

Financial Services Research Forum

**Protecting Innovation in the Financial Services Sector:
A study of patent activity in UK financial services industries**

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Section 1 Executive Summary

In 2003 the Financial Services Research Forum based at Nottingham University Business School was aware that there had been changes within the past few years in the practice of patenting computer implemented inventions in Europe and the United States. This included computer-implemented based inventions, and business method inventions. They were curious as to the extent to which such patenting activity might be relevant to the financial services sector in the UK.

The Forum commissioned the Centre for Intellectual Property Policy & Management of Bournemouth University's Institute of Business and Law to undertake a research project entitled 'Protection of Innovation: New possibilities for competitive advantage'. Christopher O'Brien, Director of the Centre for Risk and Insurance Studies at Nottingham University Business School, has played a valuable role throughout the project.

There is a long history of successful patenting of technical inventions by financial sector players, and the companies that serve their needs. We were interested in computer-implemented business method applications, rather than patent applications for technical inventions. There is no watertight definition of a business-method patent. As a result, we had to rely on our own understanding that a business-method patent would relate in some way to a method of doing business.

In conjunction with the Centre for Risk and Insurance Studies we devised a questionnaire of 11 questions which were issued to 134 financial services companies, addressed to the Company Secretary, received 16% response, half of which were from big players in the sector.

Responses indicate low awareness of patenting as a commercially significant issue. They point to reasons for low level of patenting in the UK by UK companies of computer implemented financial service products.

75% had never considered applying for a patent, 46% could give no reason why not. 58% were unaware that computer-implemented financial service products can be patented in the United States. 42% believed it will not affect their operations over the next five years, whilst 53% were uncertain about the likelihood of negative impact. 31% felt that the innovation gap between the United States and the UK would negatively impact on their business in the next 5 – 10 years, whilst 38% did not know, and 31% felt it would not.

58% of respondents confirmed that some form of innovative service or product was developed by their company in the last five years. Innovation is perceived as key in the sector, and patenting is acknowledged as expensive, yet 56% were not certain whether there would be an increase in Research & Development budget in the next few years.

Our review of the literature found few financial services players prepared to acknowledge or endorse the importance of protecting innovative invention as an intellectual property right.

Swiss Re's head of Intellectual Property, Frank Cuypers, identifies patent protection as a highly advantageous tool for players who value innovation. He writes

'In the long run, patenting is maybe the only viable avenue for remaining innovative. However, for companies used to getting a free ride on the back of others' pioneering endeavours, patents are a definite curse'¹

Large company respondents to the European Commission's consultation on computer-implement business method patents commented:

¹ Cuypers F (2003) The path to knowledge is patently clear , published by Swiss Re on their website <http://www.swissre.com> visited 17.5.04

'Organisations who believe, or are advised, that software cannot be subject to patent protection fail to obtain protection for their innovation to the fullest extent, and risk infringing the rights of third parties through failing to appreciate the range of rights that such parties might have'².

UK companies are more averse to engagement with the patent system than US³ companies. And Financial Services companies appear to be less enthusiastic about patenting than other sectors⁴. Sadly, our findings from the financial services sector endorse the general apathy towards protection of innovation identifiable in previous studies taken of computer-implemented business method patent activity by UK companies.

We concluded that financial services companies would be advised at least to consider the suitability of patent protection for their innovative products and process. That could best be done through an initial consultation with a patent agent experienced in obtaining patents for software implemented inventions.

We hope our findings will serve as a wake up call both to UK Government, via the Department of Trade and Industry and the Patent Office and the financial services sector.

Patent legislators should appreciate that computer implemented invention patent concepts are complex, difficult to understand, and poorly communicated. The application process remains slow, whereas financial service products are normally brought to the market much more quickly. Legislators should address the comment that patenting is

'a fairly detailed and difficult process. It is not particularly cheap'⁵.

The sector needs to keep a watching brief on financial service patent activity outside Europe, because

'it would be important to ensure that Europe did not lose out competitively in world terms'.⁶

² http://europa.eu.int/comm/internal_market/en/indprop/comp/02-32.htm p.39(visited 12.4.04)
Large Enterprises, as part of the European Commission consultation on computer-implemented inventions(2002) stated that fragmentation was caused in the European market by the fact that the European Patent Office, and some of the National Patent Offices issue software patents, but at the same time other National Patent Offices refuse to do so. This uncertainty casts a serious doubt on the validity of the software patents now issued in Europe'. Confusion and misunderstanding were identified as key problems caused by this uncertainty.

³ Macdonald S.(1998) What the patent system offers the small firm, summary report prepared for the ESRC

⁴ KPMG survey. 'Intellectual Gold' http://www.kpmg.co.uk/kpmg/uk/image/intell_prop.pdf (visited 24.2.04)

⁵ Norwich and Peterborough Building Society commenting on their application, discussed more fully below

⁶ London Investment Banking Ltd, Patent Office Consultation 2000, discussed more fully below

Section 2 Methodology

We reviewed the literature which fell into three categories:

1. Studies of the financial services industry in the context of innovation
2. Studies of how the financial services sector can, or should, engage in patent activity.
3. Studies of how the patentability of computer implemented inventions and business methods in the United States is impacting on patent activity in the UK and Europe

We reviewed the contributions made to the European Commission and UK Patent Office consultations on the proposed Directive on patentability of computer-implemented inventions. We analysed two research studies undertaken in 2001 and 2002 into UK intellectual property management.

We used a questionnaire of 11 questions, which was administered to the Company Secretaries of 134 financial sector companies from the Financial Services Research Forum database.

We searched the European Patent Office's espacenet European and Worldwide databases using financial service terms in the application title. We compared financial service business method patent activity in Europe and the United States. We observed a growth in patent activity in the United States from 1995 – 2002, with a small decrease in 2003, with evidence of similar activity on the espacenet European database from 2001.

We conducted telephone and email interviews with two patent agents who are experienced in the prosecution of computer-implemented business method patents, and representatives of two financial sector companies that had experience of patenting.

Section 3 Literature Review

3.1 Introduction

The relevant literature for this research project can be divided into three distinct categories:

- 1 Studies of the financial services industry in the context of innovation
- 2 Studies of how the financial services sector can, or should, engage in patent activity.
- 3 Studies of how the patentability of computer implemented inventions and business methods in the United States is impacting on patent activity in the UK and Europe

3.2 Studies of the financial services industry in the context of innovation

In 2003, Phil Hargrove, Vice President of business development at GE's Employers Reinsurance Corporation wrote⁷ of the millions of dollar that insurance organisations invest in new systems to improve their processes and give themselves a competitive edge. He asks

'What if one day there came a knock at the door and someone else claimed to have owned that core process or expensive new system? What if that party could force a company to pay for the right to use that system or business process – or worse, file an infringement suit and collect millions of dollars in damages?'

Peter Langley, writing in the Financial Law Review (1998)⁸ suggested that

'banks invest heavily in innovation, and protect it through trade secret laws. Competitors would gradually (sometimes rapidly) erode the competitive advantage by replicating the innovations. Patents are potentially so useful to financial institutions because they can entrench competitive advantages gained through expensive innovations. Some US Banks, notably Citibank, already have well established patenting programmes. But they are in the minority'.

An espacenet⁹ check at the time of writing shows Citibank¹⁰ well ahead of other banks on patent applications.

Peter Ibbetson, writing in Financial World (1999)¹¹ suggests that lending banks should give thought to financing proposals where IP is the key asset; they should educate themselves on the subject of IP valuation. But he makes no mention of the potential relevance of patents to the banks themselves as a way of protecting their commercial innovations.

What happens in the US courts shapes the global financial industries, not simply because of the size of the US markets, but because significant innovations will almost invariably be implemented by financial institutions in some form in the US, opening them up to US patent litigation and the new standards that are now being applied there.

Page (2001)¹² gives a European perspective on the future for European financial institutions as US banks become increasingly adept at exploiting the possibility of patenting computer

⁷ Hargrove, P 'Who's Knocking', The National Underwriter Company, 30.9. 2003
<http://www.nationalunderwriter.com/tech/news/viewFeatures.asp?articleID=554> visited 2.4.04

⁸ International Financial Law Review, Nov 1998, Vol 17, Iss 11, pg 9

⁹ European Patent Office database at <http://ep.espacenet.com>

¹⁰ Currently 402 applications listed worldwide on Espacenet, compared with 132 for Chase Manhattan, 272 for American Express Travel

¹¹ Ibbetson P, FCIB, head of small business services, Touhey K, Imeson M, Financial World December 1999,

¹² Page, N 'European Banks patentily disadvantaged', Euromoney, London, June 2001.

implemented business method inventions at home, and predicts they will also do so in overseas markets, notably Europe.

Cuypers (2003),¹³ Swiss Re's head of Intellectual Property, identifies the need for financial service companies to review and reinvent their products to stay ahead, and to provide value for their customers. He identifies patent protection as a highly advantageous tool for players who value innovation. He writes

'In the long run, patenting is maybe the only viable avenue for remaining innovative. However, for companies used to getting a free ride on the back of others' pioneering endeavours, patents are a definite curse.'

The Swiss Re Group itself is acutely aware of the need to understand, comply with and apply patent law to its competitive advantage. It owes this duty to its shareholders, who are the ultimate owners of this intellectual property. It owes it also to its clients, who are the beneficiaries of its innovations. Finally, it has obligations to its employees, the inventors who deserve credit for their expertise and creativity.⁷ Cuypers, as our study shows, is something of a lone voice.

3.3 Studies of how the financial services sector can, or should, engage in patent activity

Ross O'Haver, Ellen Rodgers (2000)¹⁴ remind financial companies of the importance of maintaining a paper trail of the research and development involved in creating the business process.

'Quite often, proprietary processes in the financial services industry evolved to meet an emerging operational need without the development team having the creation of a patentable process as a pre-defined goal. It is never too early for companies to become more diligent about maintaining records of the research process involved in developing proprietary business systems'.

This advice is particularly pertinent in the light of financial product patent activity undertaken by non-financial service companies – e.g. Volvo, Exxon, Sony, Toshiba. Because such companies are fastidious about patenting their technological innovations, they are better placed to translate their innovative methods of doing business into business method patent applications.

Lux (2001)¹⁵ wrote

'After virtually ignoring intellectual-property laws for decades, the financial services industry is taking out patents in record numbers, hiring lawyers who specialise in the area and filing an increasing number of lawsuits... With notable exceptions, few industries have been as easygoing about patents as finance'.

He notes the example of Merrill Lynch which received 12 patents in the 1990s but had 27 patents pending in 1999. At the time of writing, espacenet records 70 Merrill Lynch applications, worldwide.

