

BUSINESS METHOD PATENTS:  
A FAUSTIAN BARGAIN WITH FOSBURY FLOPS

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## ABSTRACT

This dissertation asks the question, “If business method patents were forbidden, would there be less innovation in developing new business processes?” We ask this question because if business method patents can’t pass this utilitarian test, then there is no reasonable justification for this patent regime. To understand the original rationale behind business method patents, we start our investigation by summarizing their legal history. Then, using economic theory, we try to predict which firms would be most harmed if business method patents didn’t exist. Finally, we bring this theory into the realm of reality by conducting a case study on the competitive landscape of firms in the online auction industry. Based on this evidence, we discover that the only firms that clearly benefit from business method patents are ‘patent factories’—firms that patent business processes for the sole purpose of licensing them to other companies. Most other types of firms see business method patents as an encumbrance. Given this skewed balance, it appears that these patents fail the utilitarian test. Without them, there might actually be greater innovation in the competitive arts.

THIS DISSERTATION IS SUBSTANTIALLY MY OWN WORK AND CONFORMS TO THE JUDGE INSTITUTE  
GUIDELINES ON PLAGIARISM. WHERE REFERENCE HAS BEEN MADE TO OTHER RESEARCH,  
THIS IS ACKNOWLEDGED IN THE TEXT AND BIBLIOGRAPHY.

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## CHAPTER 1: INTRODUCTION

How would the world be different if United Airlines had been able to patent the concept of frequent flyer programs? Or if McDonalds had been able to patent the drive up window?<sup>1</sup> What would it be like if business techniques such as these were locked up by select companies so that only they could use them? As surprising as it might seem, we are now living in such a world. For many years, the American government forbade the patenting of business processes, operating under the assumption that these restrictions would destroy competition in the marketplace. But after a landmark court ruling in 1998, the American government formally extended patent protection to ways of doing business.

Businesses soon rushed to file patents on all kinds of processes. One barbershop received U.S. Patent Number 6,257,248 for a “Method for cutting hair with scissors in both hands.”<sup>2</sup> Another company, possibly involved in sports rehabilitation, received U.S. Patent Number 5,993,366 for a method of performing a tennis stroke while wearing a knee brace. That patent contains such instructive gems as, “The tennis racket is swung toward a tennis ball so as to hit the tennis ball with the racket...” In addition to these silly examples, many more serious patents were filed in areas like banking (e.g. loan processing, funds transfer, and billing systems), marketing (e.g. catalog systems, reward programs, and coupon redemption), and finance (e.g. derivatives, valuation, and index-linking).<sup>3</sup> The implications of having these patents locked up are no laughing matter.

At the time of this patent flood around the year 2000, observers published a maelstrom of articles that frantically predicted that this would be the end of American

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<sup>1</sup> This amusing scenario is detailed in G.A. Stobbs, *Business Method Patents* (New York, Aspen Law & Business Publishers, 2003), Chapter 1.

<sup>2</sup> B.H. Hall, ‘Business Method Patents, Innovation, and Policy’, *National Bureau of Economic Research Working Papers*, No. 9717 (2003), p. 6.

<sup>3</sup> ‘White Paper on Automated Financial or Management Data Processing Methods (Business Methods)’, *USPTO White Paper* (Accessed 1 June 2005), <http://www.uspto.gov/web/menu/busmethp/index2.htm>.

commerce. They accused the U.S. Patent Office (USPTO) of granting patents willy nilly and giving away rights to even the most obvious of business techniques, like direct mail. They warned that if this trend were not abated, the entire machinery of American enterprise would grind to a screeching halt.<sup>4</sup> Clearly, many of these fears were overblown. In the last few years, the USPTO has taken great strides to improving their patent examination procedures. They have hired more examiners with business expertise and have raised the bar on patenting standards. As a result, business method patents are far narrower in scope and far cleverer in novelty than they were a few years ago. The evidence is clear: the proportion of patents that concern business methods has been steadily declining since the heady days of 2001.<sup>5</sup>

Now that a few years have passed by, it is worth reexamining the business method patent regime. Although the USPTO has improved their administration of these patents, it's time to ask once again whether business method patents should *exist* at all. Traditionally, patents have been justified on the basis that they create incentives for increased commercial investment in socially beneficial research. For example, pharmaceutical patents give drug manufacturers valuable motivation to conduct research into cures for diseases. In the case of business method patents, however, the social benefits are much more questionable. Has society actually benefited from the 'inventions' protected by this new kind of patent? While this question is important, a negative answer is not necessarily damning to the business method patent regime. Many policymakers feel that increased innovation (no matter the social benefits) is justification enough. What *would* be damaging is evidence that business method patents do not even bolster innovation. After all, if they don't significantly lead to new knowledge, there is no basis whatsoever for this regulation.

Consequently, this dissertation puts business method patents to the strictest possible test. It is an investigation into the question, "Have business method patents accelerated

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<sup>4</sup> See, for example, the dire predictions in the law paper by M.A. Bagley, 'Internet Business Model Patents: Obvious by Analogy', *Michigan Telecommunications and Technology Law Review*, Vol. 7 (2001), pp. 253-288.

<sup>5</sup> B.H. Hall, *op. cit.* (2003), p. 4.

innovation?” Trying to take a more scientific approach, we instead pose this question in a falsifiable manner. “*If business method patents were forbidden, would there be less innovation in developing new business processes?*”

To tackle this question, this dissertation is composed of four parts. First, Chapter 2 looks at the legal history of business method patents. It attempts to clarify where these patents came from and to establish the legal framework under which the business method patent system operates. With this structure in hand, Chapter 3 examines the economic controversy surrounding business method patents. The chapter’s goal is to use economic theory to predict which parties would stand to lose the most if these patents were banned. Chapter 4, by contrast, attempts to see how these predictions hold up in practice. We do this by conducting a short case study of how companies in the online auction industry have altered their competitive strategies to cope with business method patents. These strategies reveal which companies see these patents as assets, and which see them as liabilities. This is a strong indicator of how spending on business process innovation would change if these patents were forbidden. Finally, Chapter 5 summarizes the most salient lessons from the previous chapters and puts these legal, economic, and commercial dimensions in a policy context. It concludes by suggesting a set of criteria that policymakers should adhere to when deciding on future business method patent reforms.

One final note before heading into the heart of this document. This dissertation exclusively concerns the American experience with business method patents. It may seem incongruous that a thesis at the University of Cambridge would have its attention on a policy issue across the Atlantic. The reason for this focus is that the United States is one of the only countries in the world that currently allows business method patents.<sup>6</sup> However, this matter is evolving on the global stage. Under the auspices of the World Trade Organization, the United

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<sup>6</sup> At present, Australia, Japan, and Korea are the only other nations. See B. Diallo, 'Historical perspectives on IP protection for software in selected countries worldwide', *World Patent Information*, Vol. 25 (2003), pp. 19-25.

States is putting pressure on other jurisdictions to honor business method patents as a means of harmonizing international patent law. In fact, Europe may be the next zone to take the plunge. As such, the lessons from the American experience should be helpful to policymakers around the world as they stare down into this chasm.

## CHAPTER 2: THE LEGAL HISTORY

Before we can explore the question of whether business method patents encourage innovation in business processes, we need to understand where they came from. In this chapter, we detail the legal history of business method patents. This story will help us with our later analysis in three ways. First, it will remind us of the objectives and tradeoffs that patents are intended to achieve. Second, it will let us appreciate why there is so much legal confusion. And third, it will reveal to us why it is unlikely that business method patents will ever be overturned in the courts. They won't just disappear on their own.

### 2.1 FAUSTIAN BARGAINS: THE CONSTITUTIONAL FOUNDATION

Patents are possibly the oldest instruments of American technology policy.<sup>7</sup> Enshrined in Article 1, Section 8 of the original Constitution, the document gives Congress the authority “To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.” In essence, this gives Congress the right to grant inventors a short-term monopoly over their inventions. While the patent is in force, no one else is allowed to duplicate the invention. During the constitutional convention, this was a fiercely debated provision. Most of the framers were suspicious of any government-sponsored monopoly. They had just fought a war for independence from Britain, a nation that they felt used grants of monopoly power to constrain liberty and impose economic tyranny. They wanted to frame the document in such a way as to remove any kind of government granted monopolies.

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<sup>7</sup> This reminder is in W.M. Cohen and S.A. Merrill, ‘Introduction’, *Patents in the Knowledge-Based Economy*, (Washington D.C., National Academy Press, 2003), p. 1.

The Founding Fathers also had more philosophical objections to the notion that individuals should have a legal monopoly over knowledge. Critics of patents often point to this famous quotation from the writings of Thomas Jefferson:

If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea, which an individual may exclusively possess as long as he keeps it to himself; but the moment it is divulged, it forces itself into the possession of everyone, and the receiver cannot dispossess himself of it. . . . He who receives an idea from me, receives instructions himself without lessening mine; as he who lights his taper at mine, receives light without darkening me. That ideas should be spread from one to another over the globe, for the moral and mutual instruction of man, and improvement of his condition, seems to have been peculiarly and benevolently designed by nature. . . . Inventions then cannot, in nature, be a subject of property.<sup>8</sup>

Many observers use this Jefferson quotation as a kind of proof that he was hostile toward the idea of patents. His persuasive prose seems to argue that ideas are inherently non-rivalrous and that he condemns inventions becoming the property of any single individual. But in the same document, if the quotation had run a bit longer, it becomes clear that Jefferson realizes the utility of granting short-term monopolies in order to create incentives for further innovation. Jefferson writes:

Society may give an exclusive right to the profits arising from them, as an encouragement to men to pursue ideas which may produce utility, but this may or may not be done, according to the will and convenience of the society, without claim or complaint from anybody.<sup>9</sup>

In fact, Jefferson felt sure enough about the patent system that he became the first head of the U.S. Patent Office, a fact often overlooked or forgotten by many.<sup>10</sup>

Taken together, it becomes clear that Jefferson and the other Constitutional framers saw patents as a kind of Faustian bargain. On the one hand, they realized that patents had two major drawbacks. First, like any government granted monopoly, patents would reduce the amount of competition in the marketplace. Second, as Jefferson noted, patents would make it more difficult for inventors to use existing inventions as the basis for new ones, so long as the existing inventions were protected by a patent. But on the other hand, they felt that patents had two major benefits that made them marginally tolerable. First, they provided a strong

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<sup>8</sup> T. Jefferson, *Writings of Thomas Jefferson*, Vol. 6 (Edited by H.A. Washington, 1854), pp. 180-181.

