Harmonising the Patentable Subject Matter in Computerimplemented Inventions: Why do the UK and the EU Approaches Superior to the US?

INTRODUCTION

For decades, as a consequence of increasing number of patent applications in the area of computerimplemented inventions, IP practitioners, courts, patent offices across the world have been confused with the challenge of assessing “patentable subject matter”. Varying interpretations and diverging case law for computer-implemented inventions have led to different applications of claims in each jurisdiction.

In the late 1990s, the United States of America (USA) expanded the scope of patent law to include business methods. Unlike patent law in the European Union (EU) and the United Kingdom (UK), US patent law does not expressly exclude those claims from the scope of patentable subject matter. Therefore, US authorities and courts have struggled with determining the quality of granted patents.

The article begins with US patent system and gives a background to the judicial reshaping of the patentability of computer-implemented inventions by examining significant US Supreme Court cases from past to present. It then describes the background of the EU patent system by examining the judicial influences for the patent-eligibility of computer-implemented inventions in both the European Patent Office ("EPO") and the EPO Enlarged Board of Appeal ("EBoA"). It also compares and contrasts practices relating to patentability of computer-implemented inventions and analyses the approaches of both the EPO and the United States Patent and Trademark Office ("USPTO"), which together play a crucial role in development of patent policies. The historical development of patent jurisprudence both in the US and the EU will be explained in sum.

Additionally, this article examines the framework of patentable subject matter in the UK comparing and contrasting with the framework set out in US Supreme Court’s decision Alice, which has taken a similar analytical path to the UK. And this analysis demonstrates the conditions under which business method and software patent law harmonization can become a reality considering European jurisprudence. As a consequence, it is suggested that reconsidering the interpretation of Alice by adopting the UK approach, which is more concrete and beneficial in developing an analytic framework, would reduce inconsistencies.

The last part offers harmonisation recommendations considering that extending software patent coverage significantly increases welfare losses without any social gain.

Finally, considering the historical development of efforts regarding harmonisation, full harmonisation is not possible for patentable subject matter. Apart from the fact that there will be always chaos on
patentability of computer-implemented inventions because of the loud voice of open source groups against patents, the harmonisation of patent law is needed in order to be able to transform the disorienting chaos into a subtle chaos.

PATENTABILITY OF COMPUTER-IMPLEMENTED INVENTIONS AND BUSINESS METHODS

1. USA

The US is the leading country in the world for patents with its long history. It is also one of the leading countries on patentability of computer-implemented inventions because of the software industry has remarkable place in the US. But at the same time, the US is one of the countries where computer-based inventions are most heavily involved in discussions on patentability.

In the US, the statute provides that a patent may be issued for "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof"3 Since the article is very broad, the duty of shaping the law in evolving times has been performed by jurisprudence.

1.1. CASES

This part briefly reviews the US business method and software patent law in light of the significant case decisions.

In the 1970’s, the US case law showed that computer-implemented inventions were considered as a patent-ineligible subject matter because they were recognized as mathematical algorithms. Gottschalk4 in 1972 and Flook5 in 1978 decisions are examples of this consideration.

In 1980’s, the first positive decision of the US Supreme Court on computer-implemented invention had given in the Diehr6 , provided that the claims did not pre-empt the algorithm. However, the early 1990’s case law showed that the computer-implemented inventions were generally considered to be ineligible subject matter for patent protection. But in late 1990’s, the Federal Circuit in In re Alappat7 recognized for the first time that computer-implemented inventions could constitute patent eligible subject matter and the during the following decade, thousands of business method and software patents were issued.

The Federal Circuit declared patentability of computer-implemented business method in its ruling in the State Street Bank8. In this decision, it was emphasized that computer-implemented invention has been patent-eligible provided that it produces a "useful, concrete and tangible" result. After State Street Bank and the following AT&T9 cases, software and business methods have been patentable.10

In 2008, Federal Circuit articulated machine or transformation test as a sole test to determine
patenteligibility of the processes, In re Bilski. However, in 2010, the U.S Supreme Court held that machine or transformation test is the “clue” and not the sole test for determining patent eligibility of the claim in its seminal decision in Bilski.11 Beside that the Supreme Court did not resurrect the test of the Federal Circuit’s State Street Bank decision.12

When Federal Circuit’s post-Bilski jurisprudence is analysed it could be seen that machine and transformation test was implemented on some cases and some other cases were based on other previous decisions rather than Bilski. For this reason, there was no clear and fixed method to determine whether the post-Bilski claims were patent eligible subject matter.13 However, it is clear that Bilski decision constrain patentability of business method and software by stating that generic computer implementation is not enough to get patent protection, unlike Alappat.  