Kasper (2001)¹⁶ discusses the strategic role of business method patents in strategic business planning.

¹³ Cuypers, F 'The path to knowledge is patently clear', © 2003 Swiss Reinsurance Company, Zurich. All rights reserved. Swiss Re customarily publishes articles submitted to industry publications on www.swissre.com once the article has appeared in the publication concerned

¹⁴ O'Haver, Ross, Rodgers, Ellen Corporate Finance, London April 2000 pg 22 'Financial service companies should protect their core intangibles'

¹⁵ Hal Lux, Institutional Investor, New York, Mar 2001, Vol 35 iss3 p 137.

¹⁶ <http://www.sughrue.com/clientfiles/Roleofbmp.doc> (visited 8.8.04) Sughrue Mion pllc

'An essential component of any intellectual property strategy today is an evaluation of the protection available for business method ideas, as part of both an offensive and a defensive strategy'.

A business method patent offers the same incentives for protecting an invention as other patents. Once granted, the business method patent holder is able to use the patent to generate a royalty income, to injunct infringers, or to use the patent as the basics for future merger, collaboration or sale.

Kasper gives the Amazon.com 1-click business method patent¹⁷ as an example of an established company's offensive strategy. 'The patented technique was used as a basis for precluding a competitor from using the same easy virtual 'checkout' technique, thereby providing Amazon.com a competitive advantage during the 1999 Christmas selling season. Barnes and Noble challenged the validity of the patent, and in February 2001, the court felt that despite Amazon's demonstration of the likelihood of success on infringement, Barnes and Noble had raised substantial questions as to the validity of the patent. There were insufficient grounds to grant a preliminary injunction to stop Barnes and Noble infringing.¹⁸ Kasper suggests defensive strategies can develop around the patenting of business method inventions so that they can be used as counterclaims in litigation, or to provide value in cross licensing.

Paul E Schaafsma (The Next Patent Frontier – Financial Patent Products 2002) wrote

'Like their software predecessors in the 1980's and their fallen Internet brethren of the 1990s, managers of financial products and services are entering a brave new world where management of intellectual property assets has become vital to protecting their bottom line. What is patentable subject matter has expanded into the financial arena (which) will undoubtedly involve some growing pains. Those banks, brokerage houses, stock and commodity exchanges, insurance companies and other financial businesses whose managers and counsel are versed in how patents can affect their business will be ready for this brave new world'.

Bakos and Nowotarski (2003)¹⁹ comment on the possibility of patenting an improved underwriting or risk selection process in the United States. They write

'Removing or mitigating the negative effect of the underwriting hurdle on the insurance sales process is a necessity that has long been addressed by many in the underwriting community. Historically, improvements or new invention in the insurance industry has either been freely shared, thus limiting competitive advantage to a head start, or maintained as trade secrets, thus depriving the industry as a whole of the nature of the improvements. Now that underwriting improvements can be patented, however, competitive advantage can be sustained for the 20 year life of a patent, and the industry can benefit from the timely disclosure of the important new advances'.

The notion of 'freely sharing' or maintaining trade secrets as a way of managing innovation echoes Ubbelohde's²⁰ description of craft activity.

¹⁷ United States Patent Number 5,960,411

¹⁸ U.S. Fed Circuit Court of Appeals Amazon.com v Barnesandnoble.com United States Court of Appeals for the Federal Circuit 00-1109 Amazon.com Inc., Plaintiff-Appellee, v Barnesandnoble.com Inc. and Barnesandnoble.com LLC, Decided 14.2.2001

¹⁹ Bakos T and Nowotarski M, 'The Mother of Invention' in *On the Risk*, vol. 19, n.3 (2003)

²⁰ see not vii

3.4 Studies of how the patentability of computer implemented inventions and business methods in the United States is impacting on patent activity in the UK and Europe

The European Union, and UK, will accept as patentable computer implemented inventions that make a technological contribution. But the EU has difficulty in agreeing an acceptable definition of 'technology'. Ubbelohde (1958)²¹ makes a distinction between craft skills, scientific skills and knowledge, and technology. He sees craft where the skill of how to do something resides with the craftsman, scientific skills where the knowledge is discovered and proven to others by the scientist, and technology, where craft skill or scientific knowledge is applied in a way that enables others to benefit from that skill or knowledge. It is not the area of knowledge that differentiates craft, science and technology, rather how that knowledge is communicated that is technical.

In FUJITSU's Application (1997)²² Aldous LJ spoke for many including the EPO, when he said

'I have difficulty in identifying clearly the boundary line between what is and what is not a technical contribution'.

Keith Beresford (2000)²³ writes

'It is commonly held that software, e-commerce and business models related inventions are inherently unpatentable in Europe. If proper attention is paid to both the substance and the form of claims and description, to direct the reader [of the application] to the technical problem and its solution, effective protection is in fact very often available'.

A study of patenting business methods in Europe was conducted by Olswang (Solicitors) and Oxford University Intellectual Property Research Centre²⁴. Entitled 'First Mover Monopoly' their survey found that United States companies were filing significantly and proportionately more applications for business methods than their European counterparts. In the EPO, over the sample period, 52% of all patent applications for business methods were filed by United States' nationals, whilst U.S. nationals filed 28% of all patent applications. In the UK Patent Office, United States nationals filed 31% of all business method applications, and 10% of applications overall. They suggest this illustrate a clear trend, that American companies are obtaining a strong foothold in the market place.

Their anecdotal evidence, compiled by interviews with several FTSE 100 companies suggest that British businesses are aware of the change of climate in the United States, but are wary of filing for protection for their own business methods.

Our findings were somewhat similar. Some companies lack awareness of patent activity outside Europe. Those that are aware do not see such activity as posing a commercial

²¹ Ubbelohde, A.R.J.P., 'The beginnings of the Change from Craft Mystery to science as a basis for technology', History of Technology, Ch 23, Clarendon Press, 1958)

²² Fujitsu's Application [1997] RPC 608 CA

²³ Beresford, K, Patenting computer software under the EPC, 2000 Sweet & Maxwell

²⁴ Likhovski M, Spence M and Molineaux M, The First Mover Monopoly, 2000 Oxford Intellectual Property Research Centre www.oiprc.ox.ac.uk (visited 8.4.04)

threat, nor as a high business priority. Those that 'put a toe in the water' found the process protracted, difficult, and expensive.²⁵

3.5 What is an innovative financial services product?

Financial service products incorporate

- a) a financial instrument, i.e. some series of cash flows between customer and financial services provider
- b) a service associated with the product delivery
- c) process innovations, related to the internal workings of the financial services provider, which may enable the product to be delivered to the customer at lower cost.

It is not easy for the patent layperson to appreciate the likelihood of a successful patent application for an innovation of type a), b) or c)

One reason financial services firms may not have considered patenting is that many of their innovations are small-scale, and that the costs of patenting effort would be high in comparison. This is borne out by our interviews with Norwich & Peterborough, and Abbey [see section Patent Applicants & Professional Advisers, below]. Here, financial service innovators are not dissimilar to UK innovators in other sectors. The UK is not good at appreciating the value of incremental patenting, compared for example to Japanese or German inventors, as this chart from the DTI's *UK Competitiveness Indicators: Second Edition*, published in February 2001, indicates. Espacenet's database of Patent Abstracts from Japan shows 2055 patent applications with the word 'financial' in the title, compared with 111 European applications²⁶.

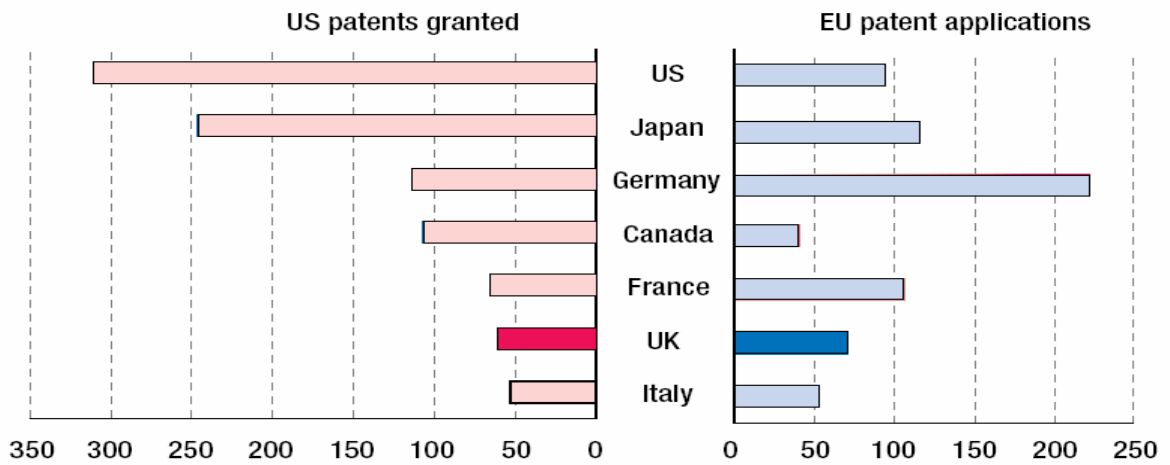
²⁵ see section Patent Applicants and Patent Advisers responses below

²⁶ <http://ep.espacenet.com> visited 17.5.04

4.2 Patents granted and applications

G7 comparison, 1999

Per million of population



Source: US Patent and Trademark Office; European Patent Office

O'Brien (2004)²⁷ suggests that most financial service product innovations are relatively minor. Looking at UK life and general insurers, he found that most development work was updating existing products²⁸, only 15% were 'new to the market' services²⁹. There is often very little that is new in a supposedly new product. Other disincentives might be that financial service products are easy to copy, although ease of copying is no disincentive, rather to contrary, to patenting in manufacturing industries. It could be suggested that patenting might inhibit the test-marketing process. That need not be the case, although confidentiality prior to applying and obtaining a priority date would be crucial. The financial services sector is understood to rely heavily on trade secrets to protect innovation.

²⁷ O'Brien C (2004) Product Innovation in Financial Services: A survey, *Journal of Actuarial Practice*, vol 11, pp 5-42

²⁸ Johne A, 1993 Insurance product development: managing the changes, *International Journal of Bank Marketing*, 11(3) 5-14

²⁹ Stern L.N & Whittemore D. G. (1998) Product Development Efficiency, [Society of Actuaries] *Product Development News* 46, 7-10

Section 4 Patenting

4.1 What is a Patent?

A Patent is the result of a bargain between an inventor and society, whereby a temporary monopoly is granted to the inventor in exchange for the inventor making available to society the information of his invention, through full disclosure in the patent specification. Historically it has been the State that grants the inventor an exclusive monopoly for a limited time in his new invention, in return for disclosure; sufficient to enable the public to practice the invention once the patent expires. At one time disclosure was by way of teaching apprentices, but now the public is taught by way of the filed application document. Full public disclosure is required long before the inventor knows whether or not the patent will be granted. Patent documents are considered to be a valuable information resource, for industry, academics and innovators.