<sup>9</sup> *Ibid.*

<sup>10</sup> P. Samuelsen, 'Is Information Property? (Legally Speaking)', *Communications of the ACM*, Vol. 34:3 (Mar. 1991), pp. 15-18.

incentive for inventors to spend more money on research and development since there was a financial motivation. Second, they forced inventors to disclose details about their inventions, thereby putting additional knowledge in the public domain. It was hoped that this knowledge would give inventors more information from which they could devise even more ingenious inventions.

+ / -	Effects on Competition	Effects on Innovation
Positive	Helps New Entrants	Encourages R&D Spending
Negative	Creates Monopolies	Impedes Idea Recombination

**Figure 1:** The Faustian Bargain. This table summarizes the positive and negative consequences that patents have on competition and innovation. The interaction between these elements is complex and depends upon the type of material patented and also the structure of the industry in question.<sup>11</sup>

This historical analysis of the origins of the American patent system provides one critical insight that must be emphasized. Not once did the framers of the Constitution take seriously the idea that patents were intended as a kind of reward to inventors. They explicitly rejected that patents should be a way of awarding inventors their ‘just desserts.’ Instead, the paramount goal of the patent system was *to serve the interests of society* as a whole by promoting progress in the useful arts. It was meant to solve the ‘free-rider’ problem, wherein unconstrained copying of inventions would discourage inventors from creating new contraptions.<sup>12</sup> Without patents, the Founders feared that there would be greater secrecy and greater reluctance to invest in research, and therefore less overall technological progress. Put simply, patents were a utilitarian compromise meant to help society create a fertile soil for innovation, not to make inventors rich.<sup>13</sup>

<sup>11</sup> This table is based on a similar one in B.H. Hall, *op. cit.* (2003), p. 2.

<sup>12</sup> E. Kitch, ‘The Nature and Function of the Patent System’, *Journal of Law and Economics*, Vol. 20 (1977).

<sup>13</sup> A longer rant is in J. Gleick, ‘Patently Absurd’, *New York Times Magazine*, (12 March 2000).

## 2.2 HOSTILE STATUTES: THE BUSINESS METHOD PATENT EXCEPTION

Though the Constitution provides the foundation for patent laws, it doesn't detail what constitutes an 'invention' or how the patent process should operate. The actual legal requirements are instead spelled out in Title 35 of the U.S. Code. According to Title 35, Part II, Chapter 10, "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent...." Congress recognized that the terminology used in the statutes had to be precise, so they described what exactly they meant by the ambiguous word 'process'. Section 100 of Chapter 10 states, "The term 'process' means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material."

Furthermore, not just any process can be patented. Congress laid down a few tests to determine patentability. Specifically, the invented process has to be *novel, useful, and non-obvious*. The novelty requirement is to ensure that an inventor who receives the patent is actually the person who originally devised the invention. If there is evidence that the invention is pre-existing (i.e. there is 'prior art'), then the monopoly award isn't justified. The usefulness criterion is intended to only grant patents to inventions that help society in a practical way. This reduces the burden on the patent office by allowing them to dispense of frivolous applications. Finally, the requirement of non-obviousness is intended to verify that each patented invention truly represents an advancement in knowledge. After all, if trivial inventions were given patent protection, it would greatly limit people's ability to make productive and straightforward use of existing inventions. Society wouldn't be able to do anything without violating somebody's patent.

Beyond these requirements, there were a few types of inventions that were deemed strictly off limits to patents, such as laws of nature, physical phenomena, and abstract ideas.

The rationale was simply that nobody should be able to have a monopoly on something that is a natural property of the universe. The mathematical formula  $E=MC^2$ , for example, can belong to no one. The Supreme Court wrote emphatically against the patentability of these kinds of abstractions, declaring them to be, “manifestations of nature, free to all men and reserved exclusively to none.”<sup>14</sup>

Despite these attempts by Congress to give the courts and the patent office some legislative guidance, it still left uncertain the status of patents on business methods. The USPTO professed hostility towards business method patents. Up until 1966, the office’s *Manual of Patent Examining Procedure*, which was essentially a bible for patent examiners explaining how to evaluate applications, gave the following guidance. “Though seemingly within the category of process or method, a method of doing business can be rejected as not being within the statutory classes.” Although this conclusion wasn’t clear from the U.S. Code, the USPTO developed this policy as a result of a 1908 Supreme Court decision in *Hotel Security Checking Co. v. Lorraine Co.* In that decision, the court thought that an accounting system used by restaurant waiters was too abstract to enjoy the privilege of patent. USPTO, in turn, interpreted the decision more generally to mean that no business methods were patentable at all.

### 2.3 BLURRING LINES: THE QUESTION OF PROCESS OR PRINCIPLE?

The patent law as expressed in the U.S. Code has stayed largely static over the course of the 20<sup>th</sup> century. Although at the beginning of the century the USPTO was hostile towards business method patents, by the turn of the millennium thousands of them were granted each

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<sup>14</sup> This decision is quoted in J. Gleick, *op. cit.* (2000).

year.<sup>15</sup> What caused this remarkable turnaround was a series of landmark judicial decisions that unambiguously brought business methods into the realm of patentability. In this section, we trace the legal history of these decisions. Since many business method patents are implemented using software, we also need to consider how software became patentable. The dividing line between software and business method patents is blurry, but for clarity we consider the legal histories separately.

Initially, the Supreme Court interpreted the U.S. Code in such a way as to come down squarely against software patents. In the 1972 Supreme Court case *Gottshalk v. Benson*, the court was asked to assess the validity of a patent application describing a computer program that translated decimal numbers into binary numbers. The applicants had argued that their program was merely a description of a process, and therefore patentable under Title 35. The court disagreed. They ruled that the program was a disguised mathematical algorithm, which was an abstract idea, and hence not patentable.<sup>16</sup> Many interested parties, from lawyers to software developers, had trouble embracing this analysis. When was a computer program implementing a process and when was it describing a principle? That was a key question that the *Gottshalk* decision left open.

With such a wide opening, this interpretive paradigm was put to the test again through litigation in other cases. The first erosion of the *Gottshalk* decision came in 1981 with the *Diamond v. Diehr* decision. The invention in question was a computer program that used heat sensors to measure the temperature of a rubber curing process. The program used well-known chemical equations to calculate and regulate when the rubber would cure. The patent office had rejected the application, saying that the only novel aspect of the process was the computer program, and that computer programs weren't patentable. The Supreme Court

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<sup>15</sup> Many more detailed statistics are presented in R.M. Hunt, 'You Can Patent That? Are Patents on Computer Programs and Business Methods Good for the New Economy?', *Philadelphia Federal Reserve Business Review* (Q1 2001), pp. 5-15.

<sup>16</sup> *Ibid.*, p. 7.

overruled this decision and said that the invention was an innovative and improved process that was just using a computer program as a functional part.<sup>17</sup> For the first time, the court explicitly differentiated between a computer program that manipulated data, and one that had a tangible effect on the physical world. There was now a more precise test for whether a program was patentable: Did it transform the world in some physical way?<sup>18</sup>

By 1994, even the physical transformation requirement started to evaporate with the Supreme Court decision *In re Alappat*. This case concerned an application for a patent on a program that smoothed jagged waveforms before displaying the data on a screen. The patent office had rejected the application because the program only operated on data and didn't manipulate any physical matter. The court again overruled the patent office, this time deciding that the computer system as a whole served a specific function (smoothing data), so it was a patentable machine.<sup>19</sup> Why the court came to a starkly different conclusion than two decades previous is a matter for legal scholars to debate. But one compelling explanation is perhaps that by the mid 1990's, the justices had finally achieved enough familiarity with computers that they no longer saw them as just processors of abstract ideas. Computers were instead embraced by the justices (and society) as functional machines with concrete uses. Hence, the software that gave these machines their functionality was fully accepted under the purview of patent.

## 2.4 DISMANTLED DICTUMS: THE *STATE STREET* REVOLUTION

The legal case history of business method patents is intertwined with that of software patents. As the restrictions on software patents began to crumble, so did those on business

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<sup>17</sup> *Ibid.*

<sup>18</sup> R.C. Dreyfuss, 'Are Business Method Patents Bad for Business?', *NYU School of Law: Public Law and Legal Theory Working Papers*, No. 17 (Mar. 2000), p. 3.

<sup>19</sup> R.M. Hunt, *op. cit.* (2001), p. 8.

methods—especially those that were implemented with software. Initially, however, courts were antagonistic towards the patenting of business methods. Over one hundred years ago, the Supreme Court condemned these patents as flagrant restraints on trade. The court wrote:

It creates a class of speculative schemers who make it their business to watch the advancing wave of improvement, and gather its foam in the form of patented monopolies, which enable them to lay a heavy tax upon the industry of the country. It embarrasses the honest pursuit of business.<sup>20</sup>

Lower courts clung onto this decision resolutely as well. For example, in the case of *Loew's Drive-In Theatres v. Park-In Theatres*, where a patent application attempted to protect drive-in theatres, the circuit court rejected the patent, noting that it was far too abstract to be patentable material. And so it entered the common wisdom that other processes might be patentable, but business processes were an exception.

All that conventional wisdom went out the door in 1998. The Signature Financial Group had developed a computer system to keep track of ‘hub and spoke’ mutual fund investments. Investment banks commonly arranged their investments so that each of their individual holdings (‘spokes’) were pooled into a single portfolio (a ‘hub’). The IRS required banks to calculate each spoke’s share of the hub’s profit for taxation purposes. Signature’s system automated this task, spitting out the relevant financial numbers. Although this method was nothing new—financial accountants had been computing these figures by hand for decades—Signature’s patent lawyers cleverly described the software in terms of a machine that performed the useful purpose of financial calculations. This made the patent comply with the terms of *In re Allapat* since it served a specific function and was embodied in a machine.<sup>21</sup> As such, the USPTO granted Signature Financial Group U.S. Patent Number 5,193,056 for a “Data Processing System for Hub and Spoke Financial Services Configuration.”

