decision according to the criteria in the English decision of *Burroughs Corporation (Perkin’s) Application (Burroughs)*,⁹⁴ which require the method to involve a practical embodiment in some sort of apparatus and to result in a new or improved machine or process that offers “advantages in the field of the useful as opposed to the fine arts.”⁹⁵

(ii) *Application by George N Haddad (Haddad)*⁹⁶

In *Haddad*, a method of betting on a sporting event was found not to be a manner of manufacture. Interestingly, while Assistant Commissioner Popplewell cited *IBM* for the requirement that the invention must produce a commercially useful result,⁹⁷ he added that the term “manner of manufacture” “still implies a situation which involves some sort of interaction with a real entity...or which achieves a tangible product or result”.⁹⁸ The method in question involved no such interaction or result; it was purely a mathematical process for arriving at a winning number.⁹⁹

⁹² *Hughes Aircraft Application* (3 May 1995) Commissioner Popplewell, Patent Application Nos 221147, 233797 and 233798, Patent Office.

⁹³ *Ibid*, at 25.

⁹⁴ *Burroughs Corporation (Perkin’s Application)* [1974] RPC 147.

⁹⁵ *Ibid*, at 160.

⁹⁶ *Application by George N Haddad* (2 May 2000), Assistant Commissioner Popplewell, Patent Application No 333267, Patent Office.

⁹⁷ *Ibid*, at 6–7.

⁹⁸ *Ibid*, at 8.

⁹⁹ *Ibid*, at 9. The Assistant Commissioner also noted that both the United States and Australian patent offices had granted patents for equivalent claims, but did not feel bound to follow their lead as the decisions of those offices had not been judicially tested.

Commissioner Popplewell (who also decided the application in *Hughes*) once again seemed reluctant to accept that *IBM* had reduced the *NRDC* principles to the narrow test of commercial utility. This reluctance is entirely appropriate, because, as argued above, a close reading of *IBM* shows that the Court in that case probably did not intend its decision to be read in such a constricted manner.

2.4 Application to Business Methods

(a) *Pure business methods*

While not excluded by statute, the courts in both New Zealand and Australia have consistently recognised that mere schemes or plans are inherently unpatentable.¹⁰⁰ The most commonly cited authority for this is the famous statement by Sir Robert Finlay in the English case *Re Cooper's Application* that:¹⁰¹

You cannot have a Patent for a mere scheme or plan – a plan for becoming rich; a plan for the better government of a State; a plan for the efficient conduct of business.

Claims to business methods in and of themselves, not tied to any technological device or computer program – hereafter referred to as “pure” business methods – are usually rejected as claims to mere schemes or plans. This is justified on the basis that mere schemes or plans are unable to constitute a manner of manufacture as that concept has been interpreted by *NRDC*.¹⁰² While they may often have commercial utility, pure business methods do not belong to the useful arts in the sense of involving a technical contribution.¹⁰³ Claims to pure business methods are usually disposed of, however, by a finding that they do not produce an artificially created state of affairs, because without

¹⁰⁰ *Pfizer Inc v Commissioner of Patents* [2005] 1 NZLR 362 (CA) at [105].

¹⁰¹ *Re Cooper's Application* (1901) 19 RPC 53 (EWHC) at 54.

¹⁰² IP Australia *Australian Patent Office Manual of Practice and Procedure* at [2.9.2.5] <www.ipaustralia.gov.au>.

¹⁰³ See chapter four at 4.4 for an explanation as to why business methods cannot be considered a form of technology.

some sort of interaction with a physical entity, they usually do not produce a physical phenomenon in which a useful effect may be observed.¹⁰⁴

(b) Machine-implemented business methods

A business method that operates in conjunction with a physical device or machine so as to produce an artificially created state of affairs is likely to constitute patentable subject matter. On the basis of *Welcome*, it is unclear whether the operation of the method with the device must involve a technical contribution.

(c) Software-implemented business methods

It is here, at the junction of software patents and business method patents, that the law is most unclear. What is evident is that there is a widespread understanding that computer programs, including those that embody business methods, are patentable subject matter in New Zealand so long as they are commercially useful.¹⁰⁵ While this is a reasonable inference to draw from *Hughes*, the alternative justification for the conclusion in that case, based on the *Burroughs* approach, opens the door for a much more demanding test for patentable subject matter.

In Australia, commercial utility is not enough; the software must also produce an artificially created state of affairs.¹⁰⁶ It is therefore potentially easier to gain a patent for a software-implemented business method in New Zealand than in Australia. The opposite may become true, however, if the Select Committee's proposed exclusion of computer programs is carried into effect.¹⁰⁷

¹⁰⁴ See discussion above relating to *Grant*, *Invention Pathways* and *Haddad*. See also *Cool 123 Ltd v Telecom Mobile Ltd* (13 March 2006) Assistant Commissioner Popplewell, Patent Application No 503817, Patent Office, in which a scheme for using SMS technology to operate an interactive marketing system was not patentable subject matter because there was no tangible result or product.

¹⁰⁵ Patents Bill 2008 (235-2) (select committee report) at 5; Paul Sumpter *Intellectual Property Law: Principles in Practice* (CCH New Zealand, Auckland, 2006) at [606]. Compare to Ministry of Economic Development *Review of the Patents Act 1953 Stage 3: Boundaries to Patentability: A Discussion Paper* (March 2002), which states at [185] that software is patentable so long as it has a commercially useful effect, but then defines the term "commercially useful effect" as an "artificially created state of affairs that has utility in the field of economic endeavour" as set out in *NRDC*.

¹⁰⁶ See discussion relating to *IBM* and *CCOM*; see also IP Australia *Australian Patent Office Manual of Practice and Procedure* at [2.9.2.7] <www.ipaustralia.gov.au>.

¹⁰⁷ Patents Bill 2008 (235-2) (select committee report) at cl 15(3A).

(d) Tokenism

Despite the apparent disappearance of the useful arts requirement, the cases above suggest that, in practice, business methods will only constitute patentable subject matter insofar as they have been implemented in some form of technology so as to produce a discernible end result. However, attempts to give a pure business method a technical character and a physical effect by attaching a computer program or machine as a non-essential step of the method may not be successful.

In Australia, at least, an unpatentable process cannot be transformed into patentable subject matter merely by the addition of a step that is not central to the substance of the process. As discussed above, the APO in *Invention Pathways* held that the requirement of an artificially created state of affairs could only be satisfied if the end result is central to the purpose of the claimed method. By an extension of this reasoning, the mere recitation of a machine or computer program as an insignificant step of an otherwise unpatentable business method will therefore be insufficient to bring that method within the definition of invention.

The origins of this limitation lie in United States patent law¹⁰⁸ and its purpose is to guard against tokenism – or “insignificant extra-solution activity”¹⁰⁹ – that would destroy the distinction between mere schemes or plans and patentable processes. Whether IPONZ and the New Zealand courts will pick up on this limiting tool remains to be seen. However, the difficulty in its application will arise in defining the boundary between the substantive and the insignificant, the central and the peripheral.

2.5 Comment on the Current Approach

While *NRDC* was a “watershed” case,¹¹⁰ it did not intend to postulate a rigid approach to patentable subject matter. The ability to adapt the *NRDC* approach to a broad range

¹⁰⁸ *Diamond v Diehr* 450 US 175 (1981); *Parker v Flook* 437 US 584 (1978), referred to in *International Business Machines Corp v Commissioner of Patents* (1991) 22 IPR 417 (FCA) at [6] and *Invention Pathways Pty Ltd* [2010] APO 10 (21 July 2010) at [37]-[38].

¹⁰⁹ *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 957.

¹¹⁰ *Joos v Commissioner of Patents* [1972] HCA 38, (1972) 126 CLR 611 at 616, per Barwick CJ.

of processes stems from the “vague and embryonic” nature of its principles.¹¹¹ However, the need for a flexible attitude towards the issue of patentable subject matter risks being over-emphasised at the expense of maintaining a grip on the sort of things the patent system was intended to protect. The disappearance of a requirement that the invention provide advantages in the field of the useful arts has important implications, because it may open the door to patents for conventional or obvious means of implementing innovative business methods.

In New Zealand in particular, the law in this area suffers from substantial uncertainty. Firstly, it is unclear whether attaching “insignificant extra-solution” steps to a business method claim would be sufficient to confer patent-eligibility on a pure business method. Secondly, there is no definitive threshold test for software-implemented business methods. A test of commercial utility alone presents no practical obstacle to patent-eligibility at all, because few applications would be pursued in respect of an invention that was not commercially useful.¹¹² Furthermore, there appears to be no justification for holding software-implemented business methods to lower standards than other kinds of business methods. As will be discussed in chapter six, this incoherent approach may be thrown into further disarray by the exclusion of software patents recently proposed by the Commerce Select Committee, the implications of which are unlikely to be known for some time.

¹¹¹ William van Caenegem “The Technicality Requirement, Patent Scope and Patentable Subject Matter in Australia” (2002) 13 Australian Intellectual Property Journal 41 at 44.

¹¹² John Smillie “Patentability in Australia and New Zealand Under the Statute of Monopolies” in Graeme Austin and Charles Rickett (eds) *International Intellectual Property and the Common Law World* (Hart Publishing, Oxford, 2000) 211 at 221–222.

CHAPTER THREE: ALTERNATIVE APPROACHES

3.1 Introduction

This chapter will consider the law relating to business method patents in the United Kingdom and European Union, and also in the United States of America. These jurisdictions have been selected for two reasons. First, they are three of New Zealand's major trading partners, and consequently three of the main sources of influence on patent law policy in New Zealand. Second, they represent two different directions from which the issue of business method patents can be tackled and therefore provide alternative models on which reform of New Zealand's approach to this issue could be based.

3.2 United Kingdom (UK) and European Union (EU)

(a) Statutory exclusion of business methods and computer programs "as such"

Patent law in the EU is governed by the European Patent Convention (EPC).¹¹³ Article 52(2) sets out a non-exhaustive list of things that are not patentable inventions. This includes both "methods for...doing business" and computer programs,¹¹⁴ but only to the extent that they are claimed "as such".¹¹⁵ The parallel provision in the UK is s 1(2)(c) of the Patents Act 1977. While this provision uses slightly different wording to the EPC,¹¹⁶ it is generally accepted that the effect of both provisions is the same.¹¹⁷

¹¹³ European Patent Convention 1973, revised 2000 [EPC].

¹¹⁴ EPC, art 52: "(2) The following in particular shall not be regarded as inventions...(c) schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;..."

¹¹⁵ EPC, art 52(3): "The provisions of paragraph 2 shall exclude patentability of the subject-matter or activities referred to in that provision only to the extent to which a European patent application or European patent relates to such subject-matter or activities as such."

¹¹⁶ Patents Act 1977, s 1(2): "It is hereby declared that the following...are not inventions for the purposes of this Act, that is to say, anything which consists of - ... (c) a scheme, rule or method for performing a mental act, playing a game or doing business, or a program for a computer; ... but the foregoing provision shall prevent anything from being treated as an invention for the purposes of this Act only to the extent that a patent or application for a patent relates to that thing as such."

¹¹⁷ *Aerotel Ltd v Telco Holdings Ltd; Re Macrossan's Application* [2006] EWCA Civ 1371, [2007] RPC 7 at [6].

If business methods and computer programs are excluded from patentability “as such”, this begs the question, what *more* is required to escape the exclusion? In the UK, a business method or computer program will be a patentable invention if it involves a technical contribution to the relevant art. The general approach was set out by the Court of Appeal in *Aerotel Ltd v Telco Holdings Ltd; Re Macrossan’s Application (Aerotel/Macrossan)*¹¹⁸ and involves four steps:¹¹⁹

- (1) properly construe the claim;
- (2) identify the actual contribution;¹²⁰
- (3) ask whether it falls solely within the excluded subject matter;¹²¹
- (4) check whether the actual or alleged contribution is actually technical in nature.

This approach is essentially a reformulation of the test applied in earlier cases,¹²² and is consistent with the approach set out in a 2002 Practice Note of the UK Intellectual Property Office (UKIPO).¹²³

Aerotel/Macrossan was a combined decision on appeals from two different High Court decisions. In *Aerotel Ltd v Telco Holdings Ltd*,¹²⁴ a telephone call handling system that used known apparatus was held to be a business method as such, because the innovative aspect of the invention lay in the business system, rather than in the technical features.¹²⁵ On appeal, the Court applied the four-step approach outlined above and found that the contribution made by the invention was a new physical combination of hardware, which was more than a method of doing business as such, and which was clearly technical in nature.¹²⁶ Accordingly, the system was a patentable invention and the appeal was allowed.

¹¹⁸ Ibid.

¹¹⁹ Ibid, at [40].

¹²⁰ The Court of Appeal at [43] phrased this inquiry as “[w]hat has the inventor really added to human knowledge”?

¹²¹ Step 3 is simply an expression of the “as such” qualification of art 52(3) EPC/s 1(2) Patents Act 1977.

¹²² In particular, *Merrill Lynch’s Application* [1989] RPC 561 and *VICOM/Computer-related invention* Decision T 0208/84 [1987] OJ EPO 14, [1987] 2 EPOR 74.

¹²³ Patent Office Practice Note *Patents Act 1977: Interpreting section 1(2)* (24 April 2002) [2002] RPC 40.

¹²⁴ *Aerotel Ltd v Telco Holdings Ltd* [2006] EWHC 997 (Pat).

¹²⁵ Ibid, at [19].

¹²⁶ *Aerotel Ltd v Telco Holdings Ltd; Re Macrossan’s Application* [2006] EWCA Civ 1371, [2007] RPC 7 at [53].