In about 2000 BCE the introduction of metal coins to facilitate trade in the eastern Mediterranean was one of the first financial services inventions. In 1473 the Venetian Patent Ordinance was the first legislation designed to allow inventors a monopoly control over new and inventive devices and processes. A patent is a monopoly right to exploit an invention for a limited time. To be patentable, from the 17th century, inventions were required to be new and not contrary to public morality and from the 18th to demonstrate an inventive step. Patenting financial inventions is not new. In 1799 Jacob Perkins received the first financial patent, in the United States, for a device for 'detecting counterfeit notes'. The Automatic Teller Machine [ATM] was the subject of 20 separate patents in 1939. The inventor Luther George Simjian persuaded what is now Citicorp to give it a trial. After six months the bank reported that there was little demand. The modern ATM was first patented in 1973, and currently there are 347 applications worldwide for ATM patents³⁰.

The 1994 Agreement on Trade-Related Aspects of Intellectual Property Rights [The TRIPS Agreement] Article 27 requires all inventions for which patent protection is sought to answer three basic questions in the affirmative, followed by a fourth, to be answered in the negative:

- Is it novel?
- Is there inventive step? [i.e. it is not obvious to the person skilled in the art]
- Does it have utility? [i.e. is it capable of industrial application]
- Does it belong to an excluded category?

For inventors of innovative computer implemented business methods, the fourth question is most crucial. Since any invention that falls within an excluded category is unpatentable because it is considered that to grant a monopoly in such an invention would be contrary to public policy.

The TRIPS Agreement [The Agreement on Trade-Related Aspects of Intellectual Property Rights] (Article 27 (2)) provides that all fields of technology are patentable. It makes no specific reference to computer-implemented business method patents. Member states may exclude certain inventions from patentability, within their territory. These are usually inventions whose commercial exploitation is necessary to protect public order or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment.

The European Patent Convention [EPC] (Article 52 (2)) and the UK (Patent Act 1977 s1(2)) excluded patentable matter list includes, amongst others, discoveries, scientific theories or mathematical methods, schemes, rules or methods for performing a mental act, playing a game or doing business, or a program for a computer.

³⁰ Espacenet – Patent database of the European Patent Office, <http://ep.espacenet.com>

The Constitution of the United States gives Congress the power to enact laws relating to patents, in Article I, section 8, which reads

'Congress shall have power . . . 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.'³¹

4.2 Making the case for computer program patents – a time line

The international practice has been for computer programs to be seen as works best protected by copyright, rather than inventions to be protected by patent. In the 1970s the United States Supreme Court, in *GOTTSCHALK v BENSON*,³² held that as software was essentially mathematical formula, it was not patentable under U.S. law. In 1981, in *DIAMOND v DIEHR*³³, the Supreme Court looked at the invention as a whole, where a computer program was instrumental in an invention to cure rubber.

In *VICOM* [1986]³⁴ a new software tool for modelling crystal structure combinations, which relieved the chemist of the laborious task of building a model, was patentable. The generation of the enhanced display was the technical contribution. In 1999, the EPO Technical Board of Appeal found IBM's Application/Computer Program³⁵ patentable. A program was claimed which caused information from a first window on a computer screen to be displayed in another part of that window when obscured by a second window. The software provided a technical contribution to the functioning of the computer.

In *SOHEI* [1996]³⁶, the object of the invention was to provide an efficient data processing machine for accurately controlling the production of manufactured components with a minimum of manual intervention. The first claim referred to a computer system comprising different units, and other linked filing and processing means. The second claim referred to a method for operating the computer management system, referring to the automatic entry, display, handling and processing of data.

The EPO Technical Board of Appeal considered, among other things, whether abstract administration management e.g. personnel management can be equated with process management e.g. construction, or manufacturing management. In answering whether management of technical processes is equivalent to 'doing business' [as in Art 52 (2) (c)] the interpreted 'doing business' very narrowly. They considered the system of Claim 1 and the method of claim 2 to involve technical consideration resulting in technical contribution to the art, such that the system and method should not be excluded from patentability. As a result, Sohei's patent was granted in 1996.

All of the above patents relate to technical features developed to solve technical problems. Subsequently, European patents have been granted for a closed loop financial transaction method and apparatus,³⁷ a distributed system and method for matching of buyers and sellers,³⁸ credit management for electronic brokerage system,³⁹ In May 2003 the Amazon 1-Click

³¹ Under this power Congress has from time to time enacted various laws relating to patents. The first patent law was enacted in 1790. The law now in effect is a general revision which was enacted July 19, 1952, and which came into effect January 1, 1953. It is codified in Title 35, United States Code. <http://www.uspto.gov/web/offices/pac/doc/general/laws.htm> (visited 8.4.04)

³² *Gottschalk v Benson*, 409 U.S. 62, 72, (1972)

³³ *Diamond v Diehr*, 450 U.S. 175, 187 (1981)

³⁴ *Vicom* patent

³⁵ IBM [1999] E.P.O.R. 301. Tech Bd App + patent number

³⁶ Sohei patent EP0209907 B1 granted in 1996

³⁷ EP0715740 B 1

³⁸ EP0407026 B 1

³⁹ EP0625275 B1

method and system for placing a purchase order via a communications network was granted a European patent.⁴⁰

In July 1998 the US courts upheld a patent for a method of doing financial services business. Hitherto, patents for business method inventions had been frowned on in the United States.

Signature Financial Group was the assignee of a patent for a data processing system (the system) for implementing an investment structure which was developed for use in Signature's business as an administrator and accounting agent for mutual funds. In essence, the system, identified by the proprietary name Hub and Spoke®, facilitates a structure whereby mutual funds (Spokes) pool their assets in an investment portfolio (Hub) organized as a partnership. This investment configuration provides the administrator of a mutual fund with the advantageous combination of economies of scale in administering investments coupled with the tax advantages of a partnership.

As a result of soured licence negotiations between STATE STREET BANK and Signature Financial Group Inc, Signature's business method technology patent (U.S. Patent 5,192,056 the '056' patent) was challenged in the U.S. courts. In that key case, the patentability of a business method was subject to detailed examination and debate. The U.S. Patent Act requires that where each component of a claim is recited as 'means + function' that will include 'equivalents'. So the court was able to construe that claim 1 of the O56 patent as 'a machine, namely a data processing system for managing a financial services configuration of a portfolio established as a partnership' as proper statutory subject matter. This landmark U.S. decision established the legal validity of a patent for an invention which was a computer implemented method of doing business [State Street Bank & Trust Co. v Signature Financial Group, 149F.3d 1368 (Fed.Cir.Jul.23, 1998)]. The 'floodgates' across the Atlantic were open, for innovative financial service companies seeking patent registration for their computer implemented business method inventions.

By finding both the software system and the method of doing business patentable, the State Street decision increased the public's awareness of patentability of such innovations.⁴¹ Awareness was certainly heightened in the United States, as evidenced by the growth in volume of 'financial service' patent activity. US financial services companies at the same time sought to obtain protection in Europe on the basis of worldwide applications filed in the US. Many were destined not to succeed because most US business method patent disclosures are only at the level of the business method. Most of them are destined to fail because no technology is disclosed. It is far better to take a technical approach to the drafting. If applications arrive in the EPO through the PCT route, where 'the rest of the world' has been designated, it is too late at that stage to add in the necessary detail.⁴²

In the UK and Europe enthusiasm for the State Street decision was muted. European patent law differs radically from US patent law, particularly in respect of the patentability of a computer implemented business method invention. In the United States, a patent can be granted for 'any new, non-obvious invention that achieves a concrete, useful, and tangible result (United States Code Title 35 – Patents, Part II, Ch.10). UK patent law is in line with the European Patent Convention, and European Community legislation.

The prospect of successfully patenting such inventions in UK/Europe would appear to be minimal, because of the way in which patent legislation is drafted.

The UK Patent Act 1977 states that computer programs, software and methods of doing business are not patentable.⁴³ The European Patent Convention states that they are not

⁴⁰ EP0927945 B 1

⁴¹ Kovaleski D, Pensions & Investments, April 2000, vol 28, iss 8 pp 3-4, quoting Patent Attorney Michael D Schumann, Merchant & Gould, Minneapolis, quoted in Kovaleski supra

⁴² see Beresford, K, Patenting Software under the European Patent Convention, Sweet & Maxwell 2000

⁴³ UK Patent Act 1977 s. 1 (2) (c) see s.1(2) for the full list of excluded matter

patentable 'as such'⁴⁴. In the United States, there are no statutory exclusions. The courts have excluded laws of nature, scientific phenomena, and mathematical formulae⁴⁵ from patentability because 'exclusive rights to such fundamental 'scientific truths' of our world would grant unreasonable control to individuals.⁴⁶

The difference in statutory provision between UK/Europe, and the United States is one of the main reasons for the difference in approach to patenting financial service innovations. Perceptions of the unpatentability of computer implemented inventions in Europe are reinforced by adverse publicity of what you can and cannot patent.

Because the UK Patent Act 1977 and the European Patent Convention both exclude 'methods of doing business' and 'computer programs as such' from patentability, it would appear, at first sight that computer implemented business method inventions could not be patented in Europe. But that is not necessarily the case.

Beresford (2000)⁴⁷ writes of Europe that

'financial and trading processes *per se* are not patentable. It is also clear that the mere computerisation of a known financial or trading process is also not patentable. However, he writes, this does not mean that computer systems for assisting in financial or trading activities are inherently unpatentable. The question always is whether there is any invention of a technical character. Many innovations in these fields have satisfied this criterion and patents have been granted.'

He cites a number of European patents [number, followed by applicant can be read in full on the European Patent Office's espacenet database at <http://ep.espacenet.com>] granted for computer implemented inventions, some of which have been applied for from the financial service sector. They include:

EP399850 B Reuters, for an arrangement whereby credit criteria relating to parties to a potential contract are automatically checked

EP625275 B EBS Dealing Resources Inc, also concerns automatic credit checking in a computerised trading system

EP542298 B Citibank, relates to a complete electronic monetary system in which there is a network of computers with facilities for generating electronic 'money'

EP762304 B Citibank, for a computer system for trading for example in stocks and shares.

There are several other examples of patented inventions relating to computer systems for trading in stocks and shares.

EP701717 B Shepherd concerns a system for setting up insurance contracts by computer

EP838063 B Realkredit Danmark A/S which relates to a computer system with software for making calculations relating to particular kinds of financial instruments for the funding of loans, specifically particular kinds of mortgages.