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<sup>20</sup> As quoted in J. Gleick, *op. cit.* (2000).

<sup>21</sup> R.C. Dreyfuss, *op. cit.* (2003), p. 3.

Not long afterwards, another bank, State Street Bank, developed a similar system to do calculations on their own hub and spoke funds. The two banks found themselves embroiled in litigation in the case *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* In district court, State Street attacked Signature's patent on the grounds that the patent was an age old business calculation and therefore not patentable. Judge Patti B. Saris agreed, writing a forceful opinion. "Mental processes, and abstract intellectual concepts, are not patentable, as they are the basic tools of scientific and technological work," she wrote. As merely a way of doing calculation, "The same functions could be performed, albeit less efficiently, by an accountant armed with pencil, paper, calculator, and a filing system." She finished by sounding a loud alarm that, "Patenting an accounting system necessary to carry on a certain type of business is tantamount to a patent on the business itself."<sup>22</sup>

Signature immediately appealed the ruling to the Circuit Court, where Judge Giles Rich took up the case. Before ascending to the bench, Judge Rich was once a patent attorney himself and was rumored to be the primary architect of the 1952 Patent Act. Judge Rich started his opinion by explicitly rejecting the old tests for distinguishing software from principles; namely, he threw out the requirement that software had to affect some kind of physical transformation. Instead, he said the new standard should simply be that software produces a "useful, concrete, and tangible" result. Flashing that result on a screen was tangible enough for Judge Rich. Second, Judge Rich said that the common wisdom of excluding business methods from patentability was wrong. He declared that all previous court rulings on business method patents had been one hundred percent 'dictum'—that they were comments written by judges tangentially, and not as matters of precedent. He emphatically approved of business methods being worthy of patents, alluding to the intentions underlying the 1952 Patent Act (the same legislation he may have authored). "Since the 1952 Patent Act,

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<sup>22</sup> Reprinted in J. Gleick, *op. cit.* (2000).

business methods have been, and should have been, subject to the same legal requirements for patentability as applied to any other process or method.”<sup>23</sup>

## 2.5 PERFECT STORMS: THE BUSINESS METHOD PATENT FLOOD

The *State Street* decision sent shockwaves through the judicial and commercial communities. All of a sudden, there weren't any special requirements or standards for the patenting of software. And, business methods were explicitly blessed as patentable as well. Judge Rich's language had been so broad that not only business methods implemented as software fell under patent protection, but also apparently *all* business methods qualified for protection.<sup>24</sup> This wasn't an isolated and outlandish opinion by one judge, either. Many subsequent cases confirmed the *State Street* opinion, including *AT&T v. Excel*, which extended *State Street* to the realm of mathematical algorithms.<sup>25</sup> In short, the mounting decisions in support of *State Street* make it very unlikely to be overturned.

In the wake of *State Street*, the USPTO published a white paper spelling out their policy on business method patents. Almost as a face-saving maneuver, the USPTO insisted that business method patents had actually been patentable all along. They pointed to 41 financial patents prior to 1848, such as two on bank notes, two on financial instruments, four on checks, five on interest calculation tables, and even a 1907 patent for an insurance system.<sup>26</sup> Now that the legal basis of business method patents had been settled in court, they encouraged new applicants to apply for these patents under US patent class 705 for “data processing, financial, business practice, management, or cost/price determination.”<sup>27</sup>

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<sup>23</sup> In addition to longer excerpts from the case, R.C. Dreyfuss, *op. cit.* (2003), p. 5 contains some interesting speculation about Judge Rich's actual motivations.

<sup>24</sup> *Ibid.*

<sup>25</sup> B.H. Hall, *op. cit.* (2003), p. 5.

<sup>26</sup> The white paper is referenced in R.M. Hunt, *op. cit.* (2001), p. 9.

<sup>27</sup> B.H. Hall, *op. cit.* (2003), p. 4.

And apply they did. Arriving in the late 1990s, *State Street* came at exactly the time that a perfect storm for business method patents was brewing. The internet revolution had opened up a new electronic playing field for business to compete. And the dot com bubble was at its peak, pouring money into companies who had few assets other than their bold business models. Put these two facts together and it meant that the only way to survive (and get investors) in this climate was to patent as many computer-implemented business models as possible. Prior to 1992, the patent office had granted fewer than 100 internet-related patents. In the next 5 years, USPTO granted a total of 750. And by 1999, USPTO granted 4000 internet-related patents—in that single year alone!<sup>28</sup>

Overall, a very strong theme emerges from this history of business method patents in the American legal tradition. Although Congress explicitly dictated that ‘new and useful processes’ were the only things patentable, and that ‘abstract ideas’ remain in the public domain, this distinction has become hazy when put to the test. Technology (and the business processes utilizing it) has advanced to a point that the courts are struggling to demarcate a dividing line between a process and an idea. The end result is that the line has largely vanished—in the knowledge economy, light bulbs and drive-in theatres don’t look very different at all.<sup>29</sup> This has serious repercussions on how we treat the question of whether business method patents promote innovation. It suggests that no matter what conclusions we draw, and no matter how perverse business method might appear, they can’t just be swept away easily. We must bear this in mind as we continue our investigation.

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<sup>28</sup> R.M. Hunt, *op. cit.* (2001), p. 6.

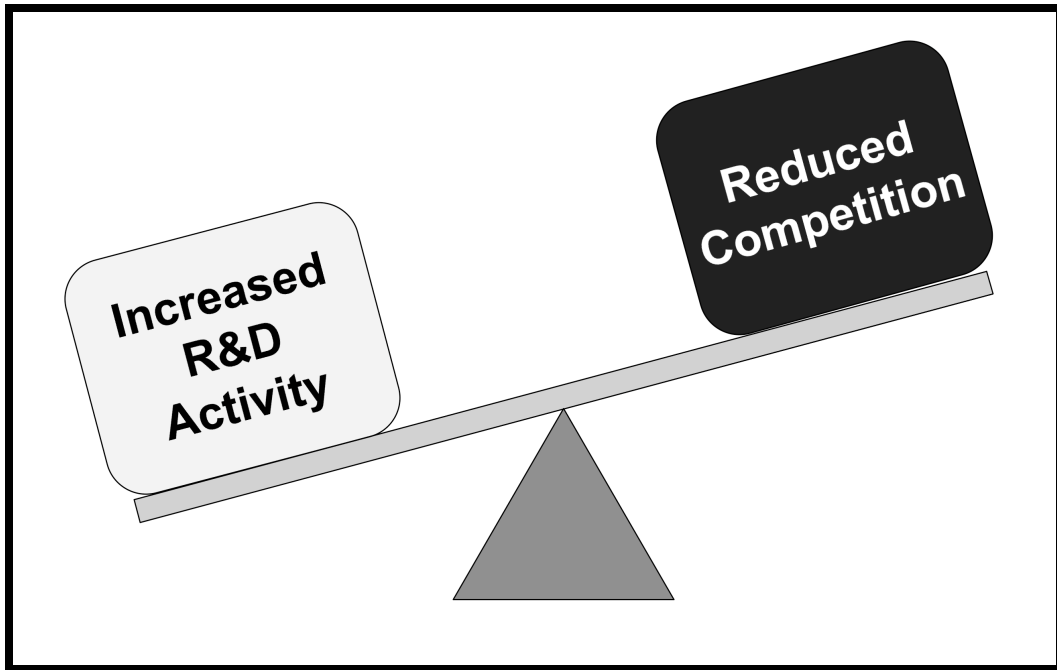
<sup>29</sup> J. Gleick, *op. cit.* (2000) puts it more poetically, referring to  $E=MC^2$  instead of drive-ins. However, his metaphor is very misleading because laws of nature are still immune from patents.

## CHAPTER 3: THE ECONOMIC IMPLICATIONS

Having understood the legal basis for business method patents, we now return to our fundamental question: How much do they actually promote innovation in business processes? To get a handle on this question, our first step is to identify which types of firms are most likely to be harmed or helped if business method patents didn't exist. In this chapter, we turn to the predictions of various economists for guidance.

As soon as the *State Street* decision came to light, an armada of economists wrote papers weighing in on the new patent regime. Amongst this cacophony of voices, there were some who predicted that business method patents would be instrumental to ensuring the competitiveness of American business, and some who predicted the opposite effect. Clearly, the two schools of economists had different ideas about who stands to win and who stands to lose. To get the whole picture, and to exhaustively search for potentially harmed parties, we must entertain both extremes of opinion. It's helpful to visualize these arguments in terms of an 'innovation balance'. On one end of the balance is the power of patents to create incentives for more R&D. On the other end is the side effect patents have on restricting competition. The argument is about which way the balance is tipping: favorable towards R&D incentives, or unfavorable towards competition restraint?

Before getting into the arguments, the first section of this chapter outlines the fundamental economic properties that most economists generally agree business methods share. Once we have this common vocabulary, we spend the second section looking at the 'favorable balance' perspective in order to identify which firms would be losing in the absence of business method patents. The third section looks at the 'unfavorable balance' perspective and identifies which firms are losing under the current system. The final section identifies common themes.



**Figure 2:** The innovation balance. Economists debate whether patents cause the scale to tip towards increased R&D spending or towards reduced competition. If it tips to the left, business method patents increase the net amount of innovation. If it tips to the right, they reduce net innovation.

### 3.1 A COMMON VOCABULARY: FUNDAMENTAL CHARACTERISTICS

Fortunately, economists have found a bit of common ground and agree upon some fundamental characteristics that most business methods seem to share. The economists are, of course, divided about the implications that they have on market innovation, but they still serve as a kind of common vocabulary:

- *Diverse applications.* Business methods are applicable across a wide variety of industries.<sup>30</sup> For example, an affiliate referral program that uses third parties to attract book customers to Amazon.com might just as easily attract DVD customers to Blockbuster or cookie customers to Tesco.