*Macrossan's Patent Application*¹²⁷ related to an automated method of acquiring the documents necessary to incorporate a company. Mann J in the High Court held that the method did not fall within the exclusion in s 1(2)(c) because he considered that a “method for...doing business” was limited to a way of conducting an entire business, and did not exclude methods that merely facilitated business transactions or methods of an administrative character.¹²⁸ The Court of Appeal did not agree with this narrow construction, however, and found that the claims were for both a method of doing business as such and a computer program as such.¹²⁹ The contribution of the invention was a business system; no contribution was made to the hardware involved.¹³⁰ The fact that the method was implemented by a computer program was not sufficient to constitute a technical contribution,¹³¹ something more would be required.¹³²

The European Patent Office (EPO) appears to take a slightly different approach. The Guidelines for Examination in the EPO suggest that business methods and computer programs will escape the art 52(2)(c) exclusion so long as they have a “technical character” but that a technical *contribution* is not required at the threshold stage.¹³³ Technical contribution is, however, required in order for the invention to pass the inventive step requirement in art 52(1).¹³⁴ The important point for present purposes is that both the EPO and the UKIPO will only grant a patent in respect of a business method or computer program where it involves a technical contribution to the state of the art.

¹²⁷ *Macrossan's Patent Application* [2006] EWHC 705 (Ch).

¹²⁸ *Ibid.*, at [30].

¹²⁹ *Aerotel Ltd v Telco Holdings Ltd; Re Macrossan's Application* [2006] EWCA Civ 1371, [2007] RPC 7 at [62].

¹³⁰ *Ibid.*, at [63].

¹³¹ *Ibid.*, at [72].

¹³² *Ibid.*, at [92].

¹³³ European Patent Office *Guidelines for Examination in the European Patent Office (status April 2010)*, part 3, chapter IV, at [2.3.5]–[2.3.6].

¹³⁴ *Ibid.*

(b) The technical contribution approach applied to business methods

(i) Pure business methods

Mere schemes and plans of any kind have long been considered inherently unpatentable in the UK.¹³⁵ Under the EPC and the Patents Act 1977, pure business methods – that is, business methods that are not tied to any technological implementation – will inevitably be rejected as business methods as such.

(ii) Machine-implemented business methods

A business method will not escape the “as such” exclusion merely by claiming the embodiment of the method in the form of a physical machine or device. Once again, the contribution that the invention makes to the sum of human knowledge must be technical. One implication of this is that a claim to a computer programmed to carry out a business method will be treated the same as a claim to a business method involving the use of that programmed computer, as it is the substance of the contribution that is relevant, rather than the form in which the claims are drafted.¹³⁶ Prior to the introduction of the technical contribution approach, a claim to a physical apparatus may have been enough to avoid the business method exclusion.¹³⁷

A technical contribution will be present where the invention solves a technical problem or otherwise improves the technology involved. Technical contribution may also lie in a new way of combining multiple apparatus, as seen in *Aerotel Ltd v Telco Holdings Ltd*¹³⁸ above.¹³⁹

¹³⁵ *Re Cooper's Application* (1901) 19 RPC 53 (EWHC); *D, A & K's Application* (1926) 43 RPC 155; *Rolls-Royce Ltd's Application* [1963] RPC 251.

¹³⁶ *Astron Clinica's Application* [2008] EWHC 85 (Pat) at [49].

¹³⁷ *IBM Corporation's Application* [1980] FSR 564.

¹³⁸ *Aerotel Ltd v Telco Holdings Ltd* [2006] EWHC 997 (Pat).

¹³⁹ Another example would be *Pettersson/Queueing system* T1002/92 [1995] OJ EPO 605, [1996] EPOR 1, where the EPO Board of Appeal held that even though a system for handling customers queuing at a number of service points would be used in a business context, it escaped the art 52(2) exclusion because the problem that the invention solved related to the way in which the technical components of the system (“a turn-number allocating unit, a selection unit, terminals, an information unit and computing means”) interacted.

(iii) Software-implemented business methods

Claims to this kind of business method risk falling foul of both the exclusion of methods for doing business as such and the exclusion of computer programs as such. In the UK, the requirement of technical contribution will not be satisfied merely by the execution of a computer program on a computer.¹⁴⁰ The EU takes a similar approach. Despite the fact that technical character is the threshold test, the EPO has held that technical character cannot be based simply on the execution of a program.¹⁴¹

For a software-related invention, technical contribution will be present where a technical problem is solved, or where there is a technical effect (above and beyond the elementary interaction of the program with the hardware of a computer) that is an improvement on the prior art. These technical solutions and effects may be improvements either within the computer on which the program is run, such as an improvement in the reliability or speed of the computer,¹⁴² or in other devices in which the program is embedded.¹⁴³

(c) Comment on the technical contribution approach

The effect of the technical contribution approach is that a business method that is implemented by way of a conventional computer program is likely to be excluded as both a method for doing business as such and a computer program as such. Likewise, a business method that is carried out using conventional physical apparatus, with no innovative technical features, will also be excluded. Assuming that a significant proportion of business methods are most easily implemented by conventional means, scope for patenting methods of doing business in the UK and the EU is relatively narrow.

¹⁴⁰ *Aerotel Ltd v Telco Holdings Ltd; Re Macrossan's Application* [2006] EWCA Civ 1371, [2007] RPC 7 at [92], citing *Gale's Application* [1991] RPC 305.

¹⁴¹ *IBM's Application* [1999] RPC 861. The UK approach seems more sensible in this situation. With regards to the practice of the EPO, it seems somewhat artificial to maintain the simple requirement of technical character in order to escape the art 52(2) exclusion, but then to insist that the execution of a computer program, which is undeniably technical in nature, is insufficient to satisfy that requirement. Of course, a literal application of the technical character requirement would deprive the computer program exclusion of all meaning. One advantage of the UK approach is that it accommodates the fact that software-related inventions are always of a technical nature.

¹⁴² *Symbian Ltd's Application* [2008] EWCA Civ 1066, [2009] RPC 1 at [56].

¹⁴³ *Ibid.*, at [54].

Issues will arise, however, where applicants argue that the software or apparatus is not conventional and that some technical improvement has been made. While the requirement of technical contribution may seem, at first glance, unambiguous, courts and patent offices alike have found it consistently troublesome to apply, particularly in the area of software-related inventions. The technicality requirement has been described as “a useful servant but a dangerous master.”¹⁴⁴ In 2008, in an attempt to resolve perceived inconsistencies between the decisions of different boards of appeal, the President of the EPO referred several questions relating to the patentability of computer programs to the Enlarged Board of Appeal (EBA).¹⁴⁵ In May 2010, the EBA refused the referral, leaving the questions unresolved.¹⁴⁶

The root cause of the confusion seems to be the “inherent vagueness”¹⁴⁷ of the concept of technical contribution itself. Judges and examiners often complain of the difficulty in identifying the boundary line between what is and what is not a technical contribution,¹⁴⁸ and the formulation of any clear guidelines is hindered by “the multifarious features of computer programs and the unpredictable developments which will no doubt occur in the IT field”.¹⁴⁹ On the other hand, the flexibility afforded by the vagueness of the term “technical” allows the law to keep pace with these unpredictable developments.

Another advantage of the approach is that by focussing attention on the essence of the contribution made by the invention, the addition of token technical features that are not central to the purpose of the invention will generally fail to elevate a method for doing business as such to a patentable invention.

¹⁴⁴ *CFPH’s Application* [2005] EWHC 1589 (Pat) at [14], per Peter Prescott QC, sitting as a Deputy Judge.

¹⁴⁵ “Referral by the President of the European Patent Office to the Enlarged Board of Appeal dated 23 October 2008 regarding divergent decisions of two boards of appeal” (2009) OJ 142. For the questions referred, see Appendix 1.

¹⁴⁶ G 0003/08, “Opinion of the Enlarged Board of Appeal of 12 May 2010 in relation to a point of law referred by the President of the European Patent Office pursuant to Article 112(1)(b) EPC.”

¹⁴⁷ *CFPH’s Application* [2005] EWHC 1589 (Pat) at [13].

¹⁴⁸ See for example *Gale’s Application* [1991] RPC 305; *Fujitsu’s Application* [1997] RPC 608.

¹⁴⁹ *Symbian Ltd’s Application* [2008] EWCA Civ 1066, [2009] RPC 1 at [52].

The technical contribution requirement is in essence the same as the requirement in the *NRDC* case that the invention belong to the useful arts. As the threshold for patentability in New Zealand has been considerably lowered since that case, it will be easier to secure a business method patent in New Zealand (and perhaps Australia) than in the UK or EU.

3.3 United States of America

(a) Patent law in the United States (US)

The right of Congress to grant patents “[t]o promote the progress of science and useful arts” is authorised by the US Constitution.¹⁵⁰ The US Patent Act is found in Title 35 of the US Code, and patentable subject matter is defined in s 101. A patent may be granted for any process, machine, manufacture or composition of matter, or any improvement thereof, so long as it is new and useful.¹⁵¹ Business method claims will fall into the “process” category.¹⁵²

While there are no express exceptions to s 101, it is well-established in precedent that laws of nature, natural phenomena and abstract ideas cannot be patented.¹⁵³ Often included within these broad categories are mental processes¹⁵⁴ and mathematical algorithms.¹⁵⁵

¹⁵⁰ United States Constitution, art I, s 8, cl 8.

¹⁵¹ 35 USC s 101.

¹⁵² 35 USC s 100(b) defines “process” as a “process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material”. However, this definition has been described as circular and unhelpful due to its inclusion of the word it is attempting to define: *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 951, n 3 (Michel CJ); *Bilski v Kappos* 2010 US LEXIS 5521 (SC) at 48 (Stevens J).

¹⁵³ *Gottschalk v Benson* 409 US 63 (1972) at 67; *Diamond v Chakrabarty* 447 US 303 (1980) at 309; *Bilski v Kappos* 2010 US LEXIS 5521 (SC) at 13.

¹⁵⁴ *Gottschalk v Benson* 409 US 63 (1972). It is suggested by Ben McEniery “The Patentability of Non-Physical Inventions: Lessons from the United States” (2009) 35 Monash U L Rev 376 at 387, n 62 that this case was overruled on this point by the Supreme Court in *Diamond v Diehr* 450 US 175 (1981). However, subsequent cases have cited *Gottschalk v Benson* as authority for the exclusion of mental processes: *In re Comiskey* 554 3d 967 (Fed Cir 2009) at 978, n 12; *Laboratory Corporation of America Holdings v Metabolite Laboratories Inc* 548 US 124 (2006) at 127; *In re Ferguson* 558 F 3d 1359 (Fed Cir 2009) at 1363.

¹⁵⁵ *In re Freeman* 197 USPQ 464 (CCPA 1978) at 471; *In re Walter* 205 USPQ 397 (CCPA 1980) at 407; *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 953, n 6 (Michel CJ).

(b) *State Street Bank & Trust Co v Signature Financial Group Inc (State Street)*:¹⁵⁶ *The “useful, concrete and tangible result” test*

(i) The decision in *State Street*

Despite the highly inclusive language of s 101, prior to 1998 it was generally believed that business methods did not constitute patentable subject matter. The landmark decision of *State Street* represented a complete departure from this position. While *State Street* essentially dealt with the patentability of a computer program, it was an obiter dictum relating to business methods that had the most dramatic effect in US patent law. After reviewing the history of the so-called “business method exception”, the Court of Appeals for the Federal Circuit (Federal Circuit) thought it was time to “lay this ill-conceived exception to rest”,¹⁵⁷ concluding that business methods ought to be subject to the same requirements for patentability as all other processes.

In *State Street*, the Federal Circuit held that an abstract concept or mathematical algorithm would be patentable subject matter once it is reduced to some kind of “practical application”, that is, once it produces “a useful, concrete and tangible result”.¹⁵⁸ The invention in question was a computerised accounting system that used mathematical algorithms to manage mutual fund investment structures.¹⁵⁹ The system produced a “useful, concrete and tangible result” in the form of “a final share price momentarily fixed for recording and reporting purposes”,¹⁶⁰ and as such was patentable subject matter under s 101.

As awareness of the *State Street* decision began to spread, the US Patent and Trademark Office (USPTO) was inundated with a flood of applications for patents on business methods. While the exact number of business method patents issued before and after

¹⁵⁶ *State Street Bank & Trust Co v Signature Financial Group Inc* 149 F 3d 1368 (Fed Cir 1998).

¹⁵⁷ *Ibid*, at 1375.

¹⁵⁸ *Ibid*, at 1373.

¹⁵⁹ Signature Financial Group Inc was the assignee of US Patent No 5,193,056 for a “Data Processing System for Hub and Spoke Financial Services Configuration”. The data processing system implements a structure whereby international mutual funds (“spokes”) pool their assets in an investment portfolio (“hub”) organised as a partnership, providing the administrator of the mutual fund with the advantages of economies of scale in administering investments combined with the tax advantages of a partnership.

¹⁶⁰ *State Street Bank & Trust Co v Signature Financial Group Inc* 149 F 3d 1368 (Fed Cir 1998) at 1373.

State Street is difficult to determine,¹⁶¹ it is evident that the increase in both applications and grants was exponential.¹⁶² This “legal tsunami”¹⁶³ did not cause a retreat on the issue of business method patents, however, and several Federal Circuit decisions between 1999 and 2007 confirmed and applied the “useful, concrete and tangible result” test.¹⁶⁴

(ii) Comment

Unlike the approach in the UK and EU, the *State Street* test does not require that the invention belong to the technical realm.¹⁶⁵ Rather, the focus of the “useful, concrete and tangible result” test is the final product of the method, in a way that is reminiscent of the “artificially created state of affairs” requirement from the Australian *NRDC* case.

By merely requiring a useful output, the *State Street* test is exceedingly generous and has been widely criticised for allowing patents that range “from the somewhat ridiculous to the truly absurd.”¹⁶⁶ In the wake of this criticism, USPTO published a White Paper¹⁶⁷ asserting that business methods had always been patentable under US law and the recent growth in business method patents was instead due to “a change in

¹⁶¹ This is mainly due to the fact that United States Patent and Trademark Office (USPTO) Manual of Classification Class 705, generally considered to be the business method class, was only established in 1997.