In addition financial service commercial activity could come within the monopoly of the following granted European patents:

⁴⁴ Convention on the Grant of European Patents Article 52(2)(b) see 52(2) for the full list of excluded matter

⁴⁵ Title 35 of the United States Code, s.103, as interpreted by the courts in *Mackay Radio & Tel. Co. v. Radio Corp. of Am.*, 306 U.S. 86, 94 (1939); *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948).

⁴⁶ *Mackay Radio*, 306 U.S. at 94 – quoted in Guntersdorfer M, *iBrief/Patents & Technology*, 2003 *Duke L & Tech. Rv.* 0006, 3/21/2003 at <http://www.law.duke.edu/journals/dltr/articles/2003dltr0006.html> (visited 8.4.04)

⁴⁷ Beresford, K, *Patenting Software under the European Patent Convention*, Sweet & Maxwell 2000, pp 120-122

EP0803105 B Open Market Inc concerns a network based sales system connecting a buyers computer, sellers computer, and payment computer, envisaged to be used for e-commerce transactions

EP0927945 B Amazon.com relates to a method for placing an order to purchase an item

EP0762304 B Citibank Aktiengesellschaft relates to a computer system for managing the data relating to the trading of warrants

Referring to European practice, Beresford (2000) writes

‘the availability of patent protection for those who invest in the research and development work necessary for the creation of novel and inventive software is extremely important.’

He stresses the importance of correct claim formulation. Describing U.S. practice, Bakos (2003) writes

‘Using patents to recover the cost of product innovation is a well established practice in many industries. In the insurance industry, however, it has only recently become more widely recognised as a valuable tool. An experienced product development actuary will recognise product innovation when he or she sees it or creates it.’

His concluding sentence

‘Seeking the advice of a qualified patent agent or attorney to determine if this inventive effort is patentable is a step that should be considered’

also relevant to European innovators.

European financial services business method patents received a set back with the rejection in September 2000 by the EPO Technical Board of Appeal of the application from PENSION BENEFIT SYSTEMS PARTNERSHIP [PBSP]. The methods described involved economic concepts and practices of doing business, rather than a technical solution to a technical problem. The main claim referred to ‘employer accounts’ and ‘enrolled employees’. PBSP described the invention as a technical tool serving an actuary when doing her job in the industry of business and fund management. But the only aspect of the application that could be considered to contribute to inventive step was the programming of a computer system to carry out the invention. This meant that it would be a computer programmer, rather than an actuary, whose opinion as a ‘person skilled in the art’ would be sought to determine whether or not there was an inventive step. There was no disclosure of a computer system or structure of functionality of software for managing the scheme. Nor were any technical features or technical effect disclosed.

The EPO has interpreted Article 52 positively in a small number of cases, where it has found that the software made a technical contribution to the art. But it has had difficulty in agreeing a definition of ‘technical’ in a way that would make ‘technological contribution’ clear to industry and intending patentees. The Pension Benefit Systems Partnership decision was a sharp reminder of what will not succeed at the EPO. It reinforced the public misapprehension of what you can and cannot patent in Europe. This had a negative affect on financial service patents for innovative consumer products from UK or European applicants.

Despite the wording of the legislation, it is possible to apply successfully for patents for software programs that implement business methods in UK/Europe. When in May 2003, Amazon’s ‘one-click’ business method, which is patented in the US, received a European

Patent⁴⁸, it was not universally well received. European Commissioner Arlene Macarthy, author of the Macarthy Report cataloguing amendments to the original 2002 proposal for a Directive of the European Parliament and Council on the Patentability of Computer-Implemented inventions⁴⁹, stated

'this is an example of bad EPO practice'.⁵⁰

Arguments against lowering the hurdles to patenting computer-implemented inventions in Europe come from the software industry, academics and economists.⁵¹ In 1991 Bill Gates of Microsoft said

If people had understood how patents would be granted when most of today's ideas were invented, and had taken out patents, the industry would be at a complete standstill today.⁵²

13 years later, Microsoft has filed 7,489 patents worldwide, as applicant or inventor. Its commercial success owes much to its patent licensing and litigation strategy.

The draft computer software directive continues to be one of the most hotly debated items of EU legislation.

4.3 Computer Patents - Legislation, Regulation and Research

Both European and UK patent legislation appear to exclude computer programs from patentability. Yet, it is increasingly common for the inventive step of an invention to be embodied in a computer program. Computer programs have traditionally been protected by copyright. Copyright is not a monopoly right. It protects the original expression of a literary or artistic work. This means, on the face of it, that if the solution to a problem is provided by a computer program, anyone else providing a similar solution, using their own original computer program, will not have infringed the first copyright. Patent conveys a monopoly on the inventive solution to a problem. There are extensive arguments ongoing⁵³ between those who advocate patent protection of computer-implemented inventions, and those who hold that innovation would be inhibited if computer-implemented inventions were protected by anything other than copyright.

In October 2000 the European Commission commenced a consultation on the patentability of computer-implemented inventions⁵⁴. Internal Market Commissioner Frits Bolkestein said:

'European industry needs a legal environment that encourages innovation without stifling competition. We need certainty over what can, and cannot, be patented. The proposed Directive would provide this certainty by making the conditions for patentability of computer-implemented inventions clear and uniform. Current law on this question was drafted in the early 1970s when there was no inkling of what was to come in the shape of modern computers and networks, not to mention the

⁴⁸ EP0927945B1

⁴⁹ http://www.europa.eu.int/comm/internal_market/en/indprop/comp/com02-92en.pdf

⁵⁰ Verbatim report of the EU Parliamentary debate <http://www3.europarl.eu.int> (visited 8.4.04)

⁵¹ see in particular the Foundation for a Free Information Infrastructure <http://www.ffii.org/index.en.html> visited 9.6.04

⁵² *Challenges and Strategy Memo (May 16, 1991)*
(<http://www.bralyn.net/etext/literature/bill.gates/challenges-strategy.txt>)

⁵³ ⁵³ <http://www.patent.gov.uk/about/consultations/anexa.htm> (visited 8.4.04)

⁵⁴ http://europa.eu.int/comm/internal_market/en/indprop/comp/softreplies.htm (visited 12.4.04)

emergence of a software industry worth billions of euros. The courts have done their best to develop the law in response to the changing environment, but there is now no alternative to legislation at European level to prevent potentially divergent interpretations by the courts'.

There were no responses from the financial services sector.

UK Patent Office began a similar consultation in November 2000⁵⁵, asking the question: 'Should patents be granted for computer software or ways of doing business?' The Financial Services sector was represented amongst respondents by

- Association of Unit Trusts and Investment Funds,
- British Bankers Association, the Financial Law Panel,
- International Underwriting Association,
- Record Treasury Management Ltd,
- London Investment Banking Association

They responded as follows:

- Association of Unit Trusts and Investment Funds

'Our members are very interested in the question of patentability of software and ways of doing business... We are concerned at the suggestion that ways of doing business could be patentable. ...We see little to be gained in extending patentability to ways of administering an ISA, unit trust type savings plan. It must seriously be questioned whether the extension of patentability would in fact encourage innovation in this area. We are concerned that there could be variation in the manner in which the criterion of 'new' and 'non-obvious' are applied' [paraphrased].

- British Bankers Association

'Banks as innovators: Innovation in financial services frequently consists of a change in delivery mechanism or a restructuring of the way a service is provided. This will typically involve both software and business process change. Another major area of innovation is in the structuring of deals, using novel corporate structures, or combining derivative products, or both, which may involve software or business methods or both. The level of competition means determining whether a particular product, process or structure is new will be very difficult. It will mean a significant diversion of resource into checking pending patent applications to ensure products and services are not threatened, and in opposing grant of such patents. The benefit to be gained through patenting financial service inventions will be more than matched by cost of actions and defences. The commercial effect [of patenting] likely to be small, practical effect likely to be irritant rather than stimulant. [paraphrased]

- Financial Law Panel

'Among those who are aware of the issues there is a strong feeling that the widening of the patents regime to include, in particular, business methods, would have an adverse affect on competition, innovation and the dynamic nature of the City. It would probably generate excessive litigation and lead to the defensive filing of patents, which raises costs and leads to inefficiency. Highly undesirable. [paraphrased]

- International Underwriting Association

In principle new software could be patentable, business methods should be patentable, but only when they amount to a novel procedure that includes an original technical innovation. We do not think it would be feasible to create an effective regime without a well-constructed conceptual framework supported by reasoned examples. A heavy burden should be placed on applicants to research and demonstrate objectively the full depth of prior art. [paraphrased]

- London Investment Banking Ltd

It will be important to examine the competitive effect on European innovation of US applicants 'locking up' available innovations. In practice, financial markets are global, so patent control

⁵⁵ <http://www.patent.gov.uk/about/consultations/anexa.htm> (visited 8.4.04)

over innovation in the US would be likely to have consequences else where. Possession of or application for patents might put a firm in a stronger position to negotiate a favourable settlement if a US firm were to sue for patent infringement. The extension of patent protection to ill-defined innovations could well inhibit innovation because of legal uncertainty, protective patenting, diversion of resources to patent defence, checking patent exposure, and establishing novelty and non obviousness. The availability of patents for business model innovation in the US could have a major impact on electronic financial services in Europe – *it would be important to ensure that Europe did not lose out competitively in world terms. [paraphrased].*

- Record Treasury Management Ltd

We take the view that discrimination between ideas that are encapsulated in material existence [e.g. a physical device or chemical compound] and ideas which are not [e.g. financial derivatives design], is no longer appropriate in patenting or indeed in the general economy. It is increasingly indefensible to arbitrarily disallow patenting in the service sector [i.e. dematerialised products].

The European Commission published its proposal for a Directive on the patentability of computer-implemented inventions in February 2002⁵⁶. Its aims were to harmonise the law on patents for computer implemented inventions within the European Union. Whilst recognising the differences between United States and European practice in this area, it sought to maintain the status quo in Europe, and to stop the drift towards the US practice of allowing business methods and non-technical software. Tim Frain, Director of IPR, External Affairs, for Nokia, described the progress of the proposed Directive, which went before the European Parliament in September 2003, as negative and disappointing, from the perspective of the telecoms, electronics and software reliant industries⁵⁷. The Directive is due to go back to the European Parliament in Autumn 2004.

Against the background of discussion of change to European patent law that would, possibly, allow for patenting computer implemented inventions, three major studies have been conducted into patent behaviour and intellectual property awareness in UK businesses. Oxford Intellectual Property Research Centre & Olswang (Solicitors) published their First Mover Monopoly study in 2000. Marks & Clerks, a well established firm of Patent and Trade Mark Agents, commissioned their survey in 2001 and KPMG, the accounting and business management firm, commissioned theirs in 2002.