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<sup>30</sup> K.E. Maskus and E.V. Wang, 'Searching for Economic Balance in Business Method Patents', *Journal of Law and Policy*, Vol. 8 (2002), p. 299.

- *Familiar extensions.* Oftentimes, business method patents take practices that have existed in the offline world and translate them into the electronic realm.<sup>31</sup> The most notorious example of this is Priceline.com’s ‘reverse auction’ patent, which allows one buyer to negotiate with many competing sellers to get the best deal—a practice that has taken place in town markets for hundreds (if not thousands) of years.
- *Short life cycles.* In the world of e-commerce, consumers are extremely fickle and have tastes and preferences that evolve rapidly. Novel business methods might attract consumers for a short period of time, but the only way to maintain loyalty is through a sustained combination of strong branding, quality advantages, and cost savings.<sup>32</sup>
- *Network effects.* Business methods that capitalize on network effects can be difficult to displace.<sup>33</sup> A network effect is the term given to a system that becomes more valuable to users as its popularity grows. For example, as more people join MSN instant messenger, it is even more likely that additional people will then join the network so they can chat with friends who are already on the service.
- *Low investment.* Compared to other inventions, business methods require very little capital expenditure to develop. All that is necessary is someone daydreaming at a desk. This is perhaps the most important distinguishing characteristic of business methods over other types of patentable material.<sup>34</sup> Whereas industries like pharmaceuticals and software need substantial investment for both development and deployment, business methods only require investment for deployment, but not development.

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<sup>31</sup> *Ibid.*

<sup>32</sup> *Ibid.*, p. 300.

<sup>33</sup> *Ibid.*

<sup>34</sup> N.A. Smith, ‘Business Method Patents and Their Limits: Justifications, History, and the Emergence of a Claim Construction Jurisprudence’, *Michigan Telecommunications and Technology Law Review*, Vol. 9 (2002), p. 178.

### 3.2 A KNOWLEDGE FACTORY: ARGUMENTS IN FAVOR

As mentioned in Chapter 2, patents are thought to promote innovation by encouraging inventors to disclose knowledge that would otherwise remain secret and by creating incentives for inventors to invest in otherwise unprofitable research. The first of these justifications—the secrecy argument—is clearly not applicable to business methods. Nearly all business methods are performed in public.<sup>35</sup> Once a company establishes a new process or model, it is plain for the public to see. When Priceline.com implements reverse auctions or Amazon.com institutes its affiliate program, that knowledge is instantly diffused to the public. Hence, the only part of the innovation rationale that warrants investigation is whether business method patents create incentives for additional research. Of the parties who are innovating today, who would invest *less* if business method patents did *not* exist?

According to economists who support business method patents, they say the economy needs all the help it can get to promote vibrant business models. Consider how often incredible technologies are invented but never make it into people's hands until a killer business model delivers the product to market.<sup>36</sup> Think of how the personal computer industry was revolutionized by Michael Dell figuring out how to sell computers directly to customers. Think of how iTunes has delivered unparalleled convenience to music lovers by ingeniously integrating a jukebox with a music store. Basically, we must think of business model innovation as just as essential a part of the innovation cycle as technological innovation, they argue, and therefore extend it the same level of incentive.

As for who would be innovating less if business method patents were prohibited, supporters offer a nuanced explanation. They acknowledge that large companies who are already well entrenched in the market would probably not reduce their amount of attention on

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<sup>35</sup> R.C. Dreyfuss, *op. cit.* (2003), p. 112.

<sup>36</sup> *Ibid.*, p. 3.

business method innovation. These companies are persistently paranoid that their competitors might come up with some better way of reaching the customer. Given the way that network effects tend to help innovative business models sprint away with the market's rewards, large companies operating within competitive markets have no choice but to constantly innovate—especially since business process innovation costs them next to nothing in terms of investment.<sup>37</sup> Capturing additional market share is itself a potent motivator. Essentially, the invisible hand of Adam Smith forces their hands.

Instead, it is the 'little guy' that supporters of business method patents worry about. Their only chance to get into the game is through patent protection. If every time they came up with an innovative new business process it were just pinched by an established company, they would have no chance of ever launching a successful business. Taking away this prospect of reward would discourage them from entering the game at all.<sup>38</sup> This would block the supply of new blood that's necessary to keep industries invigorated. They point to examples across multiple industries that demonstrate how visionary new entrants have improved the market. Consider Google. If Google hadn't been able to patent their PageRank algorithm for calculating the relevance of a website, they may never have become a player in the search engine industry. How many Googles of business process innovation would be kept from the market, they ask, if business methods were exempt from patent protection?

It may be that the factories that are the engines of economic growth in the 21<sup>st</sup> century will not be the ones that manufacture products, but will be those that create knowledge. In many industries, patents have enabled the emergence of 'pure design' firms that specialize in developing and trading knowledge.<sup>39</sup> This has led to a very efficient dismantling of vertical

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<sup>37</sup> More arguments about the fast-paced e-world are sketched in N.A. Smith, *op. cit.* (2002), p. 181.

<sup>38</sup> *Ibid.*, p. 176.

<sup>39</sup> A good introduction to the intellectual factories of the future is B. Stone, 'Factory of the Future?', *Newsweek* (22 Nov. 2004), <http://www.msnbc.msn.com/id/6478691/site/newsweek/>.

integration within these sectors.<sup>40</sup> In the semiconductor industry, take the local example of Cambridge Silicon Radio (CSR). CSR is a ‘fab-less’ firm, meaning they don’t manufacture anything. All they do is invest in R&D for new types of wireless chips, and then license those designs to manufacturers. In the last few years, they have become a world leader in Bluetooth chipsets—trading exclusively in knowledge.<sup>41</sup> Consumers are better off because companies like CSR can specialize in highly complex design work, without worrying about having to manage manufacturing facilities that require oppressive capital investments.

Don’t think that business method knowledge factories don’t exist. Jay Walker, the controversial holder of the Priceline.com reverse auction patent, is considered by many to be the Thomas Edison of our time.<sup>42</sup> Walker runs a company called Walker Digital that does nothing but devise, patent, and license innovative new business models. Their slogan is that they are “Inventing the DNA of New Business Systems.” So far, Walker’s company holds over 200 business method patents in sectors as diverse as airlines, credit cards, healthcare, retail, and video games. He has earned the accolades of the business press, with *Business Week* selecting Walker as one of the internet’s 25 most influential pioneers for “changing the competitive landscape of almost every industry in the world.”<sup>43</sup>

Others criticize Walker for patenting the obvious and then intimidating other companies with the threat of lawsuits. For instance, Walker’s Priceline.com took rival Expedia.com to court when Expedia introduced its own reverse auction feature. The matter was eventually settled out of court, with Expedia agreeing to pay a license fee. Still, it was bad publicity for Priceline, who insisted that such injunctions are necessary so new entrants

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<sup>40</sup> This conjecture is laid out forcefully in J. Lerner, ‘Patenting in the Shadow of Competitors’, *Journal of Law and Economics*, Vol. 38:2 (2002), pp. 463-496.

<sup>41</sup> Among the press stories posted on CSR’s website is D. Shen, ‘CSR and Broadcom to dominate Bluetooth chip market’, *DigiTimes* (10 May 2005), [http://www.digitimes.com/bits\\_chips/a20050510A2002.html](http://www.digitimes.com/bits_chips/a20050510A2002.html).

<sup>42</sup> For an entertaining and critical look at Walker, see M. Gimein, ‘Jay Walker’s patent mania’, *Salon.com* (27 Aug. 1999), <http://www.salon.com/tech/feature/1999/08/27/priceline>.

<sup>43</sup> ‘About Jay Walker’, *Walker Digital Website* (Accessed 1 June 2005), [http://www.walkerdigital.com/OutCompany\\_JayWalker.html](http://www.walkerdigital.com/OutCompany_JayWalker.html).

can earn enough lead time before coasting on network effects.<sup>44</sup> But Larry Lessig, a Stanford Law School professor, condemned people in Walker's line of work as "little mafia monopoly holders who can go around demanding, with a federal court behind them, that you pay up or we'll shut you down."<sup>45</sup> Despite the controversy surrounding the utility of Walker's business, one thing is for sure. If business method patents didn't exist, he would be out of business. And small firms like his that specialize in creating business process knowledge would not have any incentive to innovate.

### 3.3 A FOSBURY FLOP: ARGUMENTS IN OPPOSITION

Interestingly, on the other side of the innovation controversy there are economists who contend that business method patents actually harm new entrants. In a world without such patents, they claim that new entrants would be liberated. Their basic argument is that when the fundamental machinery of doing business is broken up into different pieces, the transaction costs of operating a business become prohibitively high. If you have to negotiate a license with the owner of every metaphorical gear, lever, and widget, how can you run your business's machinery?

Such a metaphor is not far from the truth, they say. The very building blocks of e-commerce seem to be getting swallowed up by patents. Each passing week brings news of the patent office issuing yet another vital patent, like those on electronic shopping carts (USPTO patent number 5,909,492), gift certificates (6,594,644), targeted advertising (6,718,551), and even hyperlinking (4,873,662, though it was later declared largely invalid). Industries like e-commerce that require the recombination of a number of technologies to conduct business

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<sup>44</sup> R.M. Hunt, *op. cit.* (2001), p. 12.

<sup>45</sup> J. Gleick, *op. cit.* (2000) has other gems from Larry Lessig.

oftentimes find themselves paralyzed by the cost of cross-licensing.<sup>46</sup> They have to spend valuable resources negotiating payments with all of the owners of all of the patents they are knowingly (or unknowingly) infringing. Otherwise, they risk getting slapped with a lawsuit.

These are not just speculative arguments. A number of economists have conducted studies in the semiconductor industry, for example, to document the amount of capital wasted on negotiating cross-licensing agreements.<sup>47</sup> Much like the e-commerce industry, the semiconductor sector requires integration of multiple technologies to create new chips. One highly cited study concluded, “The implication is that in rapidly innovating industries where each new product builds on others, welfare is more likely to be enhanced by having a high hurdle for obtaining a patent.”<sup>48</sup> It’s clear that most business methods tend to build upon others, so rampant patenting might have a chilling effect and keep new entrants from participating in the market.