¹⁶² Some estimations that indicate the huge rate of growth in business method patenting are: James Sfekas “Controlling Business Method Patents: How the Japanese Standard for Patenting Software Could Bring Reasonable Limitations to Business Method Patents in the United States” (2007) 16 *Pac Rim L & Pol’y J* 197, who notes that applications had increased to 2,821 in 1999 and to 7,800 in 2000; *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 1004, where Mayer J notes that applications for Class 705 increased from fewer than 1,000 in 1997 to more than 11,000 applications in 2007; Bronwyn Hall “Business Method Patents, Innovation, and Policy” (2009) 56 *Scottish Journal of Political Economy* 443, at 448, who uses a very broad definition of business method patents to estimate that USPTO granted upwards of 10,000 patents in 2002.

¹⁶³ *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 1004 (Mayer J).

¹⁶⁴ *AT&T Corporation v Excel Communications Inc* 172 F 3d 1352 (Fed Cir 1999); *In re Comiskey* 499 F 3d 1365 (Fed Cir 2007); *In re Nuijten* 500 F 3d 1346 (Fed Cir 2007).

¹⁶⁵ This is despite the constitutional right to grant patents being bestowed for the purpose of promoting “the progress of science and useful arts” (United States Constitution, art I, s 8, cl 8).

¹⁶⁶ *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 1004 (Mayer J). Examples include: a method of training janitors to dust and vacuum using pictorial displays (US Patent No 5,851,117); a method of using colour-coded bracelets to designate dating status in order to limit “the embarrassment of rejection” (US Patent No 7,255,277); a method of exercising a cat using a hand-held laser (US Patent No 5,443,036); a method of swinging on a swing, with the option of shouting “Tarzan” (US Patent No 6,368,227). Admittedly, these patents may have slipped through due to overworked examiners and a sparse prior art base – it is clear that many of them ought to have been rejected for obviousness.

¹⁶⁷ USPTO “Automated Financial or Management Data Processing Methods (Business Methods)” (2000).

the approach to how inventors choose to *describe* their inventions.”¹⁶⁸ This explanation does not accord with the wealth of evidence that, prior to *State Street*, people simply did not consider business methods to be patentable.¹⁶⁹

(c) *In re Bilski*:¹⁷⁰ *The machine-or-transformation test*

A decade after the *State Street* decision, the Federal Circuit issued a decision that narrowed the grounds on which business method patents could be issued. In *In re Bilski*,¹⁷¹ the Federal Circuit rejected the “useful, concrete and tangible result” test from *State Street* and held that the “machine-or-transformation” test outlined by the Supreme Court in *Gottschalk v Benson*¹⁷² and reaffirmed in *Diamond v Diehr*¹⁷³ is the “governing” test for determining when a process is patentable subject matter under s 101.¹⁷⁴

In re Bilski involved a patent application by Chicago businessmen Bernard Bilski and Rand Warsaw for a method of managing the consumption risk costs of a commodity sold at a fixed price. Claims one and four of the application consisted of a series of steps instructing generally how to hedge risk in commodities trading,¹⁷⁵ while the remaining claims described how the method could be specifically applied to the energy market so as to allow suppliers and consumers to minimise the risks arising from weather-related fluctuations in market demand. The method lacked a technological tie-in because it did not require a computer or other machine to operate. This feature of the application proved fatal at the examination stage, where the patent examiner rejected the application

¹⁶⁸ Ibid, Executive Summary (emphasis added).

¹⁶⁹ John Moetteli “Financial Services using New Business Methods enabled by Software are now Patentable in the United States – with Extraterritorial Effects” (1999) 2 Journal of World Intellectual Property 393 at 394; Malla Pollack “The Multiple Unconstitutionality of Business Method Patents: Common Sense, Congressional Consideration, and Constitutional History” (2002) 28 Rutgers Computer & Technology Law Journal 61 at 81–119.

¹⁷⁰ *In re Bilski* 545 F 3d 943 (Fed Cir 2008).

¹⁷¹ Ibid.

¹⁷² *Gottschalk v Benson* 409 US 63 (1972) at 70.

¹⁷³ *Diamond v Diehr* 450 US 175 (1981) at 184.

¹⁷⁴ *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 956.

¹⁷⁵ Claim 1 involved the following steps: (a) initiating a series of transactions between a commodity provider and consumers in which the consumers purchase the commodity at a fixed rate based on past prices; (b) identifying sellers of the commodity having a risk position with regard to the commodity contrary to that of the consumers; and (c) initiating a series of transactions between the commodity provider and the sellers at a fixed rate so that the risks of the consumers and the sellers balance.

because it was not directed to the “technological arts”.¹⁷⁶ The Board of Patent Appeals and Interferences (BPAI) rejected the examiner’s reliance on a “technological arts” test,¹⁷⁷ but nonetheless affirmed the rejection for the reason that the method was merely an abstract idea¹⁷⁸ and did not involve the transformation of any physical matter.¹⁷⁹

After ordering an en banc re-hearing of the case, the Federal Circuit agreed that the method did not pass the s 101 threshold. According to the majority:¹⁸⁰

A claimed process is surely patent-eligible under s 101 if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.

Because the method did not utilise a computer or other device, the first limb of the test was not at issue. In applying the second limb, the Federal Circuit reasoned that the transformation of articles is limited to the transformation of “physical objects or substances”.¹⁸¹ At most, the applicants’ method involved the transformation of abstract constructs such as organisational relationships and business risks,¹⁸² which clearly did not have the requisite physicality.

The majority emphasised that the underlying concern of the machine-or-transformation test was to prevent claims that pre-empt the use of fundamental principles such as laws of nature (including mathematical algorithms), physical phenomena or abstract concepts.¹⁸³ The conclusion that the applicants’ claim failed the machine-or-transformation test thus appeared to be the right one, given that a patent over the method “would effectively pre-empt any application of the fundamental concept of hedging and mathematical calculations inherent in hedging”.¹⁸⁴

¹⁷⁶ See *Ex parte Bilski* Appeal No 2002-2257 (BPAI 2006) at 3.

¹⁷⁷ *Ex parte Bilski* Appeal No 2002-2257 (BPAI 2006) at 41.

¹⁷⁸ *Ibid*, at 47.

¹⁷⁹ *Ibid*, at 43.

¹⁸⁰ *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 954.

¹⁸¹ *Ibid*, at 963.

¹⁸² For example, the applicants argued that their method “transforms the relationships between the commodity provider, the consumers and market participants”: Appellants Briefs at 11, quoted in *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 964.

¹⁸³ *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 954 and 963.

¹⁸⁴ *Ibid*, at 965–966.

In 2009, the Federal Circuit confirmed that the machine-or-transformation test was the “singular” test for determining patentable subject matter under s 101, regardless of whether a mathematical algorithm was involved.¹⁸⁵

(i) Tokenism

Mayer J, in a dissenting opinion to *In re Bilski*, argued that the machine-or-transformation test could easily be circumvented because “nearly every process claim can be rewritten to include a physical transformation.”¹⁸⁶ However, according to the majority, there are two important corollaries to the machine-or-transformation test that will ensure it cannot be circumvented by artful drafting. The essence of these corollaries is that, in order to impart patent-eligibility, the use of a specific machine or the transformation of an article must impose meaningful limits on the scope of the claimed process.

The first corollary is that “mere field-of-use limitations” – that is, limiting the claim to a particular industry or technological environment – “are generally insufficient to render an otherwise ineligible process claim patent-eligible.”¹⁸⁷ This meant that the claims in *In re Bilski* that were limited to hedging risk in the area of “consumable commodities” were equally as unpatentable as the claims to the hedging method in general, even though a patent over the limited claims would not pre-empt *all uses* of the method.

There is one problem with this reasoning. The Federal Circuit justifies its use of the machine-or-transformation test firmly on the basis that the “overall goal”¹⁸⁸ should be the prevention of “the wholesale pre-emption of fundamental principles”,¹⁸⁹ in order that these principles remain in the public domain as “part of the storehouse of knowledge of all men”.¹⁹⁰ However, the Federal Circuit then explains that even though limiting a claim to one field of use may substantially reduce the pre-emptive footprint of a patent, this will not save the claim because the *purpose* of the pre-emption rule is to

¹⁸⁵ *In re Ferguson* 558 F 3d 1359 (Fed Cir 2009) at 1365.

¹⁸⁶ *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 1008.

¹⁸⁷ *Ibid*, at 957.

¹⁸⁸ *Ibid*.

¹⁸⁹ *Ibid*.

¹⁹⁰ *Funk Bros Seed Co v Kalo Inoculant Co* 333 US 127 (1948) at 130, quoted in *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 952.

ensure patents are available only for specific applications of fundamental principles.¹⁹¹ Therefore, the Federal Circuit argues, “[p]re-emption of all uses of a fundamental principle in all fields and pre-emption of all uses of the principle in only one field both indicate that the claim is not limited to a particular application of the principle.”¹⁹²

The Federal Circuit’s explanation is illogical. While it is true that the primary focus should be to avoid the pre-emption of fundamental principles, this is not because patents ought to be limited to practical applications. Rather, it is important that fundamental principles are not monopolised because, as the basic tools of scientific and technological innovation,¹⁹³ removing them from the public domain would stifle innovation. If a claim on a fundamental principle is limited to one field of use and thus that principle can be freely used outside that field, why should it not be patentable? The Federal Circuit does not provide a satisfactory answer to this question. The Federal Circuit’s pre-occupation with allowing patents only for specific applications most likely reflects the same underlying concern as the UK/EU “as such” exclusion – namely, that patents ought not to be granted for inventions that do not involve technology.¹⁹⁴

The second corollary to the machine-or-transformation test is that “insignificant extra-solution activity” will not transform an otherwise unpatentable process into a patentable process.¹⁹⁵ In order to satisfy the s 101 threshold test, the transformation or the addition of a machine must be an integral part of the claimed process. As discussed in chapter two, an otherwise unpatentable business method cannot be converted into patentable subject matter merely by the recitation of a transformation or a machine that is peripheral to the substance of the business method. Steps such as the gathering, inputting, storage or displaying of data will often be characterised as mere “insignificant extra-solution activity”.¹⁹⁶

¹⁹¹ *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 957.

¹⁹² *Ibid.*

¹⁹³ *Gottschalk v Benson* 409 US 63 (1972) at 67.

¹⁹⁴ Compare to Stevens J in *Bilski v Kappos* 2010 US LEXIS 5521 (SC) at 54–87, who explicitly acknowledges that business methods do not come within the concept of the “useful arts” and as such are inherently unpatentable.

¹⁹⁵ *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 957, citing *Diamond v Diehr* 450 US 175 (1981) at 191–192 and *Parker v Flook* 437 US 584 (1978) at 590.

¹⁹⁶ *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 963; *Invention Pathways Pty Ltd* [2010] APO 10 (21 July 2010) at [38].

(ii) The machine-or-transformation test applied to business methods

To satisfy the “transformation” limb of the machine-or-transformation test, a business method must transform a physical article into a different state or thing. The Court in *In re Bilski* noted that the transformation of specific raw data into a *visual depiction* of a physical object or substance would be sufficient to satisfy the test,¹⁹⁷ but it gave no further guidance on the meaning of the word “physical”, an inquiry which the Federal Circuit had previously acknowledged can easily become “esoteric and metaphysical”.¹⁹⁸

Nonetheless, because most business methods transform abstractions such as business risks, organisational relationships or legal obligations rather than physical articles, business methods will usually not be patentable subject matter unless they are “tied to a particular machine or apparatus”. While the Federal Circuit in *In re Bilski* left open the question of whether recitation of a general-purpose computer would be sufficient to tie a process claim to a particular machine,¹⁹⁹ that question was swiftly answered in the negative by the BPAI in *Ex parte Langemyr*²⁰⁰ and *Ex parte Wasynczuk*.²⁰¹

Moreover, even when they do involve computers that cannot be described as “general-purpose”, business methods are typically tied to these computers in a superficial way, such as using a computer to receive input or store information in a database.²⁰² The common ways in which business methods involve machines are thus vulnerable to being rejected as “insignificant extra-solution activity”.²⁰³

Business methods involving software have similar difficulty in satisfying the machine-or-transformation test. Because software is often coded to be independent of the

¹⁹⁷ *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 963, referring to the decision in *In re Abele* 684 F 2d 902 (CCPA 1982).

¹⁹⁸ *In re Nuijten* 500 F 3d 1346 (Fed Cir 2007) at 1353.

¹⁹⁹ *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 962.

²⁰⁰ *Ex parte Langemyr* (BPAI 2008).

²⁰¹ *Ex parte Wasynczuk* (BPAI 2008).

²⁰² Elizabeth Ruzich “*In re Bilski* and the future of business method and software patents” (2009) 50 IDEA 103 at 106.

²⁰³ See for example *Ex parte Gutta* Appeal No 2008-3000 (BPAI 2009), where a computer that displayed the results of the calculations involved in the claimed process was characterised as insignificant post-solution activity.

computer system on which it is executed,²⁰⁴ it will usually not be tied to a *particular* machine. After *In re Bilski*, the BPAI considered several applications for software-related methods. While these decisions are too complex to be considered in detail here, the general theme is that method claims involving software that runs on a general-purpose computer will not satisfy the machine limb of the test, no matter how the software is claimed.²⁰⁵

The Federal Circuit in *In re Bilski* clearly held that there is no categorical prohibition of business method patents.²⁰⁶ However, it will be very difficult for a business method to satisfy either limb of the machine-or-transformation test. By declaring the machine-or-transformation test to be the exclusive test for determining patentable subject matter under s 101, the Federal Circuit thus managed to bring an end to the proliferation of business method patents.

(d) *Bilski v Kappos*:²⁰⁷ *Back to basics*

In January 2009, *Bilski* and *Warsaw* petitioned the Supreme Court for a writ of certiorari, seeking to overturn the decision of the Federal Circuit. It was granted in June 2009, and the Supreme Court released its decision in June 2010. The justices of the Supreme Court all agreed that the Federal Circuit erred in its statement that the machine-or-transformation test was the sole test for patentability under s 101. The Supreme Court held that while the machine-or-transformation test is “a useful and important clue, an investigative tool,”²⁰⁸ it is not the exclusive test.