First Mover Monopoly report 2000⁵⁸ identified the offensive potential of patents to crush competitors. They report that patents are increasingly being used to scare off would be competitors or tie them up in costly litigation. Many companies prefer (or have no choice but) to pay a few tens of thousands of dollars in licensing fees in order to avoid litigation they can ill afford.⁵⁹ The report also agreed that patenting creates a legalised monopoly for the inventor and could be advantageous to the 'first mover' or inventor. It further suggests the business method exception will remain even though applications for them will increase. It concludes by saying that patenting could hinder freedom of companies rather than encourage motivation.⁶⁰

⁵⁶ Proposal of 20 February 2002 for a Directive of the European Parliament and of the Council on the patentability of computer-implemented inventions [COM(2002) 92 final - Official Journal C 151 E, 25.06.2002].

⁵⁷ Frain, T, ePatents: An update on European politics and policy, delivered Bournemouth University, March 2004, unpublished

⁵⁸ Likhovski M, Spence M and Molineaux M, The First Mover Monopoly, 2000 Oxford Intellectual Property Research Centre www.oiprc.ox.ac.uk (visited 8.4.04)

⁵⁹ Likhovski, Spence, Molyneux op cit p.20

⁶⁰ Likhovski, Spence, Molyneux op cit : conclusion

In 2001, Marks & Clerks⁶¹, a UK firm of Patent and Trade Mark attorneys conducted a survey which revealed that whilst two thirds of UK businesspeople believe that their company's success depends on protecting their intellectual property; over half of them have no protection systems in place, laying their business open to attacks by competitors. The financial services sector scored highest in thinking that lack of awareness of patenting business methods would mean UK business would fall behind their US counterparts [q. 15] But they scored lowest as a sector when asked are you considering seeking protection for any software or business processes in the US [q 16]. 36% of Financial Services sector respondents are considering seeking protection for software or business process in UK or Europe [q 17 - about middle]

In 2002 KPMG⁶² commissioned a research survey of 304 European companies [including 48 financial sector firms] which found that intellectual property is still undervalued as an issue and as an asset by business, and especially amongst financial sector firms. Only 17% of companies in the financial sector considered intellectual property awareness an issue. This is in sharp contrast with the US where many financial institutions are aggressively patenting business processes and investment schemes. In Europe, it seems, business is carrying on with little concern for the practices of their competitors, even in Europe. Even more serious, European financial companies seem unaware of the threat such competitor activities could pose, and very few of them see the exploitation of IP, including patents, as a business opportunity.⁶³

4.4 Strategic Patenting

The prevailing IP strategy for most European companies is 'protective rather than value creation'⁶⁴. A recent development amongst technology based companies has been selectively to apply for patents which will present the best opportunities for cross-licensing.⁶⁵ Comparable behaviour was noted in our research of the espacenet database. Amongst the financial service sector applicants were applications from unexpected companies, including Toshiba, Exxon, Volvo and Sony, copies of which are included in appendix 6. These companies are major global players. They maintain active intellectual property departments, and are used to incremental patenting of their technological advances. Once they produce an innovative financial business method, it is only natural for them to pursue a patent. Whilst they may have no intention of competing in the financial sector of the market, the patent if granted could turn out to be a useful marketing tool. There is also evidence on espacenet of Japanese utility companies⁶⁶ pursuing financial services patents, evidencing their moves to diversification.

An application may result in the grant of a patent. A patent is a monopoly right which allows the owner to stop others from working the patented technology, without permission, during the life of the patent. Granting permissions, through licences to work the patented technology, is one way in which the commercial potential of the patent can be realised. Using patented technology without permission is an infringement that can lead to expensive litigation.

A potential risk from patent ignorance is unwitting patent infringement. It is difficult to point to reports of infringement litigation in the area of business method patents, since most are

⁶¹ Marks & Clerk Intellectual Property survey, 2001 <http://www.pressbox.co.uk/Detailed/1415.html> (visited 8.4.04)

⁶² KPMG survey 'Intellectual Gold' http://www.kpmg.co.uk/kpmg/uk/image/intell_prop.pdf (visited 24.2.04)

⁶³ KPMG survey 'Intellectual Gold' http://www.kpmg.co.uk/kpmg/uk/image/intell_prop.pdf (visited 24.2.04)

⁶⁴ KPMG survey op cit

⁶⁵ Jerry Baker, Senior Vice President of Oracle, quoted in Bessen, J 'Patent Thickets: Strategic patenting of complex technologies' 2003 working version <http://www.researchoninnovation.org/online.htm> (visited 12.4.04)

⁶⁶ e.g. Tokyo Shibaura Electric Co EP 1178416: system for evaluating price risk of financial product or its financial derivative dealing system and recorded medium; Mitsubishi Electric Corp EP 1320050 : User-centric merchandising and financial services

settled out of court⁶⁷. But it is safe to assume that such out of court settlements are not insignificant. One strategy employed by business method patent owners is to demand an upfront payment of some thousands of dollars from potential infringers, to avoid litigation⁶⁸.

A patent application involves making a full public disclosure of how the patented technology works, sufficient for a person familiar with that area of technology to be able to work the patent. In the Financial Services sector, there may be reluctance to share technology because the sector has traditionally relied on trade secrets to protect innovation.

Once the technology has been disclosed, it is no longer novel, and cannot form the basis of anyone else's application. So, even if the application is unsuccessful, it could have spoiled the competition's chance of patenting.

If a competitor, having seen the disclosed invention, is stimulated to improve the technology and patent their improvement the scene is set for possible cross licence agreements.

A patent represents a bargain between inventor and State. The inventor gets a monopoly for a limited time to exclude others from implementing his invention. The public benefits because the invention is fully disclosed in the public domain. The extent of the monopoly is defined by law. Internationally accepted exclusions from patenting include laws of nature, scientific phenomena, and mathematical formulae as 'exclusive rights to such fundamental 'scientific truths' of our world would grant unreasonable control to individuals'⁶⁹. Patents form a formidable innovation intelligence resource. Financial service companies should alert their research and development teams to the potential benefit of patent database information

4.5 Applying for a Patent

Patents owe their existence to national and international law, but the decision whether or not to apply for a patent, and in which countries to seek patent protection, is a business decision.

A patent is granted by a national Patent Office or the European Patent Office. The UK Patent Office website www.patent.gov.uk is an extremely well designed resource that sets out for the lay person how to proceed with a patent application.

Patents are granted for INVENTIONS that are NOVEL. They must demonstrate an INVENTIVE STEP, that is, not be obvious to someone familiar with the technology. They must have some UTILITY or INDUSTRIAL APPLICABILITY. Certain things are, by law, inherently UNPATENTABLE.

A patent specification⁷⁰ must include an abstract and drawings. It must identify the field of technology, and state clearly the technical problem for which the invention will provide a technical solution. The invention must be fully described, with the description closely referenced to the drawings. The patent's claims set out the new area of technical advance over which the patentee will exercise a monopoly. The patent specification must disclose the invention fully enough for a person skilled in the art to produce the invention from the specification. Drafting a patent application is skilled work, best undertaken by a patent agent.

It can take up to 4.5 years from the initial filing of an application to the grant of the patent. In this time, the invention will have been fully disclosed to the public. Full disclosure several years ahead of patent grant is one of the main disincentives for pursuing patent protection.

⁶⁷ Kretschmer M and Soetendorp, R 'The Strategic use of Business Method Patents: A pilot study of out of court settlements', The Journal of e-Business, vol 2 number 1, December 2001

⁶⁸ Bessen, J op cit

⁶⁹ Mackay Radio & Tel.Co. v Radio Corp of Am., 306 U.S. 94 (1939)

⁷⁰ See UK Patent Act 1977 s.14; European Patent Convention Art 78, TRIPS Article 29

During that time, it is not possible to sue an infringer for patent infringement, only to send letters warning that an infringer will be liable for any infringement once the patent has been granted⁷¹

Financial service companies and companies which service the sector should have no problem filing patents for mechanical, technological products and processes which advance the conduct of financial service business. But even in pure IT matters, on which the industry spends so much time and money, some financial organisations have been surprisingly careless about who owns the applications that are developed.

4.6 Applying for patents for computer-implemented business method inventions

Financial service consumer product inventions are most likely to be innovative methods of doing financial service business, reliant on software to implement them.

Bakos(2003)⁷² writes that it was the desire to protect innovative efforts in software design in the United States which prompted the recent explosion in business method patents. Software has a 'technical effect' as far as the US Patent and Trade Mark Office is concerned, through its manipulation of data, described in the class 705 patent classification definition.

He gives two examples.

#5,754,980: this patent relates to a process used in the issuance of a reversionary annuity policy. A reversionary annuity pays a death benefit to a beneficiary if the beneficiary survives the insured but no benefit if the beneficiary dies first. The business method patented in this invention is the use of underwriting data on the beneficiary life as well as on the insured to set the premium for the reversionary annuity. The use of underwriting data on a beneficiary to establish a premium rate for a life insurance policy was not taught by the prior art.

#5,704,045 is for a method of matching investor capital to insurance risk in a process that can be called insurance securitization. In effect, this new business method 'replaces' traditional insurance methodologies by transferring 100% of a risk to investors who have put up in an earmarked reserve funds equal to a maximum loss if the insured event occurs. While the securitization process can be worked through an insurance company, the inventors don't require that.

Large Enterprises, as part of the European Commission consultation on computer-implemented inventions(2002)⁷³ stated that

'fragmentation was caused in the European market by the fact that the European Patent Office, and some of the National Patent Offices issue software patents, but at the same time other National Patent Offices refuse to do so. This uncertainty casts a serious doubt on the validity of the software patents now issued in Europe'.

They identified confusion and misunderstanding as key problems caused by this uncertainty. Organisations who believe, or are advised, that software cannot be subject to patent protection fail to obtain protection for their innovation to the fullest extent, and risk infringing the rights of third parties through failing to appreciate the range of rights that such parties might have.

The best advice on patenting a computer implemented business invention is to discuss it at an early stage with a patent agent who is experienced in drafting applications which identify the software's technical contribution.

⁷¹ UK Patent Act 1977 s.69

⁷² Bakos, T, 'Product Matter!' November 2003.

⁷³ http://europa.eu.int/comm/internal_market/en/indprop/comp/02-32.htm p.39(visited 12.4.04)

4.7 Patent Costs

\$250,000 has been suggested, in 2001, as the cost of patenting an invention in all relevant countries of the world. But it is impossible to give an accurate figure for a patent application. The websites of the patent organisations listed below will give more detailed information

The UK Patent Office can receive patent applications for the UK, for the EPO or for designated international states. Filing an initial application with the UK Patent Office costs nothing, and gives minimal protection for one year.