There is an even stronger force that keeps new entrants from the market. Most often, patent holders do not formally file suit against small companies. Instead, they just send the entrant a menacing letter threatening to litigate if the small company doesn’t stop infringing the patent. Unfortunately, it is difficult to quantify the effects that hostile letters have on new entrants.<sup>49</sup> Unlike actual lawsuits, which are matters of public record and easy to analyze statistically, threats of litigation are usually handled quietly within a company. Most firms don’t wish to make it publicly known they are at risk of litigation, lest they spook investors. However, given that it costs on average one million dollars to defend a patent infringement

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<sup>46</sup> An excellent study on the impact of cross-licensing on sequential innovation is J. Green and S. Scotchmer, ‘On the Division of Profit in Sequential Innovation’, *Rand Journal of Economics*, Vol. 26 (1995), pp. 20-33.

<sup>47</sup> Summarized in M.A. Heller and R.S. Eisenberg, ‘Can Patents Deter Innovation? The Anticommons in Biomedical Research’, *Science*, Vol. 280 (1998), pp. 698-701.

<sup>48</sup> This is a quotation from B.H. Hall, *op. cit.* (2003), p. 8 describing T. O’Donoghue, ‘A Patentability Requirement for Sequential Innovation’, *Rand Journal of Economics*, Vol. 29:4 (1998), pp. 654-679.

<sup>49</sup> A litany of other reasons for the difficulty of economic studies is in W.M. Cohen, *op. cit.* (2003), p. 4.

case<sup>50</sup>, it would be surprising if when faced with the threat of litigation, a new entrant didn't alter its strategy.

On top of the new entrant rationale, economists opposing these patents often reprise an argument we encountered earlier: these patents simply aren't a required catalyst for innovation. Commerce is already a highly competitive process, both for new entrants and for incumbents. The economists point to evidence from the software industry to show how certain sectors can have lively innovation even in the absence of patents. Hunt's study<sup>51</sup> observed how the ratio of R&D spending to sales in software companies rose from 5% in the 1980s to 7.5% in 2000. Although this is an impressive amount of growth, most of this increase came before 1990, a time when no one was confident that software was patentable. In other words, patents didn't seem to encourage further expansion of research expenditure. Instead, a growing market for software and increased competition between software vendors is what did the trick. The economists extrapolate that like software, business methods are a self-sustaining sector as well. As such, business method patents just aren't *needed*.

The final and most damaging criticism against business method patents is how they can cripple the natural functionality of the marketplace. Like any other form of monopoly, patents restrain trade. But what makes business method patents wholly different from ordinary patents is that they constitute a monopoly on the competitive process itself. Smith puts it the most concisely when he writes, "Business method patents are different from other patents because business method patents go beyond limiting the goods or services that a competitor can use or sell [and go so far as to] limit a competitor's ability to *participate* in the marketplace in the first place."<sup>52</sup> In our society, we want to setup a system that encourages people to bring new types of goods to the market, and then trust the competitive forces of the

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<sup>50</sup> J. Gleick, *op. cit.* (2000).

<sup>51</sup> R.M. Hunt, *op. cit.* (2001), p. 11.

<sup>52</sup> N.A. Smith, *op. cit.* (2002), p. 183.

market to reward them appropriately. But instead what business method patents seem to do is allow certain people to forbid their competitors from coming to the market at all.

To make this point clearer, it's instructive to relive one of the brightest moments in sports history. At the 1968 Olympic Games in Mexico City, American track athlete Dick Fosbury revolutionized the sport of high jumping. Up to that point, high jumpers had leapt over the bar in an upright posture, separately swinging each of their legs over the bar in a scissor-kick maneuver. Fosbury, however, devised a new method. He arched his back and leapt over the bar backwards, letting both his legs sail over the bar at the same time. This allowed his center of gravity to pass underneath the bar instead of above it, enabling the track star to clear much higher heights. The world watched with amazement as Fosbury performed his bizarre yet breathtaking "flop". Fosbury effortlessly trounced the competition, soared to the gold medal, and set a new Olympic record.

Now suppose for an instant that Fosbury had been able to patent his maneuver. Anybody else who wanted to use the Fosbury flop in future competitions would have been forbidden from attempting it. How would this have changed the nature of the game? For one thing, high jumping would've been no fun to watch if Fosbury was the only athlete ever capable of winning. In fact, it would've betrayed the idea of a 'competition' at all. No matter how hard the other athletes had trained or how naturally talented their bodies were, they would've had no hope of winning. What spectators really enjoy is seeing great athletes push each other to the limit on a level playing field, so that they can all aspire to reach new heights. And that's what citizen-consumers should demand to see in the great inventors who compete in the marketplace, too. As Dreyfuss writes, "Winning and losing is supposed to depend on execution, not on exclusive rights to the moves that need to be executed."<sup>53</sup>

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<sup>53</sup> R.C. Dreyfuss, *op. cit.* (2003), p. 13.

### 3.4 A COMPETITIVE ART: SUMMARY OF ARGUMENTS

In short, the economic controversy over business method patents hinges on the question of who actually wins and loses as a result of these regulations. Both camps tend to agree that in the absence of business method patents, large players would not be significantly hurt. The networked economy is a competitive enough place that the promise of larger market share is sufficient motivation; companies would still be willing to commit the modest resources necessary for business process innovation. It is the fate of the small players that is debated. The two camps reach opposite conclusions. Proponents contend that these patents are the only way that new entrants can be motivated to develop business process innovations. Without them, the ‘knowledge factories’ driving the 21<sup>st</sup> century economy would die. Meanwhile, opponents insist that these patents tie up so much of the machinery of doing business that new entrants are scared out of the market by the threat of litigation and the expense of cross-licensing. Nothing, they claim, could be further from the interest of the consumer than restricting the art of competition itself.

These finds create an interesting paradox in our overall question of whether business method patents foster innovation. If these patents keep small players from the game, then they don’t increase innovation (assuming big players behave the same with or without these patents). But if these patents encourage small players to participate in the game, then they do promote innovation. In the next chapter, we seek out empirical evidence to untie this knot.

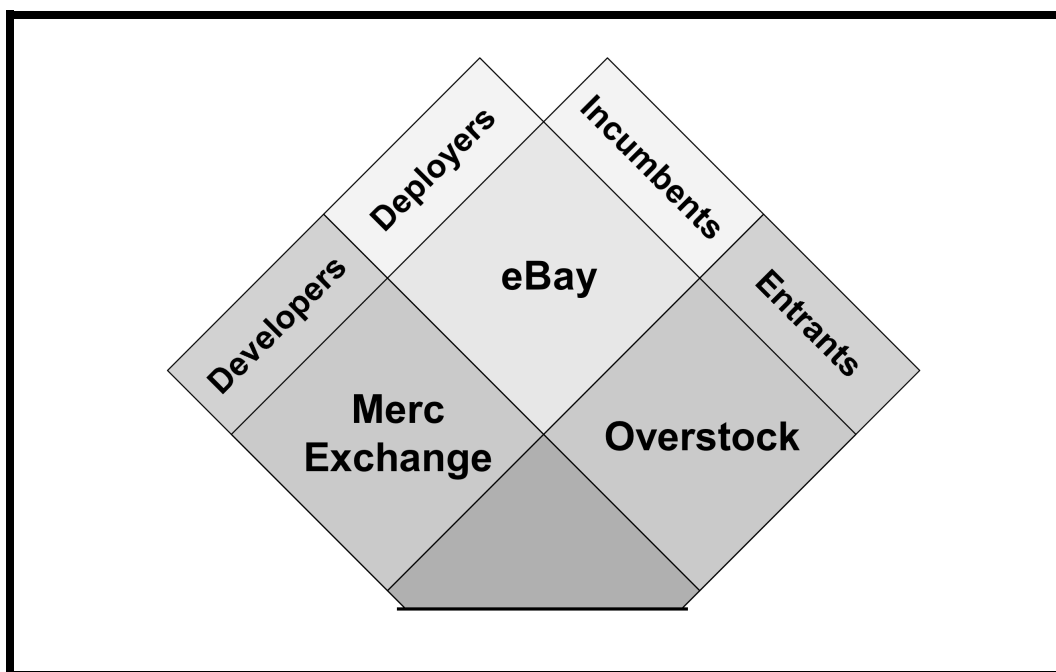
## CHAPTER 4: THE COMMERCIAL RESPONSE

In the previous chapter, we covered the basic arguments that economists have voiced for and against business method patents. We did this as a means of identifying which parties stand to lose or gain incentives to invest in business process research as a consequence of these patents. The economic predictions uncovered a peculiar inconsistency. Some economists believed that small players would be hurt by the revocation of business method patents, while others believed they would be helped. To answer our overarching query about whether these patents encourage business process innovation, we need to seek out empirical evidence. We need to get better insight into the plight of small firms in competitive industries. What is the reality? Which set of economic predictions is closer to the truth? In the wake of *State Street*, businesses didn't have the luxury of writing position papers. They had to act. How they responded with their competitive strategies can reveal their underlying attitude towards business method patents.

So, in this chapter, we analyze how businesses have coped with this grand experiment of business method patents. It's too ambitious a task to look at all possible sectors where these patents have had repercussions. Instead, we narrow the inquiry to the sector that seemed to be the most contentious battleground during the business method patents debates of 2000: the online auction industry. We choose this industry because online auction processes seem to exemplify most of the economic characteristics of business methods that we looked at in the last chapter. For instance, they are electronic translations of age-old auction techniques, they apply across industries (collectibles, cars, supplies, etc.), and they have strong network effects. If business method patents have distortive effects—for better or for worse—then we should see evidence of it in this sector.

## 4.1 A FRAMEWORK FOR COMPETITIVE ANALYSIS

It is helpful to first establish a framework for this analysis. As discovered from the economic predictions, the two arenas where business method patents were likely to have the largest impact were the skirmishes between ‘Incumbents’ vs. ‘Entrants’ and between ‘Deployers’ and ‘Developers’. Although these terms aren’t clear-cut, we generally use ‘Incumbent’ to mean a well-established and dominant firm, whereas an ‘Entrant’ is a comparatively small player trying to increase its market share. Similarly, a ‘Deployer’ is a company that is actively competing in the marketplace and trying to bring a product to market, whereas a ‘Developer’ is a pure knowledge factory that only licenses patents to third party ‘Deployers’. Given these categories, we can generate a matrix and put the companies we will study in the appropriate slots:



**Figure 3:** The classification matrix. This illustrates how the companies we will examine in the case study fit into the competitive landscape of the online auction industry.