While all the justices agreed that the claimed invention was not patentable subject matter, there were two different opinions as to how this result should be explained. Kennedy J, who delivered the opinion of the majority, thought that because the

²⁰⁴ Sherly Abraham “Software patents in the United States: A balanced approach” (2009) 25 Computer Law & Security Review 554 at 557.

²⁰⁵ See, for example *Ex parte Halligan* 89 USPQ 2d 1355 (BPAI 2008); *Ex parte Gutta* 2008-3000 (BPAI 2009); *Ex parte Scholl* Appeal No 2008-2308 (BPAI 2009); See also *Ex parte Cornea-Hasegan* 89 USPQ 2d 1557 (BPAI 2009), which held that a computer programmed to perform specific functions is “nothing more than a general purpose computer”, directly contradicting *In re Alappat* 33 F 3d 1526 (Fed Cir 1994), which was not overruled by *In re Bilski* 545 F 3d 943 (Fed Cir 2008).

²⁰⁶ *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 960.

²⁰⁷ *Bilski v Kappos* 2010 US LEXIS 5521 (SC).

²⁰⁸ *Ibid*, at 18.

petitioners' claims were directed to the "fundamental economic practice"²⁰⁹ of hedging, they ought to be rejected as claims to an unpatentable abstract idea.²¹⁰ The exclusion of abstract concepts from patentability had been "well-established"²¹¹ since *Gottschalk v Benson*,²¹² *Parker v Flook*²¹³ and *Diamond v Diehr*.²¹⁴

In a separate opinion, Stevens J argued that the majority's reliance on the unpatentability of abstract concepts would cause mischief.²¹⁵ He would "restore patent law to its historical and constitutional moorings"²¹⁶ by finding that the claims merely described a "general" method of doing business, "and business methods are not patentable."²¹⁷ Stevens J argued that the history and purpose of US patent law supported his conclusion that the term "process" is limited to technological and industrial methods,²¹⁸ and that business methods do not qualify for patent protection.²¹⁹ As pointed out by Stevens J,²²⁰ the majority does not explain what exactly constitutes an unpatentable abstract idea. In particular, the majority does not explain what was abstract about the claims that described the hedging method as applied to the energy market.

The majority emphasised that the unpatentability of abstract ideas is only one aspect to consider when determining the patentability of a process under s 101. The machine-or-transformation test remains a useful tool, and the Federal Circuit is not precluded from developing other "limiting criteria", so long as they are not inconsistent with the purpose and text of the Patent Act.²²¹ The fact that multiple tests may be applied makes the application of s 101 considerably more difficult. Interim guidance issued to patent examiners following *Bilski v Kappos*²²² requires examiners to undertake a "factor-based

²⁰⁹ Ibid, at 29.

²¹⁰ Note that Rader J in the Federal Circuit would have rejected the claimed invention on this basis: *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 1011.

²¹¹ Ibid, at 16.

²¹² *Gottschalk v Benson* 409 US 63 (1972).

²¹³ *Parker v Flook* 437 US 584 (1978).

²¹⁴ *Diamond v Diehr* 450 US 175 (1981).

²¹⁵ *Bilski v Kappos* 2010 US LEXIS 5521 (SC) at 34.

²¹⁶ Ibid, at 33.

²¹⁷ Ibid, at 34.

²¹⁸ Ibid, at 49.

²¹⁹ Ibid, at 67: "regardless of how one construes the term 'useful arts,' business methods are not included."

²²⁰ Ibid, at 45.

²²¹ Ibid, at 32.

²²² USPTO "Interim Guidance for Determining Subject Matter Eligibility for Process Claims in View of *Bilski v Kappos*", Federal Register, July 27 2010.

inquiry” in which satisfaction of the machine-or-transformation test is a factor weighing in favour of patent-eligibility, whereas evidence that the claim is directed to an abstract idea is a factor weighing against patent-eligibility. Under this approach, it will often be difficult for inventors to predict the outcome of their patent application. For example, consider the method in *State Street*. On the one hand, the method of allocating assets at issue in that case could be considered equally as abstract as the method of hedging risk in *Bilski*. On the other hand, unlike the hedging method, the *State Street* method was closely tied to a machine²²³ and would therefore be likely to satisfy the machine-or-transformation test. How much weight is to be given to each of these factors?

(e) Conclusion

The approach of the US courts to the issue of business method patents has swung from the broad test in *State Street* to the narrow requirements of the machine-or-transformation test in *In re Bilski*. The approach of the Supreme Court in *Bilski v Kappos* falls somewhere in the middle. Some commentators have found the Supreme Court’s simplistic approach unsatisfying because it “provides no new lines to be avoided.”²²⁴ It is true that the full effect of the decision in *Bilski v Kappos* may not be known for some time, because the crucial question of how abstract is too abstract has been left for future courts. However, by returning to the basic principle of the unpatentability of abstract concepts, the Supreme Court is providing an opportunity for the issue of patentable subject matter, and in particular the relationship between patent law and business methods, to be looked at afresh.

²²³ The “computer processor means [a personal computer including a CPU]” specified in claim 1 that carries out the necessary financial calculations. The Federal Circuit concludes that “claim 1, properly construed, claims a machine, namely, a data processing system for managing a financial services configuration of a portfolio established as a partnership...”: see *State Street Bank & Trust Co v Signature Financial Group Inc* 149 F 3d 1368 (Fed Cir 1998) at 1371–1372.

²²⁴ Dennis Crouch “*Bilski v Kappos*” (28 June 2010) Patently-O <www.patentlyo.com>.

CHAPTER FOUR: EXPLORING THE OBJECTIONS TO PATENTS FOR PURE BUSINESS METHODS

4.1 Introduction

As discussed in the two preceding chapters, *pure* business methods²²⁵ generally will not qualify for patent protection in the jurisdictions considered. This chapter will focus on explaining why this position is justified by exploring the three main objections to pure business method patents. The first objection is that because patents for pure business methods do not provide any significant incentive for innovation, the patent monopoly cannot be justified. Second, it is argued that patents for pure business methods pose a substantial risk of stifling further innovation. The third objection is that the patent system ought to be limited to the protection of innovations in technology, and pure business methods do not represent technical advances.

4.2 Justifications for the Patent Monopoly

The principal incentive offered by a patent is the exclusive right to operate and sell the patented invention, allowing patent holders to receive a higher return on their investment by defeating free-riders. The patent monopoly is justified where the advantages of encouraging the invention and disclosure of new technologies outweigh the social costs of the monopoly.²²⁶ The overall goal is to maximise public welfare.²²⁷ In the case of pure business methods, however, the prospect of patent protection is unlikely to provide any significant incentive to invent new business methods or to disclose those already invented.

²²⁵ To reiterate, “pure business methods” is the term used in this paper to refer to business methods that are claimed in and of themselves, as opposed to technological applications of the business method in the form of a physical device (such as a smart card or a computer) or a computer program.

²²⁶ The social costs of a patent monopoly include: artificially high prices (resulting in the invention being used by fewer people), misallocation of resources, and transaction costs (for example, the costs involved in negotiating licensing agreements, litigation costs for invalidity and infringement proceedings and costs of ensuring non-infringement).

²²⁷ See for example *Pfizer Inc v Commissioner of Patents* [2005] 1 NZLR 362 (CA) at [110], per Hammond J, noting that “[p]atents after all are granted in the public interest – there is no other public policy justification for the monopoly”.

(a) Incentives to innovate

The traditional justification for the patent system is that without the limited monopoly conferred by a patent, competitors would immediately copy and market the invention, thus appropriating the resources expended by the innovator. Without the ability to restrict competition, there will be no economic incentive to innovate, because the inventor cannot recover the costs of innovating and begin to turn a profit. In the area of pure business methods, however, the lack of patent protection in the past does not seem to have inhibited innovation. As recently pointed out by a Deputy Judge in the British Patents Court:²²⁸

...the invention of money; of double-entry bookkeeping;...of joint-stock companies; of insurance policies; of clearance banking; of business name franchising; of the supermarket...None of these needed patent protection to get started.

Patent protection is thus an unlikely inducement for the creation of new pure business methods. The reason for this is that innovation in pure business methods is fundamentally different to innovation in the more traditionally patented fields of science and technology. Because better business methods directly create revenue for the businesses that invent them, business methods generate their own incentives and are thus inherently unlikely to be under-produced due to market failure.²²⁹

Pure business methods are able to provide a competitive advantage in the market without the monopoly conferred by a patent because there are several other sources of protection from competitors. The most effective form of protection will depend on the nature of the business method. For pure business methods that are completely internal to a business (such as managerial and accounting methods), trade secrecy protection²³⁰ and

²²⁸ *CFPH LLC, Patent Applications GB 0226884.3 & 0419317.3* [2005] EWHC 1589 (Pat) at [41].

²²⁹ Malla Pollack “The Multiple Unconstitutionality of Business Method Patents: Common Sense, Congressional Consideration, and Constitutional History” (2002) 28 Rutgers Computer & Technology Law Journal 61 at 75–76.

²³⁰ In New Zealand, it is a crime to knowingly and dishonestly take or copy a document, model or other depiction of something containing or embodying a trade secret: Crimes Act 1961, s 230(1). A business method will be a “trade secret” when it is used industrially or commercially, is not generally available in the industry, has economic value to the business that uses it, and where all reasonable efforts have been made to preserve its secrecy: Crimes Act 1961, s 230(2).

confidentiality clauses in employment contracts will often be sufficient to prevent competitors acquiring the method.

For business methods that are highly visible to the public (such as methods relating to customer service, advertising and transacting), “first mover advantages” such as network effects (where the value of a product rises as the number of adopters increases²³¹) and lock-in effects (where the cost of switching products or providers is nontrivial²³²) usually provide an adequate buffer from competition. Once a business method locks in users or creates a substantial network, it becomes significantly more difficult for rival businesses to compete.²³³ Because business methods that are visible to the public often provide services that consumers use on a regular basis, they are more likely than product inventions to benefit from first mover advantages.²³⁴ By extending the advantage of being the first to the marketplace, business method innovators are able to recoup costs and capture profits before competitors appear.

Even once competitors do appear, it may often take them longer to replicate a pure business method than it would to copy other types of inventions. Even where benchmarking – the practice of investigating competitors’ methods – is unproblematic, the obstacles to implementing the method within the structure and culture of the rival’s firm may be significant.²³⁵

In addition to enjoying a comparatively long period of exclusive exploitation, pure business method innovators are also likely to recoup the costs of creating the method faster than innovators of technology. This is because pure business methods involve relatively low research and development costs, particularly in comparison to the

²³¹ Rochelle Dreyfuss “*State Street* or Easy Street: Is Patenting Business Methods Good For Business?” in Hugh Hanson (ed) *US Intellectual Property Law and Policy* (Cheltenham, UK; Northampton, MA, USA, Edward Elgar, 2006) 1 at 17.

²³² Ibid.

²³³ For example, local auction website Trade Me managed to prevent eBay from entering the New Zealand market partially through lock-in and network effects. Users did not want to list their item on multiple auction websites, because there is a fee for each listing. Consequently, most users preferred to remain with the website that was first to the marketplace, Trade Me.

²³⁴ Admittedly, not all non-secret business methods will enjoy first mover advantages.

²³⁵ See Claudia H. Deutsch “Competitors Can Teach You a Lot, but the Lessons Can Hurt: The Many Obstacles to Benchmarking” *New York Times* (July 18 1999), accessed at <www.nytimes.com>; Rochelle Dreyfuss, “*State Street* or Easy Street: Is Patenting Business Methods Good For Business?” in Hugh Hanson (ed) *US Intellectual Property Law and Policy* (Cheltenham, UK; Northampton, MA, USA, Edward Elgar, 2006) 1 at 29.

development of new pharmaceuticals and biotechnology.²³⁶ In a dissenting opinion to the decision of the Federal Circuit in *In re Bilski*, Mayer J noted that the development of the hedging method that was the subject of that case likely involved the expense of “only nominal sums”.²³⁷ It is probable that similarly low costs were involved in the creation of the pure business methods at issue in *Grant*²³⁸ (a method of structuring a financial transaction so as to protect assets from judgment creditors) and *Invention Pathways*²³⁹ (a method for commercialising inventions).²⁴⁰

In summary, pure business method inventions typically enjoy a comparatively lengthy head start in the marketplace, yet require a relatively short period in which to recover the costs of innovation. Pure business methods therefore do not encounter the kind of free-rider problems that patents were designed to solve, and the reward of a patent is not required to stimulate their innovation.²⁴¹

One exception to this conclusion relates to situations where the ability to license the business method is the primary reason for its creation. For example, “patent factories”²⁴² – firms that patent innovations for the sole purpose of licensing them to other companies – will have no incentive to develop pure business methods if they are not patentable. Another example would be small start-up companies that are unable to immediately capture the full economic benefit of a business method themselves and which require the opportunity to license in order to attract venture capital.²⁴³

²³⁶ Sam Ricketson “Business Method Patents – A Matter of Convenience? (The Stephen Stewart Memorial Lecture 2002)” (2003) 2 IPQ 97 at 127.

²³⁷ *In re Bilski* 545 F 3d 943 (Fed Cir 2008) at 1006.

²³⁸ *Grant v Commissioner of Patents* [2006] FCAFC 120.

²³⁹ *Invention Pathways Pty Ltd* [2010] APO 10 (21 July 2010).

²⁴⁰ There are exceptions to this. Some pure business methods will involve large research costs in the form of market research, operations management and logistics.