<http://www.patent.gov.uk/patent/forms/ukpatsupp.htm>

The European Patent Office can receive applications for patents to be granted in up to 26 member states of the European Patent Convention. In addition to registration, renewal and patent agent fees you must add the cost of translation. The European Commission is discussing, but has not yet reached agreement on, a Community Patent, which would offer protection in all Convention member states.

<http://www.european-patent-office.org/epo/fees1.htm>

The United States Patent and Trade Mark office receives applications for US patents

<http://www.uspto.gov/web/offices/ac/qs/ope/fees.htm>

The World Intellectual Property Organisation hosts the Patent Cooperation Treaty which simplifies and reduces the cost of obtaining international patent protection and facilitates public access to a wealth of technical information relating to inventions. By filing one international patent application under the PCT you can simultaneously seek protection for an invention in over one hundred countries, including developing countries, throughout the world.

<http://www.wipo.int/pct/en/fees.pdf>

The Chartered Institute of Patent Agents website lists patent agents.

www.cipa.org.uk

4.8 Patent Applicants and Professional Advisers responses

We identified two UK applicants on the espacenet European database⁷⁴. Via email and telephone we invited them to comment on their experience. They endorsed the anecdotal understanding that negative publicity surrounds software patents, alongside adverse publicity concerning patenting in general, particularly in the UK. Patenting is commonly seen as a process which is slow, expensive, and uncertain. It is perceived as particularly unsuited to financial service sector innovations, which Two UK applicants, Scottish Provident⁷⁵ and Norwich and Peterborough⁷⁶ provide insight from their own experience:

‘the patent application takes a long time to come through and Financial Services innovations are brought to the market (thus in the public domain) more quickly’
[Scottish Provident]

⁷⁴ The European Patent Office database espacenet was used to search for financial service patent applications from UK companies. espacenet only retrieves the first 500 results from any search, so there may be other financial service patent activity by companies who have chosen to make a PCT, rather than an EPO, application.

⁷⁵ Scottish Provident application

⁷⁶ Norwich and Peterborough application

'it was a fairly detailed and difficult process. It was not particularly cheap' ⁷⁷[Norwich and Peterborough]

Norwich and Peterborough had applied for a patent for a decision tree. The idea came from a Chief Executive. It was fairly basic technology, but it covered something that the whole market place would have to do in response to changes in financial services sector regulation. They asked themselves 'is there IP value in this?' A patent agent was engaged who advised they had a reasonable chance of a successful application. They went through the application process, but the patent was rejected.

'We wanted to take the patent route to protect our innovation. We didn't really discuss it. We didn't think about patent in the U.S. because our innovation was to do with UK regulations – although I suppose there are regulations in all countries in the world'.

⁷⁷ Phone conversation with Matthew Bannerman Head of Information Technology at Norwich and Peterborough 20.2.04

On strategic exploitation of the patent, had it been granted, the Norwich & Peterborough interviewee commented

'We would have sought to make at least a return on our own investment, by licensing it to larger players. We would have licensed it for free to smaller organisations'.

Scottish & Provident⁷⁸ [now part of the Abbey Group] explained their application was to cover their Self Assurance product and its menu-based structure, which was highly innovative for its time. The menu-based approach has since been copied, even if just in the market approach. They felt a patent on their product now may no longer give them any competitive advantage or support product development innovations in the future.

Two UK patent agents experienced in handling applications for computer-implemented business methods were asked to comment. They noted the extent to which this is a complex area of patent law, which presents ongoing challenges to professional advisers. As a result, patent attorneys tend to specialise in different technical fields. Both patent agents interviewed⁷⁹ for this project commented on the cultural differences between the positive publicity about software patents in the United States, compared with the negative publicity in the UK. 'Firms are more likely to file in the U.S. and see what happens. In UK/Europe on the other hand, inventors are being dissuaded. It is then very unlikely that they will proceed to patent abroad'.

Keith Beresford specialises in applications to the EPO for computer implemented business method patents, including from the financial services sector. His response to the question 'can I patent a business method?' is to ask the applicant to describe not just their business method but also the underlying computer program.

'I want to hear about the software and its novelty. I ask whether the software is essential in putting the business method into effect; is the software making a technical contribution?'

Simon Davies, Chartered Institute of Patent Agents Computer Technology Committee chair said, 'One problem with business method inventions arises in the PCT system, where there is a lack of consistency between the different offices that implement the PCT system. European-based applicants have to have their PCT application reviewed by the EPO. However the EPO will refuse to perform a search on a business method invention. This gives a negative impression, especially for SMES, and can cause problems downstream in the PCT process. In contrast, applicants in other countries can get business method inventions searched, which gives a much more positive experience.'

Both agreed there is no realistic likelihood of Europe changing the law on business method patents in the foreseeable future [say 5 – 10 years]. Some US software patents are a waste of money, but more global companies should be aware of what is happening in the US. It's a mindset.

⁷⁸ email correspondence January 2004

⁷⁹ Simon Davies, David Young & Co, Southampton UK; Keith Beresford, Beresford & Co, London UK

Section 5 Data Analysis

5.1 Analysis and Results of Espacenet searches

Comparison of Computer implemented Financial Services

Patent Applications by UK with Rest of the World

The secondary data analysed was sourced from Espacenet and included full year patent applications (for computer-implemented financial services products) in Europe by both European and non-European countries for 2001-2003 and January 2004.

There were 12 European countries and 9 non-European countries that had patent applications. The total number of applications was 231 for the period reviewed.

For the purpose of analysis, financial services were divided into seven product/services sectors. These are:

1. Banking
2. Insurance
3. Loans
4. Mortgage
5. Credit
6. Securities
7. Sundry Finance Products

The comments, remarks and conclusions were based on the observed research outcomes and expressed using descriptive statistics.

Table 1 summarises the number of applications per product sector as well as the percentages of the total for each sector. See Appendix 4.

It is observed that Sundry Financial Products recorded the highest patent applications of 38% while Mortgage had 9% which is the least number of applications.

Applications for Credit products and services amounted to 31% which is fairly substantial. This was followed by Insurance (11%), Banking (9%) and Securities products (8%).

It is deducible from the result that about 80% of all applications were for Sundry Financial Products, Credit, and Insurance Products put together.

Table 2 (see Appendix 4) summarises the country by country analysis and provides the number of applications per country and per sector.

For the purpose of this analysis, only six countries are identified individually, while other countries whose applications were very low are grouped under either Other EU or Other Non-EU.

The results show the US with the largest number of applications at 72% average for all sectors combined followed by Germany with 6% and France with 4%. The UK placed fourth with only 3% of all applications filed.

All mortgage applications in the last three years in review came from the US. Similarly, the majority (over 50%) of all other sector applications were from the US.

On a single sector basis, both Credit and Securities related products/services are strongest sectors from where the UK had patent applications.

Some of the countries showed areas of strength (though still second to the US). These include France, having 20% of all Banking products applications, Japan 27% (Insurance) and 14% (Loans) of the applications, while Germany had 25% of Credit related applications.

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In terms of growth in the total number of applications by countries, the US increased its applications from 18 to 59 (2001/03), while growths for other major EU countries are as follows; Germany from 3 to 11 (2001/03), France 3 to 4 (2001/03), UK from 3 to 6 (2001/03). Growth figures for other European countries shows a decline from 8 to 7 (2001/03) despite an increase from 8 to 11 in 2001/2002. However, Japan increased its applications from 1 to 6 for the 2001/03 period.

5.2 Findings from Research Survey (Questionnaire) Analysis

Background

As part of our research, we conducted a survey of the UK financial services industry, with a view to obtain primary data on the level of patent activity in the industry.

In doing this, we administered a questionnaire, devised and issued in collaboration with Christopher O'Brien, Director of the Centre for Risk and Insurance Studies at Nottingham University Business School, comprising 11 questions to 134 financial services companies:

- 29 banks (the top 25 by assets using available data at January 2004: data from Bankscope; plus 4 smaller banks focussed on the retail market);
- 20 building societies (the top 20 by assets: data from the Building Societies Association);
- 31 long-term insurers (the top 31 by worldwide long-term insurance premium income in 2002: data from the Centre for Risk and Insurance Studies database; plus 3 smaller firms who are FSRF members)
- 30 investment firms (the top 30 firms by funds under management as at November 2003; data from the Investment Management Association)
- 22 UK general insurers (the top 20 by worldwide general insurance premium income in 2002: data from the Centre for Risk and Insurance Studies database)
- 1 reinsurer (a FSRF member)
- a credit card issuer (a FSRF member).

See Appendix 3 for the full list of respondents.

19 responses (16%) were received and analysed. This is a slight improvement on the response rate received by the OIPRC/Olswang survey. Initial findings from the questionnaire were delivered to a meeting of the Forum in March 2004 in London.

While the number of responses may be considered low, it is worthy of note that about 50% of them are big players in the industry. (See appendix 3)

The questionnaire, addressed to the Company Secretary asked: who is responsible for managing IP in your company? 35% left the question blank, although it was not clear whether that was because they did not know the individual responsible, or because none was in place. Responses included: [approximately] 5% C.E.O, 10% Head of Marketing, 10% Company Secretary, 20% legal counsel, and 15% individuals named without stating their position. This suggests it is difficult to predict who is, or should be, responsible for intellectual property management.

Of the respondents, one, a UK national bank declined more information as it already had two patent applications in the system. It was not possible to find them on the espacenet database, which means they may not yet have been published. 58% wanted to receive a copy of the results. 15%, [a building society, a health re-insurance company, and a global banking company] wanted more information on the potential for patenting financial service products.

The result of responses as analysed is as follows:

1. About 58% of our respondents could confirm that some form of innovative service or product was developed by their companies' in the last five years. Similarly, 56% are either not sure or are certain there will be no increase in their R&D budget in the next five years.

These two results confirm the low level of attention innovative developments receive in the industry, and may suggest the likely incidence of apathy towards intellectual property protection within the industry.

2. In addition to above, 46% could not provide any reasons why they have never considered applying for patents. Within the industry, about 40% believe it is unusual to file applications for financial services/products patents, while about the same proportion of respondents do not know that it is possible to patent computer-implemented based business solutions or processes.

While 75% have never considered applying for any patent a third of the respondents believe it is too expensive to file for patent applications and 15% know nothing about patent application system.

3. Three of the questions attempted to obtain from the industry if they are aware of the incursion of other countries into Europe and the impact of such foreign countries patenting computer-implemented based financial innovations in Europe. A staggering 42% believe it will not affect their operations in the next five years, and 53% are uncertain about the likelihood of any negative impact.

