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—A Comparative Assessment in the US and European Jurisdictions and an Evaluation of the Practical Implications

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Foreword

I am honoured to have been asked to write a foreword to Dr. Li Sun's book, which develops the themes originally contained in his doctoral thesis researched at Edinburgh Napier University. The principal question concerns how closely the legal provisions for Business Method Patents under US and European law (European Patent Convention) jurisdictions exist and what the implications of these provisions are. This question is important in an age of technological advances when global economies seek to take advantage quickly of new technologies but at the same time seek to protect the economic advantages obtained thereby. To answer this question, Dr. Li Sun drew on a range of methods which he handles capably. No clear methods either of carrying out this research or of testing findings were readily available. As a consequence, Dr. Li Sun required to consider the efficacy of patent law provision and to analyse its purposes, functions and social and economic effects. The development of appropriate methods renders the research sui generis and ably places the research project in a historical, philosophical, social and economic context as well as a legal one. Following upon this initial analysis, Dr. Li Sun examines the logical spaces of legal provision for business methods in

patent law in the US and European jurisdictions.

At first sight the legal provisions seem diametrically opposed. US law has long sought to give the widest possible interpretation to patentability justified both on the grounds of the US Constitutional rights and also of pragmatism, for why should entrepreneurs not be entitled to exploit their technologically enabled business methods? However, from originally wide provision, the scope of business method patents in the US has been severely constrained by judicial interpretation in recent years. The constraining concept used in the US has been the somewhat nebulous idea of patent quality. Rather than allowing all business method patents to be granted patentability, only those which pass rigorous quality assessment will be protected. This has resulted in US patent law reaching a relative stability and the law can now be reasonably clearly expressed in specific terms. In Europe, the approach to the patentability of business methods was diametrically the opposite of the US in adopting an exclusionary stance. The starting point was therefore the opposition to the patentability of business methods "as such". Nevertheless, the European courts have taken the view that where business method process inventions are contributed to by the achievement of a technical means, the solving of a technical problem, or the achievement of a technical effect they may nonetheless be patented. In effect, these contributory factors can be described as a measure of the inventive step which has long been regarded as one of the two key features (along with novelty) of European patentability. The interesting question for Dr. Li Sun's research was whether these two diametrically opposite stances ended up giving the same or similar logical spaces under patent law in the two jurisdic-

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tions. This is clearly an important issue for anyone intending to develop and exploit economically the implications of modern technological systems in business.

The outcome of Dr. Li Sun's research, involving a painstaking review of both US and European technological patents, has produced the somewhat surprising result that both jurisdictions, despite their different initial assumptions, end up with approximating provisions (though with some marginal differences in approach and in result). This may be because of economic and technological forces driving law reform and case interpretation in the two different jurisdictions. Nevertheless the two jurisdictions do retain stark differences in interpretative approach which Dr. Li Sun analyses. Both patent quality and inventive step required detailed analysis and specification not only as to their meanings but also as to their functional and economic effects upon patentability. Clearly the economic implications of this research required further analysis. So far as the triangulation of results is concerned, because no obvious corroborative methods existed, Dr. Li Sun concludes his study with a range of tests of both qualitative and quasi-quantitative form.

Both in its interpretative and conclusory methods this study has broken new ground and makes for a major contribution to the study of patent law for the modern global age. As a result, this book is both remarkable for the breadth as well as the depth of research. Its conclusions are of considerable importance as they provide an explanation of and interpretation of the patentability of business method patents in two major and important jurisdictions of the global environment, where technological advances are making considerable contributions to

their economies.

I had the great pleasure of being Dr. Li Sun's supervisor during his doctoral research, and it gives me much joy to renew my acquaintance with his work and to commend this book to a wide readership of Intellectual Property lawyers, businessmen, economists, historians and social theoreticians alike.

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27th March, 2014

Abstract

Advances in information technology have enabled the design and development of innovations in business methods. This is particularly felt with IT enabled innovations such as Sun Microsystems' stateless shopping cart for the web which is a Web shopping cart system that does not require any data files to be maintained on either the client or the server. Firms attempt to leverage these innovations to gain competitive advantages through cost reduction and other quality improvements, which may also pass some benefits on to consumers. However, such competitive advantages are increasingly difficult to sustain because business method innovations are often easy to copy or imitate. Quick and cheap imitation of innovative products and processes may reduce the incentives for firms to invest further in innovation. Thus, patent protection for business method inventions became a live issue with different outcomes as between the US and Europe. At present, in the US, business method patents are legally recognised since the *State Street Bank* decision, 149 F. 3d 1368 (US Court of Appeals for the Federal Circuit 1998). However, the European Patent Office (EPO) still is noncommittal although some business method-related inventions have been granted *de facto* protection by EPO such as Hitachi Ltd.'s automatic trading method and apparatus (EP 567 291), the Western Union Company's method and system for performing money transfer

transactions (EP 848 361) etc.. John Stuart Mill (1909) said "the superiority of one country over another, in a branch of production, often arises only from having begun it sooner".[1] So it seems that the uncertainty of EPO's attitude to business method patents may result in a serious negative impact in European industry and economy.

This book sets out to examine what precisely are the attitudes of the US and European institutions to business method patents and to explain what is the present law and how it has arisen. The author thereafter carries out an evaluation of the rationed economic and social effects of allowing/disallowing business method patents and to address the question of whether Europe should adopt patent protections for business method-related inventions.