²⁴¹ This conclusion is consistent with the view of the UK Government, which in 2001, after a process of consultation, found that “[t]hose who favour some form of patentability for business methods have not provided the necessary evidence that it would be likely to increase innovation.”: Ministry of Economic Development *Review of the Patents Act 1953 Stage 3: Boundaries to Patentability: A Discussion Paper* (March 2002) at [196]; Compare the view of Australia’s Advisory Council on Intellectual Property (ACIP) in 2003 that evidence that patent rights are needed to stimulate innovation in “business systems” was inconclusive: *ACIP Report on a Review of the Patenting of Business Systems* (September 2003) at [10.1].

²⁴² See Samidh Chakrabarti “Business Method Patents: A Faustian Bargain with Fosbury Flops” (MPhil in Technology Policy Dissertation, University of Cambridge, 2005) which finds that “patent factories” are the only companies that clearly benefit from business method patents.

²⁴³ Alexandra Sims “The Patentability of Business Methods” (2004) 10 New Zealand Business Law Quarterly 363 at 376; Nicholas Smith “Business Method Patents and their Limits: Justifications, History,

(b) *Incentives to disclose*

A secondary justification for the patent monopoly is that by requiring full disclosure of the invention in return for the patent, the public gains the benefit of the knowledge embodied in the innovation. Disclosure and dissemination benefits the public in three main ways: it avoids the duplication of innovative effort; it allows other inventors to view and improve on the invention, further stimulating innovation; and it enables manufacture and use of the invention by the public upon expiry of the patent term. In essence, disclosure is beneficial because “[t]he cumulative and interconnected evolution of knowledge is disturbed by secrecy”.²⁴⁴

It was suggested by Stevens J in *Bilski v Kappos* that in the case of business methods, disclosure would not benefit the public, because non-disclosure “‘encourages businesses to initiate new and individualised plans of operation,’ which ‘in turn, leads to a greater variety of business methods.’”²⁴⁵ This argument could, however, be made against the disclosure of any type of invention. Patent law has consistently favoured the view that disclosure benefits the public more than encouraging individual effort. Business innovators are equally as capable of drawing on each other’s innovations as creators of more traditional patented technology.²⁴⁶

Proceeding on the assumption that disclosure of innovation is always desirable, the reward of a patent is unlikely to provide significant incentive for the disclosure of pure business methods that would otherwise remain with the inventor. For pure business methods that are practised in public and are thus unable to be kept secret, a patent is clearly not required to encourage disclosure of what is already known. With regard to internally-operated pure business methods that can be hidden from competitors, a patent

and the Emergence of a Claim Construction Jurisprudence” (2002) 9 Mich Telecomm Tech L Rev 171 at 176.

²⁴⁴ William van Caenegem *Intellectual Property Law and Innovation* (Cambridge University Press, New York, 2007) at 7.

²⁴⁵ *Bilski v Kappos* 2010 US LEXIS 5521 (SC) at 103, per Stevens J, quoting from *Kewanee Oil Co v Bicron Corp* 416 US 470 (1974).

²⁴⁶ Nicholas Smith “Business Method Patents and their Limits: Justifications, History, and the Emergence of a Claim Construction Jurisprudence” (2002) 9 Mich Telecomm Tech L Rev 171 at 184.

may not always encourage disclosure, because “if the innovator *can* exploit knowledge while retaining secrecy it is sensible to do so.”²⁴⁷

However, there are two significant benefits of patenting that may outweigh the benefits of secrecy: there may be lucrative opportunities to license a patented business method; and a business method patent can be added to the intellectual property portfolio of the company, increasing its book value. Extending patent protection to pure business methods is therefore likely to encourage their disclosure in some cases. In my view, the potential benefit of encouraging the disclosure of an unknown number of pure business methods does not outweigh the likelihood that patent protection will not significantly stimulate innovation. Disclosure of useful inventions is an important advantage, but it is ancillary to the main purpose of the patent system, which is to promote public welfare by providing an incentive for innovation that would not otherwise occur. Because patents for pure business methods are unlikely to be welfare-enhancing in this way, the patent monopoly cannot be justified.

4.3 The Stifling of Innovation

The most common objection to patents for pure business methods is that by allowing some businesses to monopolise the systems underlying how businesses operate in the marketplace, innovation in this area will be stifled.

(a) The building blocks of innovation

The first strand to this argument is that business methods in their pure form are similar to the fundamental principles that are traditionally excluded from patentability. The courts have held that laws of nature,²⁴⁸ natural phenomena²⁴⁹ and abstract ideas²⁵⁰ are excluded from patentability on policy grounds.²⁵¹ The rationale for these judicial exclusions is that these fundamental principles are the “basic tools of scientific and

²⁴⁷ William van Caenegem *Intellectual Property Law and Innovation* (Cambridge University Press, New York, 2007) at 6.

²⁴⁸ *Pfizer Inc v Commissioner of Patents* [2005] 1 NZLR 362 (CA) at [104].

²⁴⁹ *Application by George N Haddad* (2 May 2000), Assistant Commissioner Popplewell, Patent Application No 333267, Patent Office at 6, quoting *Gottschalk v Benson* 409 US 63 (1972) at 67.

²⁵⁰ *Pfizer Inc v Commissioner of Patents* [2005] 1 NZLR 362 (CA) at [105].

²⁵¹ *Ibid*, at [114].

technological work”,²⁵² and ought to remain in the public domain as “part of the storehouse of knowledge...free to all men and reserved exclusively to none.”²⁵³

It is commonly argued that pure business methods are the fundamental tools for economic competition²⁵⁴ and that businesses require unimpeded access to basic commercial mechanisms before they can even enter the marketplace. Allowing these fundamental tools to be privatised would thus unduly inhibit competition. However, the restriction of competition is not a sufficient basis for exclusion from patentability. Market interference and an impediment to competition are, after all, at the core of the patent system. To justify a categorical ban on patents for pure business methods, it must be shown that, like laws of nature, pure business methods represent “upstream” knowledge – that is, the raw material for an inventor – and that a monopoly on this knowledge would pre-empt its use in “downstream” applications.²⁵⁵

In some cases, pure business methods will constitute the building blocks of further innovation. For example, imagine if someone had been able to patent the method of storing a customer’s credit card details at the point of first purchase so that a regular customer does not have to supply that information again during subsequent purchases. Not only would every pub in the country that wished to start using a bar tab system potentially be required to pay royalties to the patentee,²⁵⁶ but Amazon.com may not have considered it worth the expense to develop its “one-click” software, which has subsequently been licensed by Apple Inc for use in the iTunes Store and iPhoto.²⁵⁷

However, business methods will often have direct application in their pure form. Unlike laws of nature such as mathematical algorithms and the law of gravity, which have no

²⁵² *Gottschalk v Benson* 409 US 63 (1972) at 67, referred to in *Application by George N Haddad* (2 May 2000), Assistant Commissioner Popplewell, Patent Application No 333267, Patent Office at 6.

²⁵³ *Funk Bros Seed Co v Kalo Inoculant Co* 333 US 127 (1948) at 130, quoted in *Bilski v Kappos* 2010 US LEXIS 5521 (SC) at 952.

²⁵⁴ Nicholas Smith “Business Method Patents and their Limits: Justifications, History, and the Emergence of a Claim Construction Jurisprudence” (2002) 9 Mich Telecomm Tech L Rev 171 at 183.

²⁵⁵ For example, mathematical algorithms (which are a type of natural law) cannot be patented because they form the basis of a large number of useful products and processes, and have particular utility in computer programming.

²⁵⁶ Alexandra Sims “The Patentability of Business Methods” (2004) 10 New Zealand Business Law Quarterly 363 at 369.

²⁵⁷ The reader may be wondering why the lack of an opportunity to patent its software would have mattered to Amazon.com if, as already argued, business methods generate their own incentives. However, as will be explained in chapter five, the patent incentive may be necessary to encourage innovation in the case of *technological implementations* of business methods.

commercial application on their own, pure business methods can often be applied directly to achieve useful results in a business, without the use of software or machines. Pure business methods are therefore not directly analogous to fundamental principles because they can represent both upstream and downstream knowledge. The issue seems to be one of abstraction: the more broad and abstract the business method, the greater the chance that it will pre-empt useful applications, and the greater the stifling effect on innovation.²⁵⁸ If the goal is to avoid restricting the public's access to the basic tools of innovation, ruling out patents for *all* pure business methods may go too far.

(b) Invalid patents

Another common argument against patents for pure business methods is that, due to the absence of a prior art base in this area, a large number of patents will be granted for pure business methods that are neither new nor inventive. Because the creation of business methods has occurred for centuries without patent protection, the vast majority of existing business methods will not be recorded in the prior art databases available to patent examiners.²⁵⁹ This difficulty also applies to businesses, which may not know if they are engaging in infringing practices. Even if a business becomes aware of a patent that has dubious claims to novelty and inventiveness, the costs of challenging the patent in court may be prohibitive.

Patents for inventions that are not new or are obvious improvements on the prior art impose a cost on society in the form of higher prices and transaction costs (including the costs of applying for and examining the patent, negotiating licence agreements and infringement and revocation proceedings) without any compensatory benefit in the form of an invention that would not otherwise exist. Such patents therefore serve to block rather than encourage innovation.

If pure business methods were to become eligible for patent protection in New Zealand today, the risk of patents being granted for known or obvious business methods would be a very real one, especially given the current practice of IPONZ not to examine for

²⁵⁸ See *Bilski v Kappos* 2010 US LEXIS 5521 (SC) at 104 (Stevens J).

²⁵⁹ With respect to patents for pure business methods that have been granted, these will often be difficult to locate, as business methods may pertain to multiple industries (see chapter one at 1.1) and may not be limited to a single category of their own.

inventive step. However, the Patents Bill 2008 introduces several changes that will substantially reduce this risk. In particular, applications will be examined for inventive step²⁶⁰ and there will be a move from a local to an international standard for novelty and inventive step,²⁶¹ which will provide a more substantial prior art base.²⁶² The Commissioner will also no longer be required to give applicants the benefit of the doubt when deciding whether to grant a patent.²⁶³ Patents will generally be more difficult to obtain, and they will also be easier to challenge.²⁶⁴

It could be argued that even once these changes take effect in New Zealand, the lack of a global comprehensive prior art base in the area of pure business methods will still result in patents of suspect validity. However, this problem is not peculiar to business methods; the same concern will arise with any type of invention where the birth of the field is not contemporaneous with patent protection being afforded to that field.²⁶⁵ Due to the high value that patents hold for businesses, it is likely that the gaps in the prior art base will be filled rapidly, and the risk of patents being granted for business methods that are not new or inventive will consequently be short-lived.

4.4 The Technology Requirement

(a) Scope of the patent system

The third main objection to the patenting of pure business methods is that these types of methods are beyond the scope of the patent system. Put simply, patents are properly

²⁶⁰ Patents Bill 2008 (235-1), cl 13(b)(ii), cl 60(1)(b).

²⁶¹ Ibid, cl 8(1).

²⁶² A decade of pure business method patenting in the US under the loose requirements of *State Street* means that there will already be a substantial prior art base against which New Zealand applications will be examined. However, this prior art base will not continue to grow unless the current rules that prohibit patents for pure business method patents in the US, Australia, UK and EU are overturned.

²⁶³ Patents Bill 2008 (235-2), cl 60(1)(a).

²⁶⁴ In particular, the Patents Bill provides for a re-examination procedure (Patents Bill 2008 (235-1), cl 88–92) that allows any person to request re-examination of a patent, without a hearing, by the Commissioner before or after grant on the ground that the claimed invention is not novel or does not involve an inventive step.

²⁶⁵ Rochelle Dreyfuss, “*State Street* or Easy Street: Is Patenting Business Methods Good For Business?” in Hugh Hanson (ed) *US Intellectual Property Law and Policy* (Cheltenham, UK; Northampton, MA, USA, Edward Elgar, 2006) 1 at 3.

reserved for advances in technology,²⁶⁶ and pure business methods do not fall within the concept of technology.

By its accession to the World Trade Organisation's (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), New Zealand has undertaken to provide patents for "any inventions, whether products or processes, in all fields of technology".²⁶⁷ While the requirement that an invention must belong to the "useful arts" – a term which is said to be synonymous with "technological arts"²⁶⁸ – is often not expressly acknowledged, the courts have never purported to exceed New Zealand's obligations under TRIPS by extending patent rights to non-technological inventions.²⁶⁹

Some commentators are strongly critical of the technology requirement, arguing inter alia that it was erected during an age of rapid development in manufacturing technology and is no longer a relevant or useful indicator of the boundaries of the patent system.²⁷⁰ Determining whether this critique is justified would involve an extensive inquiry that is beyond the scope of this paper. For present purposes, what can be said with reasonable certainty is that patent law in New Zealand remains bound to its industrial roots, and the courts are unlikely to extend patent protection to processes that do not belong to a "field of technology". The issue then becomes whether there is a reasonable construction of the concept of "technology" that would include methods of doing business in their pure form.

²⁶⁶ See for example Ian Finch (ed) *James & Wells Intellectual Property Law in New Zealand* (Brookers, Wellington, 2007) at [2.1]: "Patent legislation is designed to provide an incentive for innovation and the introduction of new technology into New Zealand."

²⁶⁷ Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), art 27(1).

²⁶⁸ John Thomas "The Patenting of the Liberal Professions" (1999) 40 Boston College Law Review 1139 at 1140.

²⁶⁹ In New Zealand, whether "useful arts" is a requirement for patentable subject matter is uncertain following the decision in *Hughes Aircraft Application* (3 May 1995) Commissioner Popplewell, Patent Application Nos 221147, 233797 and 233798, Patent Office. Despite this, the courts have not held any non-technological processes to be patentable subject matter. As discussed in chapter two, patent applications for pure business methods are usually refused due to a lack of an "artificially created state of affairs".

²⁷⁰ For discussion of this issue, see: William van Caenegem *Intellectual Property Law and Innovation* (Cambridge University Press, New York, 2007) at 7; William van Caenegem "The Technicality Requirement, Patent Scope and Patentable Subject Matter in Australia" (2002) 13 Australian Intellectual Property Journal 41; Reinier Bakels "Software Patentability: What are the Right Questions?" (2009) 31 EIPR 514.