A rider to this is the lack of knowledge by 58% of respondents, unaware that computer-implemented based financial services/products are being patented in the US.

Another revelation is that only 10% indicated interest in filing patent applications in the US, 37% do not know if they would be interested and 53% are not interested.

4. While only 15% are aware that the US is twice as innovative as we are in the UK, 8% disagree and another 8% do not know.

38% do not know if this gap between the US and UK may negatively impinge on their business and 31% say it will not. However, 31% agree that the US-UK innovation gap is likely to negatively impact on their business in the next 5 to 10 years.

The research results described above indicate the incidence of low awareness of what is involved in the patenting process. Where there is awareness of what is involved, there are feelings that

- the patenting process is just too difficult
- an application is unlikely to succeed
- it takes too long
- it is too expensive

If financial services companies in the U.S. and other non-European countries continue to advance protection of their intellectual property, this could pose a further threat to UK companies.

**Summary of Patent Applications for Software Based Financial Services
And Business Methods and Processes in the US (under class 705):
1995-2003**

<u>Year</u>	<u>No. Applications File</u>	<u>Patents Issued</u>	<u>% Granted</u>	<u>%Growth in No. of Applications</u>
1995	330	126	38	-
1996	584	144	25	77
1997	927	206	22	59
1998	1340	420	31	45
1999	2821	585	21	110
2000	7800	899	12	276
2001	8700	433	5	11
2002	6782	493	7	(22)
2003	6000	495	8	(11)

The table above was computed using data sourced from the United States Patents and Trade Marks Office (USPTO). In the US, financial services innovations filed for patenting are categorised under class 705. However, there are sub-categories for different services/products.

Over the nine year period reviewed, there were significant increases in the number of applications despite the low levels of patents granted. Between 1995 and 2000 it grew from 330 to 7800 applications. The year on year growth rates are as stated in the last column.

What is significant is the US industry attitude to patent applications for computer-implemented based financial service and business methods and processes. Not minding the high level of rejection or rather low level of applications granted, the number of applications filed yearly were increasing and phenomenally too.

Another significant observation from the data analysed is that USPTO has been increasingly stringent in the scrutiny of applications. Also, court rulings have enabled the correct interpretation of such critical issues like definition of 'technical effect' and 'obviousness' in the assessment of patent applications. Similarly, the wider scope of search for 'prior art' has improved the examination processes by the patent office in the US.

For the various applications filed and rejected, the USPTO provided a number of reasons why such applications were rejected. A summary of such reasons are as stated below.

5.3 Summary of Reasons for Rejection of Patents by USPTO Under Computer – Implemented Business Methods Inventions

1. Lack of Novelty
2. Rationale Expressly Contained in a Reference
3. Rationale Implicitly Contained in a Reference
4. Rationale Reasoned From an Established Business Principle
5. Rationale Reasoned From Legal Precedent – Automation of Known Manual Process & Performed On the Internet
6. Rationale Reasoned From Official Notice
7. Rationale Reasoned From Differences in Stored Data
8. Rationale Reasoned From the Data Being Processed (Machine)
9. Known System (Machine with Computer Program)

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10. Rationale Reasoned from the Level of Skill in the Art

5.4 Marks and Clerk Survey 2001

To find out more about the attitudes of UK companies towards patenting intellectual property, in comparison with the financial services sub sector, we investigated the results of a survey commissioned by Marks and Clerk, a firm of patent and trade mark attorneys.

The survey was carried out on 204 companies in the UK in 2002 and comprised all sectors. It also comprised companies with varying turnover of between £5million and over £100million. All UK regions were covered.

Our secondary analysis shows trends similar to those found in our survey of financial services sector in some cases, and differ in some other cases.

It was discovered that 86% of the companies surveyed agree that IP patenting is more important than it was 10 years ago.

88% agree that patenting IP will increase in the next 10 years, 80% know patenting is available for protection of IP, though 67% have systems in place to monitor IP rights.

The survey also revealed that 90% agree that UK companies should be able to protect their business methods and computer-implemented innovations as in the US.

If the result of our initial survey of financial services industry is considered alongside this particular national, total industry survey report, then the financial services industry could not be deemed to be part of those 90% above as 42% of the financial services industry considered IP patenting as unlikely to negatively impinge on their business in future.

Intellectual property, when compared to other intangible assets, was rated low by majority of respondents. Only 76% considered intellectual property as very important or quite important, while other intangibles were rated as more important. (Workforce Skills & Training- 95%, Workforce Experience- 95%, Brand Value-85%).

Unlike the financial services industry, where only 15% are aware that the US is twice as innovative as the UK, 76% agree that UK companies are falling behind the US in filing cross border patent applications. The indicative inference here is that the financial services sector may be less favourably disposed to patents than other sectors of the economy.

According to the Marks and Clerk survey, only 20% is considering patent applications in the US and 36% in either UK or Europe. It is ironic that while 94% of all respondents agree that innovations and new ideas are very important to the success of their business, (and ranking second to Strict Financial Control - 98%), yet only 36% are seeking to protect them by patenting in the UK and Europe, and 20% in the US.

Again, a low level of engagement with the patent system is identifiable amongst UK companies generally. Although 72% agree that creativity and innovation has become more important in the last 10 years and 73% say it will grow in importance in the next 10 years, only 34% have a specific process in place to protect their innovations, and 20% of them have budget provisions.

5.5 KPMG Survey 'Intellectual Gold' 2002

In 2002, KPMG constituted a multi-disciplinary group to conduct a European-wide survey 'into the attitudes and approaches of major corporations towards intellectual property'. The survey was carried out by Nelson Sofres and it comprised telephone interviews of officers responsible for intellectual property in over 300 European countries, and covering all sectors of the economy.

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The report of this pan-European survey is herein represented.

1. Companies consider brand, and know-how to be the most important intellectual asset, or intangible asset (35% of respondents). Protection of intellectual property was sixth in the ranking (13%), while patents ranked least with 10%.
2. 58% have created or plan to create a documented IP strategy.
3. Though most of the Boards of Directors take some role in IP management (72%), only one in three participate in setting IP strategy, 46% of the companies do not report IP related matters to the Board.
4. Only 24% of the companies have the position of IP Director.
5. Majority of the companies (56%) do not seek to commercialise their IP, though they agree that commercialisation could yield additional revenue. It is estimated that up to Euros 6.6 million is lost by neglecting to commercialise.
6. Majority of those companies that have licence out their patented IP are expecting increases in licence revenue income.
7. 71% do not have IP performance indicators.

The survey identified the prevailing IP strategy for most European companies as 'protective rather than value creation'. Most companies (58%) were discovered to be cost centred in their approach to IP strategy by merely protecting their cost-effectiveness, which is a reactive strategy.

Another 40% of the companies are seeking to limit competitive activity, thereby using IP as a defensive mechanism.

A few minority are known to have taken their IP strategy further by taking it into the realm of value creation, by establishing income stream from third party licensing, and or taking up the tax opportunities therein (through tax credits, capital tax treatment and transfer pricing).

This survey further identified the level of value creation by US companies through patenting. It concluded that at the beginning of the 1990s, US companies generated about USD 10 Billion about USD100 Billion (2002) from worldwide patent licensing.

Section 6 Conclusions

Companies world wide are applying for patents for computer-implemented business method inventions relating to financial service sector business activities. Applicants include financial service sector companies, related technology companies, and companies whose core business is remote from financial services.

The European Patent Office does not, and is unlikely to, grant patents for business methods innovations. It is one of several reasons, including lack of awareness, for extremely low patent activity in the UK financial service sector. It does not, however, appear to deter non-European companies from including Europe in their patent strategies. Where a software program implements a business method invention, it may be possible with careful drafting, to achieve a patent so long as the software makes a technical contribution, creating a technical effect. A very small number of UK financial service companies are aware of this fact, and are choosing the patent route to protect appropriate innovative products.

A significant proportion of UK financial service sector players have never considered applying for a patent. They were unable to provide a reason why not, and were unaware that computer-implemented business method inventions were being patented in the United States. They were unaware of the strategic use to which patent applications and granted patents can be put.

There are occasional voices from the financial serve sector seeking, Cassandra like, to alert their sector colleagues to the significance of patents. Enhanced awareness would enable companies to make informed decisions whether or not to take the patent route to protecting their innovations.

Appendix 1

Computer-Implemented Patent historic timeline

	EPO Financial Services computer implemented applications	US Financial Services Class 705 computer implemented applications	Significant Patent decisions	Legislation	Research and Publications
1985					
1986					
1987			Vicom EPO granted		
1988					
1989					
1990					
1991					
1992					
1993					
1994					
1995		330	Sohei EPO granted		
1996		584	Fujitsu UKPO granted		
1997		927			
1998		1340	State Street Bank US: business method patent upheld		
1999		2821	IBM EPO granted		
2000		7800	Pension Benefits EPO refused	EC Consultation: Patentability of Computer Implemented inventions	Beresford, K: Patenting computer software under the EPC
				UK Patent Office consultation	OIPRC & Olswang: The First Mover Monopoly: patenting business methods in Europe
2001	36	8700		UK Patent Office consultation	Marks and Clerk survey
2002	91	6782		European Commission Directive proposed	KPMG survey
2003	93	6000	Amazon 1-click EPO granted	European Parliament refers Directive 09.03	
2004	9 [Jan 2004]			European Parliament to vote again Autumn 04	FSRF/CIPPM survey

Appendix 2

Glossary of Terms and Definitions

These definitions are from the Patent Office website⁸⁰ or as acknowledged.

Business Method

There is no accepted definition but widely understood to mean a business model or method used e.g. in activity in an accountancy, banking or insurance business including monetary transactions, financial schemes or accounting practices. The terms also covers recreational non-business methods and techniques, but generally means any method or technique not inherently technical which may or may not be implemented in software (Frain 2004)

The traditional view in Europe is that patents protect technical inventions, and "business", being non-technical, therefore should be excluded from patentability. However, with the rise of e-commerce, it has become more difficult to define the boundary between "technical" and "non-technical". This in turn has led to an increase in the number of computer-implemented patents and business method patents in Europe (Ius Mentis)⁸¹

Computer-implemented invention

An inventive solution to a problem that is implemented by computer program. The European Patent Office defines it: computer-implemented invention covers claims which specify computers, computer networks or other conventional programmable digital apparatus whereby prima facie the novel features of the claimed invention are realised by means of a new program or programs. Such claims may take the form of a method of operating said conventional apparatus, the apparatus set up to execute the method (loaded with the program) or the program itself. Insofar as the scheme for examination is concerned, no distinctions are made on the basis of the overall purpose of the invention, i.e. whether it is intended to fill a business niche, or to provide some new entertainment etc.⁸² [see **Technical Contribution, Technical Effect** defined below]

Copyright

It is important to know that there is no official register for copyright in most countries of the world. It is an **unregistered right** (unlike patents, registered designs or trade marks). So, **there is no official action to take**, (no application to make, forms to fill in or fees to pay). Copyright comes into effect immediately, as soon as something that can be protected is created and "fixed" in some way, eg on paper, on film, via sound recording, as an electronic record on the internet, etc.