In its 2014 decision in Alice14, The Supreme Court clarified its precedent on the abstract ideas exception to patentable subject matter and changed the standard by applying two-step test from in line with Mayo15 decision. According to this two-step test, first the court should evaluate if the claims are “directed to an abstract idea,” and if they are, the court should analyse if the claims include an additional “inventive concept” which is needed to transform an abstract idea into a patent-eligible invention. In other words, there is a requirement for “improvement” and adding “something significantly more”. The US Supreme court held that implication of generic computers does not make a method patent-eligible.16

It seems that computer-implemented invention become more difficult to patent after advent of Alice; courts have created restrictive rules on patentable subject matter and applied this test to all kind of computer-implemented inventions without any exception. 17

However, in 2016, patent eligibility of computer-implemented inventions was revitalized by Federal Circuit with its decisions like Enfish LLC v. Microsoft18, McRO v. Bandai Namco Games America19, Amdocs v. Openet Telecom20, Bascom v AT&T21. Bascom was only the third time the appeals court has declared software patents valid under section 101 since the Supreme Court’s Alice decision in June 2014 and articulated that ”an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces”22

As a consequence, the current state of patent-eligibility of computer-implemented inventions in the US still under the effect of Alice case. In sum, currently the Federal Circuit avoids articulating bright-line tests and make slightly varying decisions according to specific facts of cases. 23

Time will show us whether the US courts will follow the Alice’s path or harmonize past decisions or approaches of other jurisdictions and create a new path. This will be the subject of research by IP practitioners, courts and academics for year to come.

2. EUROPE

The patentability of computer-implemented inventions in EU is highly controversial issue because of computer programs are expressly excluded from patentability by Article 52(2) of the European Patent Convention (“EPC”).24 However, Article 52(3)25 interpreted that only abstract creations excluded from
patent-eligible subject matter and legislator did not exclude all computer programs from patentability. The approach that has been used to determine whether an application is excluded on the basis that is consists of ‘a method doing business’ under Article 52(c) is much the same as that which has been used with the ‘computer programs’ under the same article.

In 2002, The European Commission adopted ‘A Proposal for a Directive of the European Parliament and of the Council on the patentability of computer-implemented inventions’ (Proposal) with purpose of seeking harmonisation for patentability of computer-implemented inventions among the Member States. ‘One of the important objectives of the directive is to achieve the right balance between making patents available where appropriate in order to reward and encourage innovation, while avoiding stifling competition and open source development.’26 In July 2005, the proposal rejected. As a consequence of this rejection, different interpretation on patentable subject matter will continue across national courts exist in EU.

2.1. CASES

When the decisions of EPO and the EBoA of the EPO are examined chronologically; it could be seen in Vicom27 that mathematical method may be patentable if it is directed to a technical process and it is stated in Koch & Stezel28 that if claim makes use of both technical and non-technical, the use of nontechnical does not change the technical character of the invention. In 1997 in its ComputerProgramProducts/IBM29 case EPO EBoA made it clear computer-implemented inventions are not excluded from patent-eligible subject matter, regardless of whether they are claimed by itself or on a carrier.

Until 2000, three approaches adopted in determining patentability of computer-implemented inventions. Firstly, in Vicom “technical contribution” approach applied; secondly in Koch&Sterzel it is stated that the invention must be treated as a whole and lastly “further technical effect” approach applied in IBM.

In the beginning of 2000’s, the EPO abandoned technical contribution requirement regarding patentable subject matter analysis with Pension Benefit30 EPO have started to apply “any hardware approach” instead of “technical contribution approach”.

According to EPO’s Pension Benefit, Hitachi31, and Microsoft32 decisions, “a computer-implemented innovations and business methods pass the Article 52 test as long as it is attached to “any hardware.” However, these inventions also will be subject to “inventive step” test.

In 2006, the England and Wales Court of Appeal departed from EPO’s “any hardware approach” in Aerotel33, thus the fragmentation between the UK and EPO which began with Pension Benefits is affirmed. Thus, it could be analysed that the case law prior to Pension Benefit still relevant in the UK. “Any hardware approach” differs from the UK approach in regard to the way invention is analysed and the way technical character is determined. The UK rejects the confer on non-technical activity when determining technical character unlike the EPO approach.34
This part will examine how US can benefit from the UK and the EU in order to ensure international harmonization.

Although the US courts have made different decisions in post-Alice as mentioned above, Supreme Court’s ruling in Alice case on patentability of computer-implemented inventions is in the parallel path with the UK and the EU. Patent practitioners in the UK and the EU may realize the similar framework set forth in US Supreme Court’s Alice.