(b) Relationship between patents and other intellectual property rights

An explanation for the limitation of patent law to technological innovations can be found in its relationship with other intellectual property rights. Patent protection is the strongest form of intellectual property protection; patents are therefore reserved for technology because it is only technological innovations that require a true economic monopoly to ensure optimal levels of innovation.

The relationship between patent law and copyright law is particularly relevant here. Patent protection is concerned with the *useful* arts because it is considered that the *fine* arts are adequately protected by copyright law. The fine arts are normally taken to include those arts which “seek expression through beautiful or significant modes, as painting, sculpture, music and other aesthetic creations.”²⁷¹ Copyright protects the creative element in a work; consequently, it is the particular form of expression of the work that is protected, rather than the underlying idea.

However, entrepreneurs want to protect more than an aesthetic; they want to stop rivals from using their methods. While a patent over a pure business method will protect the underlying method, copyright protection will only protect the literal expression of that method. Copyright may attach, for example, to documents, databases, compilations, flowcharts and menus used or created in the operation of the method. This offers very little protection to pure business methods, where the value lies in how the invention works, rather than how it looks.²⁷²

The main attraction of patent protection, however, is that it prevents competitors from using the patented invention even in situations where the competitor can show that it came up with the invention on its own. Copyright, on the other hand, only protects against certain specified uses of the copyrighted work;²⁷³ while copying the work will

²⁷¹ IP Australia *Australian Patent Office Manual of Practice and Procedure* at [2.9.2.4] <www.ipaustralia.gov.au>.

²⁷² A famous example of the inadequacies of copyright for protecting business methods can be seen in the decision in *Baker v Selden* 101 US 99 (1879), where copyright over a book explaining a novel method of double-entry bookkeeping did not prohibit the teachings of the book because “there is a clear distinction between the book, as such, and the art which it is intended to illustrate”: at 102. For a more recent example, see *Merritt Forbes & Co Inc v Newman Investment Securities Inc* 604 F Supp 943 (SDNY 1985).

²⁷³ The acts restricted by copyright are set out in the Copyright Act 1994, s 16(1).

infringe, purely independent creation will not. In an area where parallel innovation is likely to be prevalent, only patent protection offers a true monopoly.

It could be argued that the inadequacy of copyright law to protect pure business methods necessitates that pure business methods are considered within the realm of the useful arts and therefore within the reach of patent protection. However, this argument would only be valid if intellectual property rights of some kind were required to stimulate innovation. As argued above, there already exist sufficient incentives for the development of new pure business methods. The relationship between patent law and copyright law thus does not provide sufficient basis for a definition of “technology” that is inclusive of pure business methods.

(c) Defining technology

Determining what exactly the concept of technology includes is a highly contentious matter. In the words of John Thomas, “[i]dentifying the ontic dimension of technology has perplexed not only the courts, but epistemologists and the most accomplished of technological observers as well.”²⁷⁴ Defining technology has become increasingly difficult in the digital era, where the lack of physical parameters has blurred the distinction between the technical and the theoretical.

While I will not attempt to formulate a precise definition of technology, there are several characteristics that can be attributed to technology. First, technology is routinely conceptualised in *physical* terms. For example, technology has been defined as the “manipulation of physical objects”,²⁷⁵ the application of knowledge “to create or use physical artifacts”²⁷⁶ and as “arising from the fields of the natural or physical sciences.”²⁷⁷ It is often described as a branch of knowledge that deals with the

²⁷⁴ John Thomas “The Patenting of the Liberal Professions” (1999) 40 Boston College Law Review 1139 at 1142.

²⁷⁵ Malla Pollack “The Multiple Unconstitutionality of Business Method Patents: Common Sense, Congressional Consideration, and Constitutional History” (2002) 28 Rutgers Computer & Technology Law Journal 61 at 86.

²⁷⁶ John Thomas “The Patenting of the Liberal Professions” (1999) 40 Boston College Law Review 1139 at 1173.

²⁷⁷ Teresa Cheung and Ruth Corbin “Is There a Method to the Madness? The Persisting Controversy of Patenting Business Methods” (2005) 19 IPJ 29 at 70.

“mechanical arts”²⁷⁸ and is also intrinsically linked to the manufacture of tangible products.²⁷⁹ Pure business methods do not exhibit any of these features.

Despite this, courts are often unwilling to state unequivocally that pure business methods are not technical in nature. The UK Court of Appeal in *Aerotel/Macrossan*, for example, considered that “[w]hether ‘methods for...doing business’ are a ‘field of technology’ within the meaning of TRIPS is perhaps debatable.”²⁸⁰ To encompass pure business methods, a definition of technology would need to be exceptionally broad, such as “[k]nowledge ready for immediate application...in contrast to theoretical knowledge.”²⁸¹

Such a broad definition would, however, strip the technology requirement of all meaning. Without a requirement that the invention involve physical, tangible, or mechanical elements, patents would be available for human activity of almost any kind.²⁸² This would destroy the important distinction between those innovations that require the strong protection afforded by patents and the remainder of human endeavour. It would also serve to upset the balance between patent rights and weaker forms of intellectual property protection.

In summary, regardless of the exact parameters of the concept of technology, it is clear that pure business methods do not come within them. In this respect I entirely agree with Stevens J in *Bilski v Kappos* when he concludes that “regardless of how one construes the term ‘useful arts,’ business methods are not included.”²⁸³

²⁷⁸ *Shorter Oxford English Dictionary* (6th ed, Oxford University Press, New York, 2007); Malla Pollack “The Multiple Unconstitutionality of Business Method Patents: Common Sense, Congressional Consideration, and Constitutional History” (2002) 28 Rutgers Computer & Technology Law Journal 61 at 86.

²⁷⁹ John Thomas “The Patenting of the Liberal Professions” (1999) 40 Boston College Law Review 1139 at 1142.

²⁸⁰ *Aerotel Ltd v Telco Holdings Ltd; Re Macrossan’s Application* [2006] EWCA Civ 1371, [2007] RPC 7 at [16].

²⁸¹ Reinier Bakels “Software Patentability: What are the Right Questions?” (2009) 31 EIPR 514 at 519.

²⁸² See John Thomas “The Patenting of the Liberal Professions” (1999) 40 Boston College Law Review 1139 at 1169, where it is argued that such a broad definition of technology “presents a pretentious view of technological activity, one that has come to reject a scientific backdrop and instead conclude that the term ‘technology’ connotes any form of rational human action.”

²⁸³ *Bilski v Kappos* 2010 US LEXIS 5521 (SC) at 67.

4.5 Conclusion

The concerns that pure business method patents will pre-empt the basic tools of innovation and will often lack novelty and inventiveness are, in my opinion, somewhat overstated. Nonetheless, patent protection is unlikely to provide significant incentives for innovation, thus imposing costs on society (in the form of monopoly prices) and innovators (in the form of demands for royalties and infringement suits), without any compensatory public benefit. Therefore, pure business methods patents will not promote the purpose for which the patent system was created. Furthermore, they do not belong to the field of the useful arts which the patent system was intended to protect.

CHAPTER FIVE: TECHNOLOGICAL IMPLEMENTATIONS OF BUSINESS METHODS

5.1 Introduction

In chapter four, I concluded that pure business methods ought to be excluded from patent protection. Opponents of business method patents, however, often object equally to patents for business methods that are implemented by way of computer software or particular machines or devices. The focus of this chapter is to emphasise the fundamental differences between pure business methods and implemented business methods and to show how these differences lead to the conclusion that patents ought to be available for business methods insofar as they are implemented in a technological application.

5.2 The Useful Arts

Unlike pure business methods, implemented business methods fall squarely within the concept of technology, and therefore belong to the field of the useful arts which the patent system is designed to promote. Machines or devices that implement business methods, such as the smart card device in *Welcome*,²⁸⁴ are undoubtedly technological as that concept was described in chapter four, as they are mechanical, tangible, and physical. With regard to computer software, the lack of physicality and tangibility of a computer program when it is in the form of source code presents an obstacle to declaring it to be within the useful arts. However, it is clear that once a computer program interacts with the hardware of a computer, the software is manipulating physical objects,²⁸⁵ and will be considered technological.

5.3 Novelty and Inventiveness

It is commonly argued that patents should not be available for merely translating a business method that is already performed manually into a computerised, or

²⁸⁴ *Welcome Real-Time SA v Catuity Inc* [2001] FCA 445.

²⁸⁵ See chapter four at 4.4(c).

mechanised, environment.²⁸⁶ It is true that, once the business method has been invented, the means of implementing that method in a computer program or a device may be very simple.²⁸⁷ For example, in *Cool 123 Ltd v Vodafone New Zealand Ltd*,²⁸⁸ the claimed invention was for an interactive marketing and/or survey system that used text messaging to obtain consumer feedback from mainstream advertising media. The innovative aspect of the system was that it relied on “pull” advertising²⁸⁹ – that is, where it is the consumer who initiates the interaction – and thus avoided the disadvantages of sending unsolicited text messages to consumers.²⁹⁰ However, once the advertising method was invented, the use of known SMS technology to implement it was considered an obvious step.²⁹¹

A large proportion of implemented business methods will involve conventional technology. However, business methods can be (and often are) implemented by way of technology that is highly innovative. To illustrate this, consider the machine-implemented business method that was the subject of the Australian case of *Welcome*.²⁹² The invention in that case involved the use of smart cards in connection with the loyalty programs of multiple traders.²⁹³ Smart cards contain a microprocessor or a chip with the capacity for receiving or storing information.²⁹⁴ Previous smart cards had contained a pre-allocated memory slot for every trader, allowing only a small number of traders to participate in the same scheme. The invention claimed in *Welcome*, however,

²⁸⁶ See for example Alexandra Sims “The Patentability of Business Methods” (2004) 10 New Zealand Business Law Quarterly 363 at 374: “Running...an existing business method through a computer does not mystically alter its banality.”

²⁸⁷ As noted in the Canadian Intellectual Property Office *Manual of Patent Office Practice* (last updated December 2009) at [16.03.03], “many methods, schemes, algorithms, etc. can easily be automated or implemented with a computer or software, without employing inventive ingenuity.”

²⁸⁸ *Cool 123 Ltd v Vodafone New Zealand Ltd* HC Wellington CIV-2006-485-698, 29 August 2007.

²⁸⁹ *Ibid*, at [57].

²⁹⁰ Inviting the consumer to initiate the interaction was considered to be more “friendly” and thus more likely to elicit a response from the consumer: *Cool 123 Ltd v Telecom Mobile Ltd* (13 March 2006) Assistant Commissioner Popplewell, Patent Application No 503817, Patent Office, at 12.

²⁹¹ *Cool 123 Ltd v Vodafone New Zealand Ltd* HC Wellington CIV-2006-485-698, 29 August 2007 at [93] “The appellant’s use of SMS involved no innovative step on his part...It is, in my view, a clear example at best of being the first to take a very obvious step. The obviousness is shown by the fact that previously, in the same way, other forms of technology/communication had been added to the range of consumer response options available for the same marketing system – mail, phone, mobile phone, email, web and so on.”

²⁹² *Welcome Real-Time SA v Catuity Inc* [2001] FCA 445.

²⁹³ The use of smart cards was considered to have many advantages over previous mail-based systems, which were often unreliable and involved considerable delays. Smart cards enabled the information relating to the customer’s entitlements to rewards to be stored on the card and read at a point of sale (POS) terminal, meaning that the benefits to which the customer was entitled could be provided immediately at the retail outlet.

²⁹⁴ *Welcome Real-Time SA v Catuity Inc* [2001] FCA 445 at [1].

“dynamically” used the memory space on the smart card so that only the traders actually visited by the customer would be stored.²⁹⁵ Thousands of traders could thus be accommodated on the same chip card network.²⁹⁶

There may also be technological innovation in the software used to implement a business method. Google’s AdSense scheme, for example, involves software that enables advertisements that are relevant to the content of a website to be placed on that website, increasing click-through revenue for advertisers. The software involves highly complex computational linguistics. The computer program is designed to enable a computer – called a “spider” – to crawl a webpage, analyse its content, match that content with the advertising criteria provided by advertisers and display relevant advertisements on the webpage. The business method of placing relevant advertisements could, in theory, be carried out manually. However, while a single person would be able to carry out these functions for perhaps several hundred webpages a day, Google’s AdSense software crawls billions of webpages daily. At the time this software was developed, writing a computer program that could carry out these functions was, in a technical sense, extraordinarily difficult to achieve. The technological advance involved in the AdSense software completely changed the landscape of Internet advertising, and was the catalyst for Google’s transformation from a generic search engine into the multi-billion dollar company it is today. Technology such as this can hardly be described as merely the obvious automation of an already existing pure business method.

5.4 Incentives to Innovate

In chapter four I argued that companies already have sufficient incentives to develop pure business methods. It could be argued that, in situations where implementation is necessary to carry out a business method, companies will also have sufficient incentives

²⁹⁵ This “dynamic” method is described in *Welcome Real-Time SA v Catuity Inc* [2001] FCA 445 at [18]: “The merchant’s loyalty program is added to the Behaviour file by the POS terminal the first time the card holder uses the card at that merchant’s store. Behaviour information and a points counter for merchants that the card holder never visits are never added to the chip card. There is not a pre-allocated memory slot for such non-visited merchants. Any chip card can still have only just a few points counters but the first points counter of any one card would be allocated to one merchant, while the same points counter on another card could be allocated to another merchant.”

²⁹⁶ *Welcome Real-Time SA v Catuity Inc* [2001] FCA 445 at [18].

to develop the technology to facilitate that implementation. However, that argument is premised on the assumption that the incentive structure for technological implementations is identical to that for pure business methods. It is, in fact, quite different. There are two main reasons for this.