The remainder of this chapter will be a series of case studies looking at the companies listed in the matrix above. The goal is to try to evaluate their competitive strategies and

identify any themes that emerge. To structure this evaluation, there are three classes of competitive strategy that a company can use in handling their patents:

- *Defensive.* First, they can take a purely ‘defensive’ attitude. With this strategy, a firm files patents purely for the purpose of protection against rivals. They don’t intend on suing any of their rivals; they just want to make sure that none of their rivals can sue them. Dell Computer, for example, is known to use this strategy. When asked why Dell had filed for over 77 patents to cover their business processes instead of their machines, Henry Garrana, the Dell’s Vice President of Intellectual Property, said, “They make people go away. In this business, that’s what matters.”<sup>54</sup>
- *Neutral.* With a ‘neutral’ strategy, a firm takes out patents on their inventions for the purpose of later using the patents as bargaining chips. If at some point in the future, a rival threatens litigation, the firm looks at their war chest of patents and attempts to negotiate a cross-licensing agreement with the rival. Gregg E. Blonder, Vice President of Bell Labs, described AT&T’s neutral strategy like a high noon dual. “As to my own business-process patents, well, as long as everyone in town is carrying a gun, I have to be armed as well.”<sup>55</sup> IBM is famous for using this neutral strategy as well. Collecting on average ten new patents per day for their patent war chest, IBM occasionally brandishes their guns to establish favorable cross-licensing agreements.<sup>56</sup>
- *Offensive.* In an offensive strategy, a firm comes out with all guns blazing. They litigate rivals as a means of erecting entry barriers, slowing the diffusion of their competitors’ products, or just collecting royalties. Companies like Walker Digital, which we encountered earlier, fit snugly into this category. Another example is Intellectual Ventures, a Seattle-based firm that has amassed a pool of over one

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<sup>54</sup> ‘Patent wars’, *The Economist* (6 Apr. 2000), [http://www.economist.com/displayStory.cfm?Story\\_ID=332256](http://www.economist.com/displayStory.cfm?Story_ID=332256).

<sup>55</sup> J. Gleick, *op. cit.* (2000).

<sup>56</sup> *Ibid.*

thousand patents. The company has scores of patent lawyers who spend their days negotiating profitable licensing agreements with firms that violate their patents.<sup>57</sup>

These strategic classes have different implications for the effect of business method patents on innovation. Although defensive patenting does not harm competition, it is evidence that patenting does not encourage additional innovation. After all, if the patent system has the sole effect of forcing companies to insulate themselves from threat, then it can be seen as a tax on innovation.<sup>58</sup> Similarly, neutral strategies are also evidence that patents are wasteful. They create a situation where companies feel that they must engage in an arms race to survive, and this raises the cost of innovation.<sup>59</sup> Offensive strategies, on the other hand, may result in excessive litigation, but they are at least evidence that firms see their patents as assets that confer a competitive advantage. In other words, offensive strategies are indicators that firms need patents to be competitive. The bottom line in our analysis of online auction firms is that the ones that mount an offensive strategy are likely the only ones who would be worse off in the absence of business method patents. Those with neutral or defensive strategies would be better off since their transaction costs would be reduced.

## 4.2 INCUMBENTS: EBAY'S LOW PROFILE

In the popular psyche, eBay has become synonymous with online auctions. They are a titanic firm—the biggest in the industry by several orders of magnitude—and one of the few survivors of the dot com bust. eBay's story begins in September of 1995, when Pierre Omidyar spent a single weekend programming an internet website that created a virtual marketplace for the exchange of goods using an auction system. Initially, the website

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<sup>57</sup> B. Stone, *op. cit.* (2004).

<sup>58</sup> B.H. Hall, *op. cit.* (2003), p. 10.

<sup>59</sup> W.M. Cohen and S.A. Merrill, *op. cit.* (2003), p. 4 also has some nice insights on how the crippling of sequential innovation can lead companies to abandon promising research.

attracted collectors of obscure items like Pez dispensers and music boxes.<sup>60</sup> But the system was flexible enough to allow any kind of item to be listed. As momentum started to build and word spread, eBay steadily grew into an exponentially larger community. Network effects throttled up eBay's popularity. As the biggest online auction site, eBay was the place that new buyers wanted to shop because there was the largest selection of goods. Similarly, eBay was the place that sellers wanted to list their items because that's where they'd find the most buyers. As of 2004, this virtuous cycle has propelled eBay to annual net revenues of \$3.27 billion (51% increase over the previous year), annual listings totaling 1.4 billion (a 45% increase), and 153 million users (a 53% increase).<sup>61</sup>

The journey from a startup to a company worth more than General Motors hasn't been an entirely smooth one. The eBay marketplace has been plagued with issues of fraud. eBay has had to spend millions of dollars to prosecute fraudulent sellers and to close up other security holes. Also, rival companies like Bidder's Edge have persistently violated eBay's copyright on its listings, echoing them on their own websites.<sup>62</sup> And numerous firms have chosen names akin to eBay's, like BidBay, threatening eBay's brand and trademark.<sup>63</sup> As a result, eBay has been no stranger to litigation; it is frequently involved in fraud, copyright, and trademark lawsuits.

But to date, eBay has never filed suit against any rival for allegedly violating one of its business method patents. eBay itself holds nine different patents relating to online auction methods. Examples include "Method and apparatus for verifying the identity of a participant within an on-line auction environment" (USPTO 6,466,917) and "Information presentation

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<sup>60</sup> eBay's creation myth can be found many places. See 'Pierre Omidyar', *Wikipedia: The Free Encyclopedia* (Accessed 1 June 2005), [http://en.wikipedia.org/Pierre\\_omidyar](http://en.wikipedia.org/Pierre_omidyar), among others.

<sup>61</sup> 'eBay Inc. Announces Fourth Quarter and Full Year 2004 Financial Results', *eBay Press Release* (19 Jan. 2005).

<sup>62</sup> T. Wolverton, 'Judge bars Bidder's Edge Web crawler on eBay', *CNet News* (21 Sep. 2000), <http://news.com.com/2100-1017-241083.html>.

<sup>63</sup> I. Steiner, 'BidBay Settles eBay Lawsuit, Will Become AuctionDiner.com', *AuctionBytes* (21 Feb. 2002), <http://www.auctionbytes.com/cab/abn/y02/m02/i21/s01>.

and management in an online trading environment” (6,732,161). Although none of these are considered the ‘foundational’ patents for online auctions, they contain hefty enough claims that at least some of eBay’s rivals are likely to be infringing at least one of them. Yet eBay has still chosen never to litigate against a rival on these counts, even though with their deep pockets they could surely paralyze other firms. Clearly, eBay has adopted a purely defensive strategy when it comes to their business method patents.

The question is why. Meg Whitman, eBay’s CEO, hardly mentions the importance of patents in any of her speeches. Instead, she is quick to mention superior customer service, impressive security, and quality of user experience as eBay’s core assets. This is largely consistent with the attitudes of incumbent players in other industries. Surveys of the leaders of some of the world’s largest corporations deemed being first to market, having strong brand loyalty, and protecting knowledge through trade secrets as being more important than patents.<sup>64</sup> This rationale is quite reasonable. When you are at the top, everyone is gunning for you. That makes it dangerous to engage in frivolous lawsuits. It’s possible that one of your victims might actually own a critical patent you are infringing and choose to file a countersuit against you, crippling your business. This seems to be eBay’s tact, at least.

#### 4.3 DEVELOPERS: MERCExchange’S REAL OPTION

Less than a year before eBay’s birth, a man out in Virginia had conceived of a very similar idea. Tom Woolston, an electrical engineering graduate and former employee of the CIA, had put together a technical document describing an electronic market that used auctions to match buyers with sellers. Woolston had originally thought that the system would

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<sup>64</sup> See both A. Arundel, ‘Patents in the Knowledge-Based Economy’, *Beleidstudies Technology Economie*, Vol. 37 (2001), pp. 67-88 and W.M. Cohen, et al., ‘Protecting Their Intellectual Assets: Appropriability Conditions and Why U.S. Manufacturing Firms Patent (or not).’, *National Bureau of Economic Research Working Papers*, No. 7522 (2000).

be useful for coordinating arbitrage on items like baseball cards, but he was quite aware that the system could be extended to other markets as well. He established a company named Fleanet to commercialize his online flea market idea. In April of 1995, Fleanet filed a series of three patents to protect Woolston's idea—just five months before Pierre Omidyar's eBay went live.<sup>65</sup>

The next few years were not as bright for Woolston as they were for Omidyar. After changing the company's name from Fleanet to MercExchange, Woolston recruited the assistance of a venture capitalist from Nebraska to help MercExchange establish itself. Unfortunately, that marriage was not meant to last. Woolston and the Nebraska venture capitalists had several fallings out over issues of strategy and marketing. The two parties decided to part ways. As Woolston recalled, "We basically blew it up, and unwound the investment transaction."<sup>66</sup> Untangling the mess took time. All the while, rival eBay continued to grow and gain market share.

Fortunes changed on the 1<sup>st</sup> of December 1998 when the USPTO issued MercExchange patent number 5,845,265 for "Consignment Nodes"—four months after Judge Rich had decided the *State Street* case. Woolston's patent application described the invention:

A method and apparatus for creating a computerized market for used and collectible goods by use of a plurality of low cost posting terminals and a market maker computer in a legal framework that establishes a bailee relationship and consignment contract with a purchaser of a good... to allow the purchaser to speculate on the price of collectibles in an electronic market for used goods while assuring the safe and trusted physical possession of a good with a vetted bailee.

Translating from the legalese, this gave MercExchange the foundational patent on online auctions. Woolston changed the company's strategy and decided that licensing this business method patent would be their most lucrative route.