As stated in Benson earlier, computer program itself is excluded from patentable subject matter. As it is known, computer-implemented inventions work by software or programming. And Alice states that “an invention implemented by software involves an abstract idea”. Thus, computer-implemented invention in the event that computer is generic, first part of the Alice test is done namely software identifies the “abstract idea”.

As a second and last part of this test, court should search for an “inventive concept”. This part of the test pretty similar to European and particularly the UK approach regarding patentability requirements. For this reason, the UK’s patent jurisprudence could be useful, instructive and informative in this regard.

While the EU approach provides patent-ineligible items in a direct and explicit way, the US approach defines patent-eligible subject matter and then provides exceptions.

England and Wales Court of Appeal declared four-step test for determination of patent-eligibility in Aerotel. When the steps in Aerotel examined, it could be directly noticed that framework applied in the UK pretty similar with US Supreme Court’s ruling in Alice.

The two-steps test of the Alice approach is same as the last two steps of Aerotel approach. The third step of Aerotel asks whether claims are abstract and then, if they are, the fourth step requires to determine “whether the contribution is actually technical in nature”.

As mentioned above, the Alice requires “something significantly more” in the second step. This step is echoed in Aerotel and HTC Europe. Based on these cases “significantly more” must be interpreted with direct connection to “inventive concept” which should be identified for subject matter eligibility. In other words, such improvements should be sufficient to serve “inventive concept”.

Lord Justice Jacob stated in Aerotel: “[I]t is an exercise in judgment probably involving the problem said to be solved, how the invention works, what its advantages are. What has the inventor really added to human knowledge perhaps best sums up the exercise. The formulation involves looking at substance not form.” The statement fits very well into the discussion provided in Alice and it would be instructive particularly at this point.

The similarity in both steps and objectives of the older Aerotel to the Alice constitutes a basis to see the UK rulings as advanced authority. Thus, it reduces different national interpretations on patentability.

Although countries in EU may have different interpretations and applications on the law regarding patent-
eligibility of computer-implemented inventions, in the great scheme of things it could be said that they are in agreement with each other. Considering the extensive case law in the UK, which has been used since 2006, will be benefit to the U.S. law. Also considering the parallel approach would ensure interoperability of laws across the Atlantic. Increasing interoperability of laws would reduce the conflict between different laws regarding patentable subject matter of computer-implemented inventions.

As a consequence, the ‘something more’ of Alice is fairly similar to UK or European patent practitioner because the confusion of the ‘technical requirement’ and ‘inventive step’ has been in these jurisdictions for a long time. Harmonising the patentable subject matter internationally which would help reducing conflict between different laws and spurring innovation, seems possible with Alice.

CONCLUSION

Ironically, the current status of computer-implemented invention patents in general remains in a state of uncertainty within the US and the EU. As discussed above both the EPO and the US court decisions reduce clarity regarding patentable subject-matter in their recent rulings.

Although the US courts have been made slightly varying rulings related to patent-eligibility of computer implemented inventions in post-Alice, the US Supreme Court’s ruling in Alice stands parallel with the UK and the EU. Thousands of patent applications before the USPTO were invalidated by virtue of Alice and the patenting of large number of computer-implemented inventions have been subjected to this elimination. However, invalidating or eliminating patents is not a desirable result. Efforts should be focused on a better system and higher standards to ensure that novel patents are being granted. It seems that the US is improving the quality of granting patents regarding computer-implemented inventions compared to the past.

The US looks like it is coming closer to the UK with its ‘something more’ approach which needs legal clarity and the UK’s patent jurisprudence could be useful, instructive and informative in this regard. The EU and the UK are unlikely to adopt the US’s broad patentable subject matter approach. However, the UK and the EU may have encouraged to harmonize policy.

There are several reform recommendations regarding this matter. Firstly, in a current highly politicized area, the incremental nature of computer-implemented innovation combined with the absence of guidance in determining patentable subject matter, gives patent holders the power to harm others. Beside that, the potential harm arising from recognition of business method and non-innovative software patents causes the loss of significant social welfare.

As it is seen, legal clarity is needed at first. It is highly important to determine the qualities of claims which help stimulate innovation. Unclear standards have negative effects on industry and upon the parties. Because of the ambiguous state of patentable subject matter causes unnecessary lawsuits. The US should prevent overly broad patent recognition.

Although it could be arguable from the perspective of fully harmonization because of the unique aspects of computer industry including networking effects and incremental nature of software, certain and clear
policies are needed to promote the efficiency of patent law. As discussed in the section on Alice above, adopting best practices developed in other jurisdictions would reduce the conflict between different laws. The suggestion for patent law would be to develop sui generis protections as a new category of law in order to keep face with rapidly developing technology.

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