First, the research and development costs involved in developing implementations of business methods that are technologically innovative are significantly greater. In comparison to pure business methods, which are developed conceptually inside the inventor's head or on paper and usually involve only nominal costs, software (such as that involved in Google AdSense) and machines (such as the smart card in *Welcome*²⁹⁷) are considerably more labour-intensive and expensive to create.²⁹⁸ An inventor of an innovative technological implementation will therefore need a much longer period of exclusive commercial exploitation to make the investment worthwhile, and first mover advantages are unlikely to provide sufficient lead-time in the market to recoup costs and collect profits.²⁹⁹ E-commerce methods (such as Amazon.com's "one-click" method) are a possible exception to this, as they are particularly likely to enjoy the benefits of branding,³⁰⁰ network effects and lock-in effects.³⁰¹

Second, implementations are inherently more likely to be exposed to the public than pure business methods. Unlike pure business methods, computer programs and machines are difficult to keep hidden within the four walls of a company. If a competitor obtains the source code of a computer program, or the physical device, they can be analysed and copied relatively easily. In contrast, a competitor who wishes to

²⁹⁷ See *Welcome Real-Time SA v Catuity Inc* [2001] FCA 445 at [9]–[18] for a description of the many technical difficulties that had to be overcome before the new type of smart card was developed.

²⁹⁸ See Nicholas Smith "Business Method Patents and their Limits: Justifications, History, and the Emergence of a Claim Construction Jurisprudence" (2002) 9 Mich Telecomm Tech L Rev 171 at 182, who notes that "the economic protections provided by business method patents [in the US following *State Street*] likely had a strong effect on the high-tech industry".

²⁹⁹ Admittedly, the inventor of a technological implementation of a business method may not be able to exploit their invention commercially for very long, even with a patent, due to the rapid pace of technological development. The pure business method of double-entry bookkeeping, for example, has been in use since the 15th century; in contrast, new computer programs that implement that method (such as "Mind Your Own Business" software) are developed regularly, rendering slightly older technology obsolete.

³⁰⁰ Nicholas Smith "Business Method Patents and their Limits: Justifications, History, and the Emergence of a Claim Construction Jurisprudence" (2002) 9 Mich Telecomm Tech L Rev 171 at 174.

³⁰¹ Rochelle Dreyfuss, "State Street or Easy Street: Is Patenting Business Methods Good For Business?" in Hugh Hanson (ed) *US Intellectual Property Law and Policy* (Cheltenham, UK; Northampton, MA, USA, Edward Elgar, 2006) 1 at 18.

copy a pure business method may have to study the internal operations of the business for some time. Because software and machine implementations are more susceptible to rapid reverse-engineering by competitors, they have a stronger need for patents as protection from free-riders.

In summary, the right of exclusive commercial exploitation is necessary to provide creators of innovative technological implementations of business methods with a buffer against competition so as to recoup the costs of research and development.

5.5 The Stifling of Innovation

As discussed in chapter four, there is a risk that patents will stifle innovation where they represent monopolies over upstream knowledge, thus preventing free use of that knowledge to innovate further. Technological implementations of business methods are similar to pure business methods in that they will sometimes, but not always, monopolise the basic tools of innovation.

In some circumstances, a competitor can easily invent around the patent. For example, after Amazon.com successfully sued to prevent Barnes & Noble from using its “one-click” system, Barnes & Noble simply added a second mouse click to its own system.³⁰² However, where the implementation is the only practical use of the underlying business method or principle, a patent over the implementation would effectively pre-empt that method or principle. This situation is most likely to arise in the context of software, where a monopoly over the computer program may, in practice, result in a monopoly over the underlying algorithm.³⁰³

³⁰² “Amazon.com and Barnes & Noble.com settle 1-Click patent lawsuit” (3 July 2002) out-law.com <www.out-law.com>.

³⁰³ For example, in *International Business Machines Corp v Commissioner of Patents* (1991) 22 IPR 417 (FCA), despite Burchett J’s inference that the claim in question was limited “to the operation of computers” (at 422), the algorithm underlying the software had no practical application outside the field of computing. Accordingly, the grant of a patent effectively monopolised all uses of that particular algorithm.

5.6 Conclusion

As implemented business methods are technical in nature, excluding them from patentability would contravene New Zealand's obligations under TRIPS. Furthermore, where the technology used to implement business methods is highly innovative, the patent incentive is likely to provide a significant incentive for innovation that would not otherwise occur. In the context of software-implemented business methods, the risk that software patents will stifle innovation somewhat weakens the effect of the patent incentive. The case for patents for machine-implemented business methods may therefore be slightly stronger than for business methods implemented by way of computer programs.

CHAPTER SIX: REFORM OF THE NEW ZEALAND APPROACH

6.1 Introduction

In light of the conclusions reached in chapters four and five, there is one primary objective that any test for the patentability of business methods should aim to achieve: business methods should only be patentable to the extent that their implementation involves a technical contribution to the relevant useful art. Such an approach would provide incentives to innovate where they are needed and would ensure that patent protection is reserved for inventions that belong to the useful arts. By purporting to follow the Australian practice of conflating the useful arts requirement with the requirement of commercial utility, the New Zealand courts have strayed from a technological standard of patentability.

The purpose of this chapter is to work towards a coherent approach to business method patents. The potential impact of the proposed ban on software patents will be explored. Several options for reform will then be discussed before a conclusion is reached as to the best approach. Finally, the limitations of this approach will be noted.

6.2 The Software Patents Exclusion

(a) The Select Committee's recommendation

The Patents Bill 2008 is intended to update New Zealand's patent regime and bring it into line with the law of other countries.³⁰⁴ The original version of the Bill contained no specific reference to software. However, after reviewing the Bill, the Commerce Select Committee recommended the addition of computer programs to the list of inventions that are excluded from patentability. Clause 15(3A) now reads, "A computer program is not a patentable invention."³⁰⁵ In making this recommendation, the Select Committee seemed to be strongly influenced by the submissions of the open source community, stating that "[p]rotecting software by patenting is inconsistent with the open source

³⁰⁴ Patents Bill 2008 (235-1) at 2.

³⁰⁵ Patents Bill 2008 (235-2) (select committee report) at cl 15(3A).

model”.³⁰⁶ The changes proposed in the Bill are expected to come into force in late 2012.³⁰⁷

An analysis of whether a general ban on software patents is desirable or not is beyond the scope of this paper. However, cl 15(3A) has obvious implications for the patentability of software-implemented business methods. Depending on how cl 15(3A) is to be interpreted, business methods implemented by computer programs are potentially unpatentable. This gives rise to the question of whether software-implemented business methods ought to be treated differently to other kinds of software. Problems may also arise in distinguishing between a software claim and a business method claim. It is important that any general test for the patentability of business methods is able to work alongside cl 15(3A) so as to minimise these difficulties.

(b) Embedded software

At first glance, the effect of cl 15(3A) appears to be a blanket ban on software patents. However, in its report on the Patents Bill, the Select Committee emphasises that it does not expect the exclusion of software patents to prevent patents being granted for inventions involving “embedded software”.³⁰⁸ The Committee describes embedded software as “computer software which plays an integral role in the electronics it is supplied with (e.g. cars, pacemakers, telephones, and washing machines)”,³⁰⁹ but also acknowledges that “developing a clear and definitive distinction between embedded and

³⁰⁶ Patents Bill 2008 (235-2) (select committee report) at 5; Also see Jonathan Lucas “Are software patents in New Zealand a thing of the past?” *NZLawyer* (New Zealand, 23 July 2010) 18 at 19, who argues that the Select Committee’s decision came about after “a seemingly flawed process.” Prior to the Select Committee report, there was no indication that software patents might be excluded from patentability. Consequently, there were very few submissions made in support of software patents. Lucas suggests that such an important policy decision ought to have been made only after consideration of the interests of all affected groups.

³⁰⁷ Jonathan Lucas “Bilski – patentability of business methods in the US” *NZLawyer* (New Zealand, 9 July 2010) 14 at 15.

³⁰⁸ In making this exception for embedded software, the Select Committee seemed to be primarily influenced by the submission in support of software patents from Fisher and Paykel Appliances, who use embedded software to control their appliances. See for example Ministry of Economic Development *Patents Bill 2009* [sic]: *Patentability of Computer Programs: Report to Commerce Select Committee* (September 2009) at [25]; see also Ministry of Economic Development *Patents Bill 2008: Patentability of Computer Programs: Supplementary Report to Commerce Select Committee* (January 2010) at 4.

³⁰⁹ Patents Bill 2008 (235-2) (select committee report) at 6, n 4.

other types of software is not a simple matter”.³¹⁰ One distinguishing characteristic of embedded software is that it is software that is run on a special-purpose device, as distinct from software that operates on a general purpose computer.³¹¹ The Select Committee has passed the difficult task of drawing the line between patentable embedded software and unpatentable computer programs to IPONZ, recommending that it develop guidelines for inventions involving embedded software.³¹²

(c) Interpretation of cl 15(3A)

The Select Committee’s discussion of embedded software is vague and there are many ways in which IPONZ may interpret cl 15(3A). A liberal approach would consider software to be embedded software once it is executed on some medium, such as a computer. This approach takes the view that “a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software.”³¹³ However, as almost all computer programs can be executed on a general-purpose computer, this interpretation would deprive cl 15(3A) of any real effect. The Select Committee could not have intended such an interpretation.

There is some evidence that the Select Committee intended cl 15(3A) to have a similar, but not identical, effect as the UK/EU exclusion of computer programs “as such”³¹⁴ –

³¹⁰ Patents Bill 2008 (235-2) (select committee report) at 6.

³¹¹ See Ministry of Economic Development *Patents Bill 2008: Patentability of Computer Programs: Supplementary Report to Commerce Select Committee* (January 2010) at 2, where it is noted that “[t]he main characteristic of ‘embedded software’ is that it is intended to run on so-called ‘embedded systems’.” The Ministry then includes a definition of “embedded system”: “a computer system designed to perform one or a few dedicated functions often with real-time computing constraints. It is *embedded* as part of a complete device often including hardware and mechanical parts. In contrast, a general-purpose computer, such as a personal computer, is designed to be flexible and to meet a wide range of an end-user’s needs.” See also Jonathan Lucas “Are software patents in New Zealand a thing of the past?” *NZLawyer* (New Zealand, 23 July 2010) 18 at 19.

³¹² Patents Bill 2008 (235-2) (select committee report) at 6.

³¹³ *In re Alappat* 33 F 3d 1526 (Fed Cir 1994) at 1545

³¹⁴ See Ministry of Economic Development *Patents Bill 2008: Patentability of Computer Programs: Supplementary Report to Commerce Select Committee* (January 2010) at 5: “While adopting the EPO/UK exclusion does not achieve exactly what the Committee intends, it does go a long way towards it.”; Matt Sumpter “Software: to patent or not to patent?” (20 July 2010) Pundit <www.pundit.co.nz>: “...officials...recommended instead that MPs adopt the European model which, officials advised, was the nearest practicable fit to what the committee was after”; Mia Sudzum “Software patents: stifling innovation or vital tools?” *NZLawyer* (New Zealand, 23 July 2010) 16 at 17: “The Select Committee’s proposed amendments aim to align the Patents Bill with the approach taken in the UK and the European Union”; Florian Mueller “New Zealand software patents: abolition isn’t certain” (24 July 2010) FOSS

that is, that a computer program is patentable to the extent that it involves a contribution to the technology in which it is embedded. This approach requires that, to be eligible for patent protection, a computer program must solve a technical problem, or make a technical improvement, in the hardware of the computer on which it is executed or some other device.³¹⁵ Adopting the UK/EU approach to the patentability of software would have the significant benefit of providing a substantial body of case law from which IPONZ and the courts could derive guidance on the difficult question of when a computer program involves a technical contribution. However, while the Select Committee could have used the “as such” wording, it chose not to. IPONZ and the courts may consider this a clear indication that something more or less than a technical contribution is required for software to escape the exclusion.

The problem is that a purely literal interpretation of cl 15(3A) – that *all* software is excluded from patentability – would be inconsistent with the Select Committee’s assurance that the exclusion would not affect inventions involving embedded software. If all computer programs were unpatentable, an invention that derives its claims to novelty or inventive step from the computer program that is embedded within it would not be patentable.

In summary, the Select Committee has drafted a provision that appears to categorically exclude all computer programs from patentability, yet has also clearly stated that it does not intend this exclusion to cover software that is “built in”³¹⁶ to physical devices. It is now IPONZ that is faced with the unenviable task of drawing up guidelines “to make sense of a law that says one thing while the lawmakers claim it says another.”³¹⁷

IPONZ must also decide the question of whether cl 15(3A) prohibits only claims that specifically recite computer programs, or whether it also excludes inventions that can possibly use or involve software.³¹⁸ One commentator suggests that “a more pragmatic

Patents <www.fosspatents.blogspot.com>: “According to the software patent wiki, [the proponents of software patents] convinced New Zealand commerce minister Simon Power that...the law should be modelled after the European Patent Convention (EPC).”

³¹⁵ See discussion in chapter three at 3.2(b)(iii).

³¹⁶ Ministry of Economic Development *Patents Bill 2008: Patentability of Computer Programs: Supplementary Report to Commerce Select Committee* (January 2010) at 2.

³¹⁷ Matt Sumpter “Software: to patent or not to patent?” (20 July 2010) Pundit <www.pundit.co.nz>.

³¹⁸ Wes Jones, Chris Way and Duncan Schaut “Select Committee reports on new Patents Bill in New Zealand” (31 March 2010) Baldwins Intellectual Property <www.baldwins.com>.

definition is that a software patent is a patent that can be infringed by software developers, publishers and users.”³¹⁹

Finally, even if the guidelines developed by IPONZ are comprehensive, they may hold little weight in court. In the recent decision in *Bomac Research Ltd v Merial Ltd*,³²⁰ Miller J suggests that the provisions of the statute and any regulations will take precedence over IPONZ guidelines and that such guidelines, while useful, “cannot be applied prescriptively.”³²¹

(d) Implications for software-implemented business methods

If cl 15(3A) is interpreted as a blanket ban on software patents, software-implemented business methods will be unpatentable. If the clause is instead interpreted as permitting patents for embedded software, then software-implemented business methods that do not play an integral role in the electronics of some other device will not be patentable inventions. Google AdSense would be one such invention. While it undoubtedly makes a technological improvement in the science of computer programming, the AdSense software can be executed on a general-purpose computer and does not effect a technical improvement within the hardware of any particular machine. In fact, the vast majority of software-implemented business methods involve software of the AdSense kind. Consequently, even if cl 15(3A) is interpreted as allowing patents for embedded software, very few software-implemented business methods will receive patent protection.