To address these questions, the research focuses on the following questions: ① Under the current legal framework provided by EPC what business method-related inventions can be granted European patent? ② Whether business method-related inventions are worth protecting by the patents in Europe. To answer the latter question, the study not only analyses the predictable economic and social effects of allowing or alternatively disallowing business method protections generally, but also discuss "patent quality" which is used by US patent economists to analyse whether business method inventions have a sufficient value to justify the granting of exclusive patent rights in return for disclosure of the inventions' specifications to the public. In analysing the predictable and likely economic and social effects of allowing or alternatively disallowing business method protections, the US posi-

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[1] Mill, J. S., *Principles of Political Economy*, London: Longmans Green, 1909, 7th ed., p. 78

tion in patenting business method-related inventions needs to be considered, therefore, the study also evaluates the US patent legal framework for business method patents and contrasts it with the European position. Through analysis of the relevant provisions and decisions, the research has concluded that under the current legal framework business method apparatus inventions are patentable in Europe if they can meet the patentability requirements of the European Patent Convention (EPC). To the effect that if a business method process invention is achieved by a technical means, solves a technical problem, or achieves a technical effect, it is often patentable in Europe provided it meets the EPC patentability requirements. However, turning to the evaluation of the economic effects of business method patents, economic analysis cannot find strong evidence to support increasing the current protections for business method patents. At the same time, the economic analysis also cannot find strong evidence to oppose present protections for business method patents. But when the US position is considered, infringement risk would favour it for its appears on balance that there may be some reason to think that Europe should adopt stronger protections for business method patents. Furthermore, the value of disclosing patented business method-related inventions' specifications seems also to show that accepting business method patents is an appropriate choice for Europe.

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Chapter One:

Introduction

Doing business is always achieved by the use of efficacious methods. In early human societies people did business by barter with the assistance of linguistic formulae. However, barter was a very inconvenient means of trading because it required a double coincidence of wants on the one hand and of values on the other. With the growth of populations, the increase of the demand and the production of goods, people needed some medium (e. g. the invention of money) to solve the problem of values and in addition, businessmen or business organizations (such as guilds) could help to meet demands by means of diverse business methods. There was a definite relationship between the growth and development of enterprises and the development of enterprises' business methods. The important role played by business methods resulted in businessmen and other stakeholders seeking legal protections for their business methods. Trade secret law was the primary approach in law to achieve protection of competitive methods.

Trade secret protections provide insufficient protection for business method inventions because inventions are easily analysed or imitated using reverse engineering. However, it was

realised that temporary monopoly rights provided by patent law could perhaps afford some useful protection. So it came about that there was an attempt in 1868 for the first time to patent a business method[1]. The Hotel Security Checking Co. application was unsuccessful but was referred to a number of similar applications whereby the US courts come to accept some business methods could be protected by patent. However, successful business method-related patents were rare to non-existent between 1868 to the end of 20th century. Patent examiners and many other stakeholders generally regarded business method inventions as unpatentable subject matter[2].

Nevertheless, this initial reluctance has gradually been questioned with the global acceptance of computer enabled technologies and the Internet which together have revolutionised

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[1] John Tyler's "Cash-registering and Account-checking" invention (see *Hotel Security Checking Co. v. Lorraine Co.*, 160 F. 467 (2d Cir. 1908)). See Section 4.2.1, Chapter Four for a more detailed description.

[2] In the 1868 USPTO hearing Ex parte Abraham, the patent Commissioner asserted that "it is contrary to the spirit of the law ... to grant patents for methods of book-keeping" (1868 Com'r Dec 59). Also United in the USPTO Manual of Patent Examining Procedures ("MPEP") (1983), the Section 706.03 (a) provided: though seemingly within the category of process or method, a method of doing business can be rejected as not being within the statutory classes. This MPEP provision provided grounds summarily to reject a business method patent application. In 1996, the paragraph was deleted from the MPEP to reflect a shift in attitude towards software patents and their associated processes. See also Grusd, J. E., "Internet Business Methods: What Role Does and Should Patent Law Play?", *Virginia Journal of Law and Technology*, 4(9),1999, pp. 1522 ~ 1687. In this study, the author stated "patents should not be granted to Internet business methods". In Europe, EPC 52 (1973) provides "the following in particular shall not be regarded as inventions within the meaning of paragraph 1[i. e. Patentable invention]... (c) schemes, rules and methods for ... doing business..."

ways of doing business[1]. Computer use in business has resulted in people rethinking the patentability of business method inventions.

The US landmark case, State Street Bank & Trust Co. *v.* Signature Financial Group[2], wherein Signature Financial Group was granted a US business method-related patent entitled "Data Processing System for Hub and Spoke Financial Services Configuration"[3] on 9 March, 1999, aroused the public attention. It established that such computer enabled automatic data handling systems could be granted business method-related patents and forced IT businesses to review the whole issue of patent protection for their innovations once thought non-protectable. In the State Street Bank case, the court said that "the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application... produces a useful, concrete and tangible result" and hence held the claimed invention is patentable. The decision opened the flood gates for patent protection for certain types of business methods and resulted in many companies rushing to

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[1] For example, through its Website (www.amazon.com), the easy-to-use and easy-to-learn consumer interfaces created by Amazon.com, Inc. enables worldwide customers to find and purchase books, music, videos, and other items over the World Wide Web.

[2] *State Street Bank & Trust Co. v. Signature Financial Group*, 149 F. 3d 1368 (1998).

[3] This is a computerized business method that pooled mutual fund assets into an investment portfolio that was organized as partnership for tax benefits. See Section 4.2.9, Chapter Four for a more detailed description.

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