Woolston started with the biggest fish in the pond, eBay. MercExchange setup talks with eBay officials to negotiate a licensing agreement. Those talks quickly fell through with

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<sup>65</sup> J. Wilkinson, 'The eBay Patent Wars: Interview with MercExchange CEO Thomas Woolston', *AuctionBytes* (30 Sep. 2004), <http://www.auctionbytes.com/cab/abn/y04/m09/i30/s01>.

<sup>66</sup> *Ibid.*

eBay refusing to pay any kind of royalties to MercExchange. Woolston took the battle to court. eBay, recognizing that their business model was on the line, warned their shareholders of the importance of the legal battle ahead. In a regulatory filing, eBay wrote:

If [MercExchange] were to prevail on any of its claims, we might be forced to pay significant damages and licensing fees, modify our business practices or even be enjoined from practicing a significant part of our U.S. business. Any such results could materially harm our business.<sup>67</sup>

The subsequent (and ongoing) lawsuit has indeed been a nasty seesaw battle. In an early decision, MercExchange won over \$29 million in damages. But then, upon appeal, those damages were thrown out and eBay successfully discredited several claims in MercExchange's key patents. The ferocity of the litigation has frustrated the judiciary. In the district court decision, Judge Jerome Friedman wrote, "As a result of the parties' inability to cooperate at all, this court has been forced to expend an incredible amount of time and resources handling this case".<sup>68</sup>

Still, there is one important lesson that we can learn from eBay and MercExchange's locking of horns. Clearly, MercExchange's primary goal through the entire proceeding has been to exact royalties from eBay—it has never been to shut eBay down. Scott Robertson, the lawyer representing MercExchange, said flat out, "We'd be willing to sit down and discuss a reasonable resolution of this matter at any time".<sup>69</sup> Woolston echoed this point. When asked whether he would like to license his patents to eBay instead of litigate, Woolston said it would be "up to eBay".<sup>70</sup> If we look at MercExchange's behavior in terms of the framework described earlier, it is clear that they are executing a textbook offensive strategy. As a company, MercExchange is using litigation to negotiate licensing terms with eBay. They have no interest in going into the market on their own; they just want to collect royalties.

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<sup>67</sup> T. Wolverson, 'Patent suit could sting eBay', *CNet News* (5 Sep. 2002), <http://news.com.com/2100-1017-956638.html>.

<sup>68</sup> T. Wolverson, 'eBay patent case moves closer to trial', *CNet News* (25 Oct. 2002), <http://news.com.com/2100-1017-963434.html>.

<sup>69</sup> *Ibid.*

<sup>70</sup> S. Decker, 'Mixed Verdict on EBay Appeal', *Washington Post* (17 March 2005), p. E05.

To MercExchange and other firms with offensive strategies, patents are a kind of real option giving them the right, but not the obligation, to sue infringers.<sup>71</sup> Litigation is a means of exercising the option. In some sense, these firms actually hope for infringement because that is the only way they can cash in on their patents. So far, these tactics appear to be working for MercExchange. They've already licensed patents to other online auction houses like AutoTrader.com. As part of the announcement of the licensing deal, Chip Perry, the CEO of AutoTrader, explained, "We chose to obtain a license for our Auction-Style product because we respect the MercExchange patents".<sup>72</sup> MercExchange's offensive strategy probably helped establish that respect in the first place.

#### 4.4 ENTRANTS: OVERSTOCK'S MINEFIELD

Overstock.com is a leading online retailer. They specialize in buying up merchandise from companies that have gone out of business, and then reselling those items to customers at a deep discount. This business model has attracted Overstock a large following of devotees. Last year, in a surprise move, Overstock launched an online auction service intended to steal unhappy customers away from eBay. Now the company is battling head to head with the auction giant. For this dissertation, Dr. Patrick Byrne, Overstock's CEO, agreed to participate in a personal phone interview with me. During the interview, we had a chance to talk about Overstock's attitude towards business method patents and how it affected their strategy.

Byrne repeatedly emphasized his opinion that business method patents were a ridiculous idea and a categorical burden on his company. "Look, business process patents have gotten way out of control," he said. "They were the result of a few unwise decisions in

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<sup>71</sup> An interesting investigation into how business method patents appear to be real options is A. Nerkar, et al., 'Business Method Patents as Real Options: Value and Disclosure as Drivers of Litigation', unpublished as of (2004), [http://www.olin.wustl.edu/cres/research/calendar/files/olin\\_nerkar.pdf](http://www.olin.wustl.edu/cres/research/calendar/files/olin_nerkar.pdf).

<sup>72</sup> 'AutoTrader.com Licenses MercExchange Patents for Auction-Style Listings', *MercExchange Press Release* (16 Jan. 2003).

the late '90s by some judges who didn't know much. The technology of the internet was outside of their area of expertise. Now, unfortunately, we have no choice but to live under these new rules." Overstock, he explained, doesn't aggressively patent business processes. When asked why he didn't pursue them for even defensive purposes, Byrne explained, "What's the point of having a patent if you aren't going to use it? Over here, we have a limited amount of resources. We'd rather spend them improving our customer's experiences than spending all day in court."

At the bottom of Overstock's auction webpage, however, there is a line of text reading "Patent Pending." When queried what this patent referred to, Byrne revealed that Overstock actually does file a few patents, "But only on things we think are actually novel." As an example, Byrne said that they had patented a system that combined social networking with e-commerce (essentially letting friends recommend products to each other). What was Overstock's motivation in filing a patent like this? Byrne confessed, "Well, to be honest, we're just going to sit on this patent. But if this idea takes off and gets to be an important asset, we'll use it as a competitive advantage and exercise our right. If another website copies it, we might send them a letter asking them to take it down." This was an interesting moment. On the one hand, Overstock claimed to not care for business process patents, yet they also kept a few potentially valuable ones in their back pocket. Byrne was quick to sense this contradiction and said, "I know you're going to think I'm being hypocritical, but I'm not. We can't just avoid them altogether. We have to survive."

Surviving in an atmosphere of furious litigation is tough, according to Byrne. At the present moment, Overstock is being sued by five different patent holders, including one who claims to have invented the electronic shopping cart. These are just the tip of the iceberg. Byrne grumbled, "It seems like everyday we get a letter from someone who is threatening to sue us.... [One of our rivals] has a department full of lawyers that is just as big as our

marketing department. They specialize in throwing down logs in front of the competition.... We have to spend over five million dollars a year defending against these lawsuits. That's a lot of money we could be putting to much more productive use...! On the totem pole of hassle factors, these patents have got to be near the top."

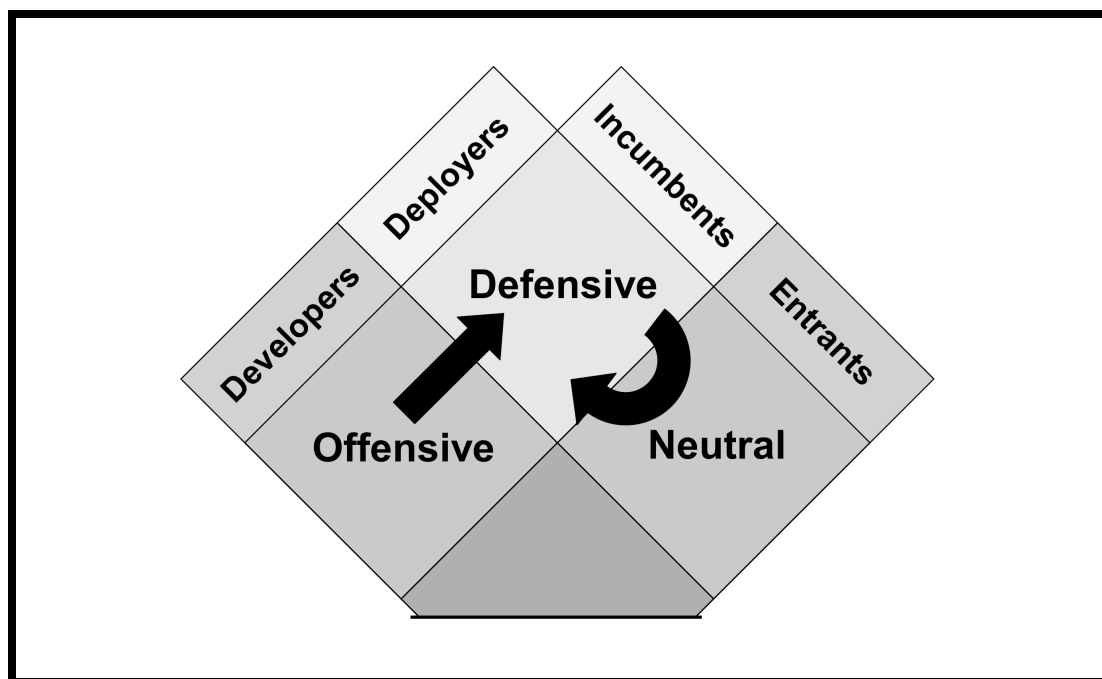
What troubled him even more than the hassle factor, however, was how much Overstock had to modify their services in order to step around the minefield of patents held by other companies. "We have a team of people who do nothing but read about the patents owned by our competitors. And then we have to design and redesign our stuff all around what [our rivals] are doing because we don't want to get sued. We're just trying to connect with our customers, but instead we find ourselves having to jump through all of these hoops." To close the interview, I asked Byrne whether Overstock would prefer if business method patents just disappeared. Without hesitation, Byrne fired back, "Yes, we'd be better off. And the world would be better off, too."

Reading between the lines, it is evident that Overstock has chosen to employ a neutral strategy. They are almost always on the defensive, trying to fight back against what they consider frivolous lawsuits. But they also have an eye towards future business models that might be the next big thing. They continue to file patents to make sure they can be part of those games if they materialize. On balance though, Overstock would rather give away their arsenal of patents if it meant peace with competitors. Byrne noted, "If [rival CEOs] came to me and said we should mutually disarm, I'd sign on. But no one has called me yet."