This paper does not attempt to analyse whether this effect of the ban on software patents is desirable or not. While chapter five concluded that the patent incentive is needed to encourage the creation of innovative technological implementations of business methods such as Google AdSense, there was no attempt to explore the arguments for and against the patentability of software patents in general. In particular, there was no consideration of the argument that software innovation is cumulative and that patent

³¹⁹ Florian Mueller “New Zealand software patents: abolition isn’t certain” (24 July 2010) FOSS Patents <www.fosspatents.blogspot.com>.

³²⁰ *Bomac Research Ltd v Merial Ltd* HC Wellington CIV-2009-485-2141, 14 April 2010.

³²¹ *Ibid*, at [19]. Note that InternetNZ Chief Executive Vikram Kumar argues that historically IPONZ guidelines have not often been struck down: Stephen Bell “Software Patents Bill clause will not be altered” (15 July 2010) ComputerWorld <www.computerworld.co.nz>.

protection is more likely to stifle innovation than promote it. The Select Committee seems to have been heavily influenced by this argument in its decision to exclude computer programs from patentability.³²² Software-implemented business methods may therefore be a necessary victim of the software patents exclusion.

6.3 Options for Reform

If software-implemented business methods are to be dealt with by cl 15(3A), there remains a need for a mechanism of some sort to prevent patents being granted for pure business methods and to ensure patents are available for machine-implemented business methods that are technologically innovative. Several options will be considered below.

(a) Abstract ideas are not patentable subject matter

One option that deserves consideration is that relied upon by the majority of the US Supreme Court in *Bilski v Kappos*³²³ – that is, the simple rule that one may not patent an abstract idea. The attraction of this approach lies in its simplicity and flexibility. Because it does not entail the singling out of business methods, the issue of how to define that concept does not arise. Furthermore, it would ensure that the broadest and most fundamental of business methods³²⁴ – that is, those that are most likely to constitute upstream knowledge – would not be patentable.

However, the inherent vagueness of the concept of an “abstract idea” creates a level of uncertainty that is difficult to mitigate even with the qualification that a “practical application”³²⁵ of an abstract idea is patentable subject matter. Where a pure business method involves a series of specific steps that result in a useful effect in a business, to characterise that method as a mere abstract idea “stretches the meaning of ‘abstract’ and ‘idea’ beyond recognition.”³²⁶ Relying solely on the principle of the unpatentability of

³²² See Patents Bill 2008 (235-2) (select committee report) at 5, where the Select Committee accepts the argument that “software patents can stifle innovation”.

³²³ *Bilski v Kappos* 2010 US LEXIS 5521 (SC).

³²⁴ For example, the “fundamental economic practice” of hedging risk: *Ibid*, at 29.

³²⁵ *Bilski v Kappos* 2010 US LEXIS 5521 (SC) at 10, quoting the patent examiner who rejected the application.

³²⁶ Donald Chisum “Notes on *Bilski*” (June 29 2010) Chisum.com at [6] <www.chisum.com>.

abstract ideas leaves unanswered the fundamental question of whether a pure business method will ever be more than an abstract idea.

Furthermore, in situations where it is unclear whether a business method is merely an abstract idea, the US courts have other tests for patentable subject matter to fall back on.³²⁷ In contrast, New Zealand case law on business method patents is sparse and the principles currently used by examiners and the courts are too uncertain to be relied upon. The Supreme Court in *Bilski v Kappos* indicated that it expected future courts to continue the search for a “limiting principle”³²⁸ that will “stand between all conceivable human activity and patent monopolies.”³²⁹ While we should watch their journey with interest, New Zealand cannot afford to embrace the US approach in its current state.

Finally, an approach based on the exclusion of abstract ideas necessitates a heavy reliance on the principle that merely limiting the abstract idea to one field of use or adding insignificant extra-solution components is insufficient to transform an otherwise unpatentable process into patentable subject matter. As discussed in chapter two, determining when the involvement of a machine in the claimed method is central to the purpose of that method is a difficult exercise, as is drawing the line between a mere field-of-use limitation and a practical application. This would add an extra layer of uncertainty for innovators and examiners.

(b) A manner of human behaviour is not patentable subject matter

A second possible approach for determining patentable subject matter is that proposed by Lord Hoffman when he addressed the IPSANZ³³⁰ conference in September 2009 on the subject of software and business method patents.³³¹ Lord Hoffman suggested two principles that are central to the issue of patentability: first, that patents are for practical inventions and second, that patents are not available for manners of human

³²⁷ For example, the “machine-or-transformation” test is still “a useful and important clue”: *Bilski v Kappos* 2010 US LEXIS 5521 (SC) at 18.

³²⁸ *Bilski v Kappos* 2010 US LEXIS 5521 (SC) at 25.

³²⁹ *Ibid*, at 52, n 5 (Stevens J).

³³⁰ Intellectual Property Society of Australia and New Zealand.

³³¹ See the discussion of Lord Hoffman’s address by Justin Graham “Reflections on IPSANZ: Some of the key issues facing the profession” (October 2009) NZIPJ 593.

behaviour.³³² Unfortunately, these principles suffer from similar flaws to the principle that abstract ideas are unpatentable. For example, would a pure business method in which one or more steps are legally carried out by the separate person of a company be considered a manner of human behaviour? Would a pure business method that when executed produces a useful result constitute a patentable practical invention? Lord Hoffman's approach does not clearly distinguish between pure business methods and implemented business methods; as such, it is an inadequate solution to the problem of business method patents.

(c) Technical contribution approach

In my opinion, the test for the patentability of business methods ought to remain anchored to the technological paradigm of patent law. An approach that focuses on the type of inventions that are the proper concern of the patent system – that is, those that involve advantages in the useful arts – would provide “a more intuitive demarcation of patentable subject matter”,³³³ which is beneficial for innovators, examiners and users of technology.

A requirement that a business method must involve a technical contribution to the relevant useful art entails a clearer distinction between pure business methods and implemented business methods that are technologically innovative. Such an approach will not require consideration of when a pure business method is abstract and when it is a practical application. Rather, a pure business method will never be patentable subject matter, because it will never be technical in nature.³³⁴ In the case of machine-implemented business methods, the issue will be whether an improvement is made, or a problem solved, in the technology involved. The focus will therefore be on what the alleged invention adds to the sum of human knowledge, a necessary inquiry in the determination of any patent application.

³³² Justin Graham “Reflections on IPSANZ: Some of the key issues facing the profession” (October 2009) NZIPJ 593 at 593.

³³³ Emily Berger “EFF Asks Court to Limit What is Patentable” (8 April 2008) Electronic Frontier Foundation <www.eff.org>.

³³⁴ See discussion in chapter four at 4.4.

This approach is also advantageous because the question of whether a claim merely limits its application to one field of use or involves token extra-solution components will be irrelevant; the focus is always on the overall advance made by the invention. Furthermore, because there is already an established prior art base for technological implementations of business methods, examination for novelty and inventive step will be unproblematic.

The main difficulty with a technical contribution approach is determining exactly when an advance will be “technical”. However, while this issue has plagued examiners and courts in the UK and EU, it largely arises in the context of computer software. Once the provisions of the Patents Bill come into effect in New Zealand, the patentability of software will be dealt with under cl 15(3A). A technical contribution approach to other types of business methods is unlikely to present any significant difficulties in terms of when a problem solved or an improvement made is “technical”.

(d) Recommended reform

I return to the objective stated at the beginning of this chapter: business methods should only be patentable to the extent that their implementation involves a technical contribution to the relevant useful art. Achievement of this objective is contingent on the treatment of cl 15(3A) by IPONZ and the courts. As discussed above, cl 15(3A) seems to have been created with the intention of achieving something quite different from what the plain meaning of its words suggests. The Government ought to amend cl 15(3A) so as to more accurately express a distinction between patentable and unpatentable software.

For example, cl 15(3A) could be amended to model the UK/EU “as such” exclusion and thus adopt the technical contribution requirement as the mechanism for distinguishing between embedded software and computer programs as such. If this course of action were taken, it would be preferable to exclude business methods by means of an identical clause. This would achieve the goal of preventing patents for pure business methods but providing patent protection for business methods insofar as they are implemented in a machine or device that is technologically innovative. The primary advantage of an express exclusion of business method patents that mirrors the exclusion of software

patents is that the difficulties of separating out a business method claim from a software claim would be avoided; there would be no need to determine into which category the claim falls, as the exclusions would be identical and would presumably be interpreted identically. In particular, the problem of deciding whether a business method that can possibly use software should fall within cl 15(3A) would not arise.

Unfortunately, Commerce Minister Simon Power has indicated that cl 15(3A) will not be amended.³³⁵ The fate of business method patents thus hangs in the balance. Until guidelines for the application of cl 15(3A) have been developed by IPONZ and tested in the courts, a uniform approach to the patentability of business methods cannot be achieved.

6.4 Limitations

There are significant flaws with the recommended approach, the most obvious of which relates to an issue discussed at the very start of this paper: if business methods are to be expressly excluded from patentability, how to define a “business method”? Any definition would need to be specific enough to mark out the excluded area but broad enough to encompass method claims that are deliberately drafted so as to sound like something else.³³⁶ There may also be disadvantages to adopting the UK/EU approach of defining patentable subject matter by what it is not. A positive definition of what does constitute patentable subject matter may be preferable, as it avoids the need for amendment of the law every time a new type of invention that is unsuitable for patent protection emerges. Finally, while the unique incentive structure of business method inventions provides some justification for their special treatment, the problems that may arise from a non-uniform approach to process patents have not been fully considered.

³³⁵ New Zealand Government “Minister announces way forward for software patents” (press release, 15 July 2010).

³³⁶ Florian Mueller “Google’s Bilski brief didn’t advocate the abolition of software patents” (26 August 2010) FOSS Patents <www.fo SSPatents.blogspot.com>: Discussing Amazon.com’s “one-click” patent: “if Amazon had to file the patent in an environment where business methods are formally unpatentable, its patent attorneys could try to draft around that restriction. For an example, they could describe it as a signal processing patent, and instead of the convenience for the buyer they could argue with a reduced number of signals...”.

CONCLUSION

Trade and commerce have been a predominant part of human activity for as long as history has been recorded. Since the advent of the patent system, businesses have used patent protection to prevent their industrial methods from being commercially exploited by their competitors. It is only in recent decades that patent protection has been sought for the less tangible methods of business operation. This presents problems for patent law. If we extend patent protection to processes that do not represent advances in the useful arts, then we sever ties between the patent system and the physical world, abandoning the notion that not all human knowledge is patentable subject matter.

The courts in the United States, United Kingdom and the European Union have remained true to the original purpose of the patent system by limiting patent protection to technological innovations. By following the Australian practice of equating the useful arts with commercial utility, the New Zealand patent office and courts risk extending patent protection to areas of knowledge that are more appropriately the subject of weaker intellectual property rights, or which do not require intellectual property protection at all. Pure business methods are one such area. Accordingly, this paper argues that business methods should only be eligible for patent protection insofar as they represent advantages in the useful arts. Achievement of this objective is, however, hindered by the uncertainty surrounding cl 15(3A).

Courts and legislatures in different jurisdictions have grappled with the issue of business method patents for many years, with varying degrees of success. The United States, usually a leader in the development of intellectual property law, has returned to the drawing board after a decade-long search for a solution. This may be because the issue of business method patents presents unique problems. However, it is also plausible that the case of business methods exposes a fundamental weakness in patent law in general; namely, that the technology requirement is becoming inadequate at the cutting edge of human endeavour. Innovation no longer merely pertains to the bricks and mortar world, and it is increasingly difficult to distinguish between the solid and the intangible, the physical and the abstract. In the near future, emerging fields such as nanotechnology and biological computing will further blur the line between patentable

and unpatentable innovations. The real challenge for the courts and legislators will be in determining whether the technology criterion has exhausted its capacity as the cornerstone of patentability.

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APPENDIX 1

QUESTIONS REFERRED BY THE PRESIDENT OF THE EUROPEAN PATENT OFFICE TO THE ENLARGED BOARD OF APPEAL

“Referral by the President of the European Patent Office to the Enlarged Board of Appeal dated 23 October 2008 regarding divergent decisions of two boards of appeal”
(2009) OJ 142

Question 1

Can a computer program only be excluded as a computer program as such if it is explicitly claimed as a computer program?

Question 2

(A) Can a claim in the area of computer programs avoid exclusion under art. 52(2)(c) and (3) merely by explicitly mentioning the use of a computer or a computer-readable data storage medium?

(B) If question 2 (A) is answered in the negative, is a further technical effect necessary to avoid exclusion, said effect going beyond those effects inherent in the use of a computer or data storage medium to respectively execute or store a computer program?

Question 3

(A) Must a claimed feature cause a technical effect on a physical entity in the real world in order to contribute to the technical character of the claim?

(B) If question 3 (A) is answered in the positive, is it sufficient that the physical entity be an unspecified computer?

(C) If question 3 (A) is answered in the negative, can features contribute to the technical character of the claim if the only effects to which they contribute are independent of any particular hardware that may be used?

Question 4

(A) Does the activity of programming a computer necessarily involve technical considerations?

(B) If question 4 (A) is answered in the positive, do all features resulting from programming thus contribute to the technical character of a claim?

(C) If question 4 (A) is answered in the negative, can features resulting from programming contribute to the technical character of a claim only when they contribute to a further technical effect when the program is executed?