It is a good idea for you to mark your copyright work with the copyright symbol © followed by your name and the date, to warn others against copying it, but it is not legally necessary in the UK. The type of works that copyright protects include original literary works, e.g. novels, instruction manuals, computer programs, lyrics for songs, articles in newspapers, some types of databases,

Claims

A precise statement in English of the invention that the applicant wishes to protect. A main claim will define the invention in its broadest form, by including its essential technical features. Further "dependant" claims can then relate to additional features of the invention.

European Patent Convention

European Patent Convention Article 52

defines patentable inventions as

- (1) .. inventions which are susceptible of industrial application, which are new and which involve an inventive step

⁸⁰ <http://www.patent.gov.uk/patent/glossary/index.htm>

⁸¹ Ius Mentis <http://www.iusmentis.com/patents/businessmethods/epc/> (visited 8.4.04)

⁸² <http://www.european-patent-office.org/tws/appendix6.pdf> (visited 8.4.04)

- (2) The following in particular shall not be regarded as inventions within the meaning of paragraph 1
 - (c) schemes, rules and methods for ... doing business and programs for computers
- (3) the provisions of para 2 shall exclude patentability of subject-matter or activities referred to in that provision only to the extent to which a European patent application or a European patent relates to such subject matter or activities as such.

If methods for doing business and computer programs as such are unpatentable, is there a way of defining as such so as to include commercially valuable innovations that would appear, on the face of it to be excluded.

Financial Services

We interpreted 'financial services' as business activity that includes one or more of the following terms: financial, banking, credit card, mortgage, loan, insurance, credit or securities

Injunction

A court order prohibiting a person from doing something or requiring a person to do something (verb: to injunct).

Intellectual Property

The general term for intangible property rights which are a result of intellectual effort. Patents, trademarks, designs and copyright are the main intellectual property rights.

Inventive step

If a patent for an invention is to be granted, the invention must contain an inventive step. This means that the invention must not be an obvious development of what has gone before, when considered by someone who is skilled in the area of technology to which the invention relates.

Licence

The means by which the owner of a patent gives permission to another person to carry out an action which, without such permission, would infringe the patent. Thus a licence can allow another person to legitimately manufacture, use or sell an invention protected by a patent. In return, the patent owner will usually receive royalty payments.

Patent

A patent is an intellectual property right relating to inventions - that is, to advances made in a technical field. A patent for an invention is granted by the government to the applicant, and gives him the right for a limited period to stop others from making, using or selling the invention without permission. In return for this right, the applicant must disclose how his invention works in sufficient detail. When a patent is granted, the applicant becomes the owner of the patent. Like any other form of property, a patent can be bought, sold, licensed or mortgaged. Patents are territorial rights, so a UK patent will only give the owner rights within the United Kingdom and rights to stop others from importing products into the United Kingdom.

Technical Contribution, Technical Effect

For inventions to be patentable they must be technical. Beresford (2000) quotes the relevant European Patent Convention Articles 83 and 84 EPC, and Rules 27 and 29 of the

Implementing Regulations:

the claims must define the matter for which protection is sought in such *terms of the technical features* of the invention; and

the description must support the claims and disclose the invention *in such terms that the technical problem and its solution* can be understood; in other words there must be a *technical effect*

in his chapter 'Technical features and technical effects in software'⁸³

⁸³ Beresford, K (2000) Patenting Software under the European Patent Convention, chapter 2.

The **draft EC Directive on the Patentability of Computer Related Inventions** contains the following:

Article 4 - Conditions for patentability

Article 4(2)

"Member States shall ensure that it is a condition of involving an inventive step that a computer-implemented invention must make a technical contribution."

Article 4(3)

"The [technical contribution] inventive step shall be assessed by consideration of the difference between the scope of the patent claim considered as a whole, elements of which may comprise both technical and non-technical features, and the state of the art."

Technical implementation must go beyond merely using a known computer in a straightforward manner to implement the method. Technical contribution will result from technical considerations which are essential to the claimed invention. This concept is applicable to other kinds of methods, including business methods.

TRIPS

Trade Related Aspects of Intellectual Property Matters. (Part of GATT - General Agreement on Tariffs and Trade).

Article.27 Subject to the provisions of paragraphs 2 and 3, patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application. Subject to paragraph 4 of Article 65, paragraph 8 of Article 70 and paragraph 3 of this Article, patents shall be available and patent rights enjoyable without discrimination as to the place of invention, field of technology, and whether products are imported or locally produced.

2. Members may exclude from patentability inventions, the prevention within their territory of commercial exploitation of which is necessary to protect ordre public or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law.

The Patents Act 1977 [United Kingdom]

1.- (1) A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say -

- (a) the invention is new;
- (b) it involves an inventive step;
- (c) it is capable of industrial application;
- (d) the grant of a patent for it is not excluded by subsections (2) and (3) below;

and references in this Act to a patentable invention shall be construed accordingly.

(2) It is hereby declared that the following (among other things) are not inventions for the purposes of this Act, that is to say, anything which consists of -

- (a) a discovery, scientific theory or mathematical method;
- (b) a literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever;
- (c) a scheme, rule or method for performing a mental act, playing a game or doing business, or a program for a computer;
- (d) the presentation of information;

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but the foregoing provision shall prevent anything from being treated as an invention for the purposes of this Act only to the extent that a patent or application for a patent relates to that thing as such.

United States Patent and Trademark Office⁸⁴

Class 705 DATA PROCESSING: FINANCIAL, BUSINESS PRACTICE, MANAGEMENT, OR COST/PRICE DETERMINATION

Class Definition:

This is the generic class for apparatus and corresponding methods for performing data processing operations, in which there is a significant change in the data or for performing calculation operations wherein the apparatus or method is uniquely designed for or utilized in the practice, administration, or management of an enterprise, or in the processing of financial data.

This class also provides for apparatus and corresponding methods for performing data processing or calculating operations in which a charge for goods or services is determined.

SCOPE OF THE CLASS

1. The arrangements in this class are generally used for problems relating to administration of an organization, commodities or financial transactions.
2. Mere designation of an arrangement as a "business machine" or a document as a "business form" or "business chart" without any particular business function will not cause classification in this class or its subclasses.
3. For classification herein, there must be significant claim recitation of the data processing system or calculating computer and only nominal claim recitation of any external art environment. Significantly claimed apparatus external to this class, claimed in combination with apparatus under the class definition, which perform data processing or calculation operations are classified in the class appropriate to the external device unless specifically excluded there from.
4. Nominally claimed apparatus external to this class in combination with apparatus under the class definition is classified in this class unless provided for in the appropriate external class.
5. In view of the nature of the subject matter included herein, consideration of the classification schedule for the diverse art or environment is necessary for proper search.

WIPO

The World Intellectual Property Organization is an international organization dedicated to promoting the use and protection of works of the human spirit. These works, intellectual property, are expanding the bounds of science and technology and enriching the world of the arts. Through its work, WIPO plays an important role in enhancing the quality and enjoyment of life, as well as creating real wealth for nations.

With headquarters in Geneva, Switzerland, WIPO is one of the 16 specialized agencies of the United Nations system of organizations. It administers 23 international treaties dealing with different aspects of intellectual property protection and counts 179 nations as member states

⁸⁴ <http://www.uspto.gov>

Appendix 3

Survey Questionnaire List of Respondents (01/03/04)

1. Hiscox Plc.
2. Norwich & Peterborough
3. Coventry Building Society
4. Cheshire Building Society
5. Schroders Plc.
6. Bristol- West Plc.
7. Stroud & Swindon Building Society
8. Lincoln Financial Group
9. Mellon Europe // Mellon Bank N.A
10. Munich Reinsurance
11. Scottish Equitable
12. Egg Plc.
13. Alliance & Leicester
14. Bradford & Bingley Plc.
15. West Bromwich Building Society
16. Portman Building Society
17. Lehman Brothers
18. UNUM Limited
19. Britannia Building Society

Appendix 4

Summary of computer implemented financial services Applications in europe (2001-2004)*

Table 1: **SUMMARY OF APPLICATIONS BY SECTOR**

Year	Financial	Banking	Insurance	Loan	Mortgage	Credit	Securities	Total
2001	9	5	5	0	0	17	0	36
2002	45	6	4	4	2	23	9	91
2003	31	9	17	2	0	27	7	93
2004	2	0	0	1	0	4	2	9
Total	87	20	26	7	2	71	18	231

Table 2:
SUMMARY OF EPO PATENT APPLICATIONS (Contd.)

<u>COUNTRY % of TOTAL APPLICATION PER FINANCIAL SERVICES SECTOR (2001- 2004)</u>							
Country	Financial	Banking	Insurance	Loan	Mortgage	Credit	Securities
USA	70	60	54	86	100	52	83
UK	7	5	0	0	0	6	6
Germany	5	5	4	0	0	25	6
France	2	20	4	0	0	4	0
Other EU	13	10	12	0	0	13	6
Japan	3	0	27	14	0	0	0

*Source: Espacenet, January 2004 only.

Appendix 5

Non UK worldwide applications by FS proprietor

UK worldwide applications by FS proprietor

Appendix 6

Selection of patent applications for computer implemented finance related inventions, by non-financial service sector companies:

EP1376500

Applicants: Fujitsu Ltd [with Sumitomo Mitsui Bank Corpn], Japan

Financial process device

EP1170688

Applicant: Nippon Electric Co, Japan

Loan examination method and loan examination system

EP1261928

Applicant: General Electric, United States

System and method for valuing loan portfolios using fuzzy clustering

EP1254410

Applicant: Nokia Corp, Finland

System and Method for collecting financial transaction data

EP1178416

Applicant: Kabushiki Kaisha Toshiba, Japan

System for evaluating price risk of financial product or its financial derivative, dealing system and recorded medium

EP1338993

Applicant: Sony Corporation, Japan

A personal account management device and method for financial transaction

WO02/102133

Applicant Exxonmobil Research and Engineering Company, United States

System and method for processing financial transactions

WO00/42556

Applicant: Volvo Commercial Finance LLC, The Americas

Method and system for real-time contracts, administration, and financial control to process electronic credit applications and insurance services via a global communications network

WO00/49551

Applicant: Mobil Oil Co, United States

System and Method for processing financial transactions

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