#### 4.5 A SKEWED BALANCE

Putting these miniature case studies together, we can try to paint a general picture of which types of competitive strategies the firms in the classification matrix are likely to

employ. Although online auctions aren't necessarily 100% representative of the rest of the business industry, it still points to a few important lessons. First, the incumbents (eBay in this case) seem to adopt a defensive posture. They value other factors such as lead time, network effects, and branding much more than their patents. The developers (MercExchange in this case) seem to adopt an offensive strategy. Their only true assets are their patents, so they use litigation as a means of exercising their real options. Finally, the entrants (Overstock in this case) seem to adopt a neutral strategy. They spend most of their time defending against claims of infringement, yet they still hold onto a few patents in case they later become instruments of competitive advantage.



**Figure 4:** The strategy matrix. This recaps the types of strategies adopted by firms in the matrix. Lines indicate attacks on rivals. Hence, firms with outgoing lines tend to use business method patents for competitive advantage. Firms with incoming lines are more likely to be burdened by these patents.

Based on this strategy matrix, we can begin to resolve the ‘small firm’ paradox predicted in the previous chapter. Recall that some economists felt that these patents harmed small firms, while others felt the patents helped them. This duality disappears when we subdivide the group of small firms into ‘entrants’ and ‘developers’. Small entrant firms are likely to find themselves largely tied down by business method patents and forced to tiptoe

through a minefield of litigation. Small developers, however, actively embrace business method patents as a way of extracting license fees.

This leads us at last to a final judgment on the question of who would innovate less in the absence of business method patents. Since only firms using offensive strategies would reduce their innovative output, the bottom line is that if we were to take these patents away, pure developers would be the only firms to suffer. ‘Entrants’ and ‘incumbents’, however, would welcome the relief. As it stands now, ‘knowledge factory’ developers are the only parties who view business method patents as a motivator for innovation. Everyone else feels tied down.

<b>Firm Type</b>	<b>Innovative Activity WITH Business Method Patents</b>	<b>Innovative Activity WITHOUT Business Method Patents</b>
<b>Incumbents</b>	★★	★★★★
<b>Entrants</b>	★★	★★★★★
<b>Developers</b>	★★★★★	★
<b>OVERALL</b>	★★	★★★★

**Figure 5: Winners & Losers.** This chart is a high-level qualitative summary of the amount of business process innovation we can expect from firms in the presence and absence of business method patents.

Is the extra innovation that society gets from these knowledge factories enough to compensate for the harsh restrictions it places on the rest of industry? If the inventions created by knowledge factories required substantial investment, maybe this tradeoff would be acceptable. Like in the case of pharmaceuticals, generic drug manufacturers are restricted from duplicating patented drugs because we want to help researchers recoup their sizeable expenses. But because business method patents require almost no money to conceive, they are a different beast altogether. Even without patents as motivators, entrants and incumbents

would want to invent new business processes; it costs them next to nothing and confers them with a competitive advantage. Right now, we're holding those innovations back.

In essence, business method patents are allowing the trickle of inventions coming from knowledge factories to paralyze the torrent of inventions the rest of industry is eager to provide. The conclusions are distressing: Business method patents have egregiously violated the terms of their utilitarian contract. They have skewed the 'innovation balance'. And there would likely be more business process innovation without them.

## CHAPTER 5: A POLICY CONUNDRUM

Our investigation of business method patents has taken us through many lands. We've explored the origins of business method patents in legal history, predicted their economic implications, and assessed their actual commercial impact. We've done this with the hope of answering the simple question: Do business method patents actually inspire business process innovation? To solve this puzzle, each of these domains provided a small piece. Policymakers need to look at the unified picture that emerges.

### 5.1 THE PUZZLE PIECES

The legal puzzle piece shows us that patents are meant above all to promote progress in the useful arts—to create incentives for innovation while minimally crippling the market. Historically, that Faustian bargain has meant granting patents on processes, but banning them on principles. However, technology has now advanced to the point that it has proven next to impossible for the courts to distinguish between a software-implemented business process and a useful, but abstract, business principle. The key lesson is that even if these patents violate the Faustian bargain, we cannot just outlaw them altogether. They are far too intertwined with other facets of technology. Getting rid of them might jeopardize other areas of technical innovation. We don't want to throw out the baby with the bathwater.

The economic puzzle piece shows us which players in the marketplace stand to lose the most if business method patents were to disappear. Although there was substantial disagreement and controversy amongst economists, both factions seemed most concerned about the fate of small players in the game. Proponents of business method patents argued that these patents were critical to insure that small 'knowledge factories' churn out valuable

business process inventions. Opponents argued that business method patents actually hurt small ‘new entrant’ firms because their access to the tools of competition was being systematically restricted—just as if the Fosbury flop were taken away from high jumpers.

And the commercial puzzle piece shows us that both factions of economists are probably right, at least in the online auction industry. New entrants tend to use neutral strategies, filing patents in the hopes of someday getting a competitive advantage. But overall, they feel crushed by the weight of lawsuits. Knowledge factories, on the other hand, embrace lawsuits as part of their offensive strategy to extract licensing fees. All the while, incumbents are defensively patenting processes as part of an arms race against the litigants who are eager to take them down. In short, with both incumbents and new entrants looking at these patents as threats rather than opportunities, there must clearly be a problem.

## 5.2 THE WHOLE PICTURE

Looking at the whole picture, it appears that something has gone terribly wrong. In granting business method patents, our society expected an adequate return. As it stands now, we are not getting it. Business method patents have proven to be an encumbrance for almost every firm in the economy, except those like Walker Digital who operate business process knowledge factories. In essence, we’ve been giving away twenty-year monopolies to people who conceive of ideas but have no intention of bringing them to market on their own. Compared to the miniscule investment that these developers put in, their reward is astronomical. While these developers definitely contribute to society by devising inventive business processes, they’ve been crippling the competitiveness of the marketplace for everyone else. It is hard to come to any conclusion other than these patents are slowing

business process innovation. This hardly seems like the kind of balance that the Founding Fathers were hoping to forge.

Policymakers are left with few options to solve this problem. The take-away lesson from this dissertation is that any potential solution needs to fit within three strict boundaries:

- 1. We can't get rid of business method patents outright.**
- 2. We must keep the tools of competition available for all firms in the marketplace.**
- 3. We should find a way to maintain incentives for knowledge factories to operate.**

In the hopes of sparking discussion within the policy community, here is a sketch of one possible middle ground that appears to adhere to these boundaries. Future policy thinkers may want to investigate it more closely. Consider a system where business method patents were subject to compulsory licenses. Under this regime, if a firm wanted to use a business method that was already patented, all they would need to do is pay the patent holder a government-regulated licensing fee. This is an attractive solution for many reasons. First, it doesn't deem business process patents illegal, so the current judicial paradigm would be preserved. Second, it continues to encourage knowledge factories to innovate because they'd receive substantial returns through royalties. And third, this would architect a more competitive marketplace because no single firm could hold the exclusive rights to a business technique. Perhaps this would rebalance the Faustian bargain while freeing the Fosbury flop.

### 5.3 THE LANGUAGE GAME

It won't be easy to enact any changes in legislation, unfortunately. Over the past fifty years, there has been a progressive erosion in the idea of a commons. Instead, our culture finds itself captivated by the idea that whenever something has value, someone deserves the

right to capture it through private property.<sup>73</sup> The likely culprit behind this transformation is the simple usage of *language*. There has been a troubling evolution in the rhetoric that politicians and the media employ to debate issues around patents. The vocabulary they use has lost sight of the original purpose of patents. When the Founders talked of a patent, they talked about it in terms of a government-granted *monopoly*. But these days, we all refer to patents and copyrights as forms of intellectual *property*. The fact of the matter is that anointing patents with the label of ‘property’ is a misnomer. Property is a means of resolving rivalry and solving the tragedy of the commons.<sup>74</sup> In stark contrast, knowledge is inherently non-rivalrous. As more people use it, it doesn’t get ruined.

This change in terminology is not trivial or inconsequential. When we use the word ‘monopoly’, it reminds us that patents should be as limited as possible—that they are not ordinary bargains, but Faustian ones. But when we use the word ‘property’, there is a presumption that someone has the right to own it and keep it for themselves. It allows people like Jay Walker to sound persuasive when he says, “The burden of proof is not for the people who defend property rights, but for those who want to take them away”.<sup>75</sup> We should forgive Jay Walker for using this inaccurate rhetoric since he is defending his livelihood. But it’s an entirely different issue when the American federal government adopts it, too. Just last week, Jon Dudas, the U.S. Undersecretary for Commerce, went into a sixth grade class in Utah and delivered a sermon on the evils of copyright infringement. Dudas admonished, “Copying and downloading *Star Wars* video games and movies is not okay—it’s breaking the law because it is stealing someone else’s property. It’s important that people—especially

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<sup>73</sup> R.C. Dreyfuss, *op. cit.* (2003), p. 11.

<sup>74</sup> An outstanding articulation of this principle which has withstood the test of time is G. Hardin, 'The Tragedy of the Commons', *Science*, Vol. 162 (1968), pp. 1243- 1244.

<sup>75</sup> Quoted in S. Hunter, 'Have Business Method Patents Gotten a Bum Rap? Some Empirical Evidence', *MIT Sloan Center for eBusiness Working Papers*, No. 182 (2003), p. 2.

children—show respect for others’ property, whether it’s your next door neighbor, your classmate or a company that’s far, far away”.<sup>76</sup>

Clearly the prevailing political and cultural winds of today are blowing ever more towards individual property than towards the commons. If we don’t change our usage of language immediately, there will be serious cultural repercussions. We must never forget that intellectual ‘property’ is really a society-sponsored intellectual monopoly. We must never forget that we sponsor these monopolies to create a catalyst for the creation of new ideas, and not because we feel inventors have the right to concentrate their wealth by owning ideas. And, through it all, we must never forget that when we share thoughts and ideas, we are all better off. The day we forget this will be the same day we find ourselves believing that we can do more on our own than we can do together. We will, in essence, have given up on the idea of democracy.

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<sup>76</sup> ‘Chief U.S. Intellectual Property Official Asks for Utah Schoolchildren’s Help in Fighting Illegal Downloading and Other Kinds of Piracy and Counterfeiting’, *USPTO Press Release* (24 May 2005).

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